

## Installation Procedures

The mainboard has several user-adjustable jumpers/switches on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various hardware settings on your mainboard.

To set up your computer, you should follow these installation steps:

- [Step 1 - Set system jumpers/switches](#)
- [Step 2 - Install memory modules](#)
- [Step 3 - Install the CPU](#)
- [Step 4 - Install expansion cards](#)
- [Step 5 - Connect devices](#)
- [Step 6 - Set up BIOS feature](#)
- [Step 7 - Set up software utilities](#)



**CAUTION:** If you use an electric drill to install this Mainboard on your chassis, please wear a static wrist strap. The recommended electric drill torque is from 5.0 to 8.0 kg/cm to avoid damaging the chips' pins.

## Quick Reference

**Intel Celeron**

**66/75/83/100/112/133 MHz Front Side Bus Support**

**VIA Apollo Pro Plus**

**SDRAM DIMM (66/100 MHz)**

**Onboard ATI Pro Turbo AGP Support  
(Rage XL Optional)**

**Yamaha 740C**


**PCI/ISA Slot**


**ACPI Ready Support**

**Micro ATX Form Factor**


### 1. CPU Frequency Select, Clear CMOS, Clear Password

CPU Speed		SW1-1	SW1-2	SW1-3	SW1-4
100MHz	66MHz				
350MHz	233MHz	ON	ON	OFF	OFF
400MHz	266MHz	ON	OFF	ON	ON
450MHz	300MHz	ON	OFF	ON	OFF
500MHz	333MHz	ON	OFF	OFF	ON
550MHz	366MHz	ON	OFF	OFF	OFF
600MHz	400MHz	OFF	ON	ON	ON

  
Enable (Clear CMOS)

  
Disable (Default)

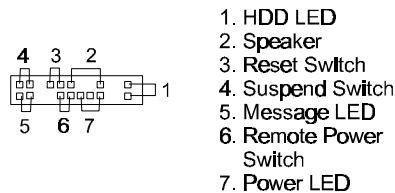
  
Enable (Clear Password)

  
Disable (Default)

**2. CPU Fan Installation** This connector is linked to the CPU fan. When the system is in suspend mode, the CPU fan will turn off; when it reverts back to full on mode, the fan will turn back on. Without sufficient air circulation, the Pentium II CPU cartridge may overheat and cause damage to both the CPU cartridge and the mainboard.

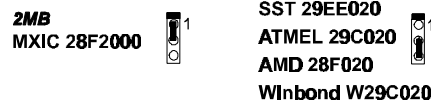
*Damage may occur to the mainboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.*

### 3. Front Panel Block Cable Connection



### 4. Other Enable/Disabled Jumpers/Switches

#### 4.1 EP (Flash ROM Type Select)



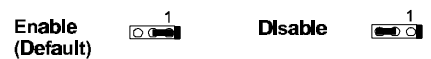
#### 4.2 AUD\_DIS (Onboard Audio Feature)

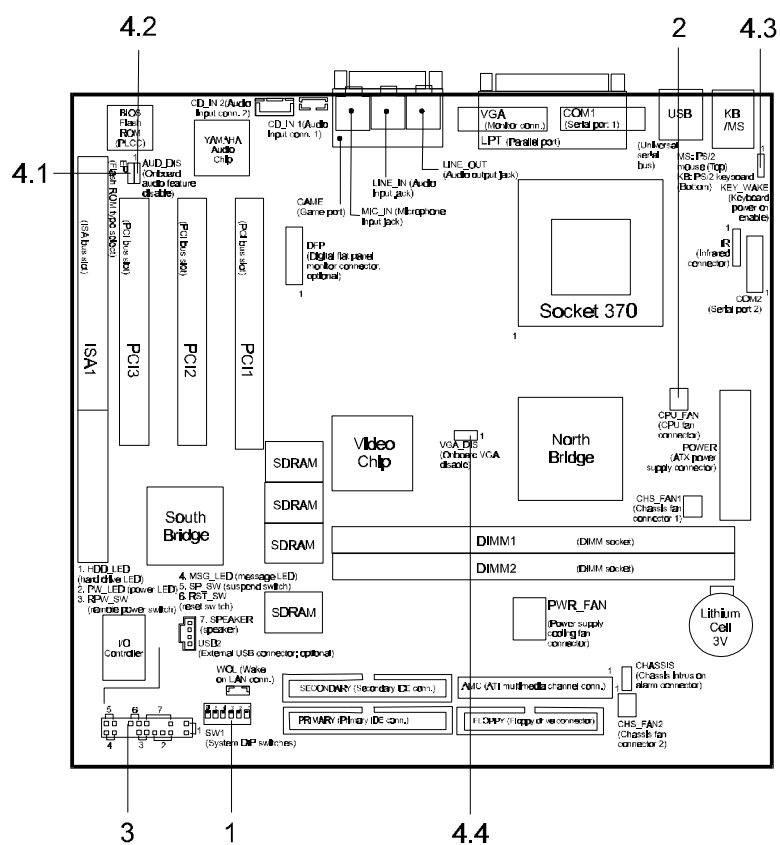


#### 4.3 KEY\_WAKE (Keyboard Wake-Up)



#### 4.4 VGA\_DIS (Onboard VGA Disable)





## 5. Load BIOS Setup Default

### Load BIOS Defaults

BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance. The OEM manufacturer may change the defaults through MODBIN before the binary image burns into the ROM.

### Load Setup Defaults

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

## 6. How to Upgrade BIOS

1. Format a bootable system floppy diskette by typing the command **format a:/s** in command mode.
2. Visit the the web site of the vendor and visit the BIOS Update page in the related Technical Support section.
3. Select the BIOS file you need and download it to your bootable floppy diskette.
4. Insert the bootable diskette containing the BIOS file into the floppy diskette drive.
5. Assuming that the floppy diskette drive is A, reboot the system by using the A:
  1. Format a bootable system floppy diskette by typing the command **format a:/s** in command mode.
  2. Visit the the web site of the vendor and visit the BIOS Update page in the related Technical Support section.
  3. Select the BIOS file you need and download it to your bootable floppy diskette.
  4. Insert the bootable diskette containing the BIOS file into the floppy diskette drive. Assuming that the floppy diskette drive is A, reboot the system by using the A: drive. At the A: > prompt, run the BIOS upgraded file by executing the Flash BIOS utility and the BIOS file with its appropriate extension.

***Do not turn off or reset the computer during the flash process or if there is a problem.***

## CP31-AG Mainboard Manual

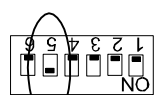
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Onboard Mark	FUNCTION	PAGE
SW1-5	Clear CMOS Data	13
SW1-6	Clear Password	13
KEY_WAKE	Keyboard Wake-up Select	14
E P	Flash ROM Type Select	14
VGA_DIS	Onboard VGA Features Select	15
AUD_DIS	Onboard Audio Features Select	15
DIMM1/2	DIMM Memory Module Socket	16
SW-1/2/3/4	CPU to Bus Freq. Ratio Select	19
ISA	ISA Bus Expansion Slot (16-bit)	20
PCI1/2/3	PCI Bus Expansion Slot (32-bit)	20
KB/MS	PS/2 Keyboard/Mouse Connector	22
LPT	Printer Connector	23
USB0/1/2	Universal Serial Bus Connector	23
COM1/2	Serial Port	24
VGA	Video Graphics Accelerator	24
GAME	Joystick/MIDI Connector	25
I R	Infrared Port Module Connector	25
L_IN	Audio Line-In Jack	25
L_OUT	Audio Line-Out Jack	25
MIC_IN	Audio Microphone Jack	25
CHS_FAN1/2	System Case Fan Connector	26
CPU_FAN	CPU Fan Connector	26
CHASSIS	Chassis Intrusion Alarm Conn.	27
WOL	Wake-On-LAN Connector	27
PWR_FAN	Power Supply Fan Connector	27
FDD	Floppy Disk Drive Connector	28
POWER	ATX Power Connector	28
CD_IN1/2	CD Drive Audio-out Connector	29
PRIMARY/ SECONDARY	IDE HDD Device Connector	29
AMC	ATI Multimedia Channel Connector	30
Front Panel Block Connector	Connectors to Front Panel	30
<b>DFP Digital Flat Panel</b>		<b>32</b>

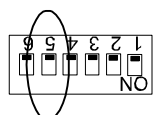
## 1). Set System Jumpers/Switches

### *Clear CMOS: SW1-5*

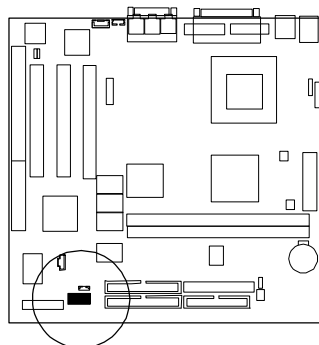
The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer, (2) Move the CMOS Clear switch SW1-5 to "On" (Enabled), (3) Turn on your computer, (4) Hold down the <Delete> key during bootup and enter BIOS Setup to re-enter user preferences, (5) Turn off your computer, (6) Move the CMOS Clear switch SW1-5 to "Off" (Disabled), (7) Turn on your computer.



Enable  
(Clear CMOS)

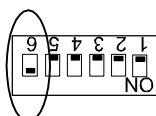


Disable (Default)

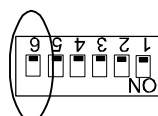


### *Clear Password: SW1-6*

This switch allows you to enable or disable the password configuration. You may need to enable this switch by moving it to the "On" (Enabled) position if you forget your password. To clear the password setting: (1) Turn off your computer, (2) Move the Clear Password switch SW1-6 to "On" (Enabled), (3) Turn on your computer, (4) Hold down the <Delete> key during bootup and enter BIOS Setup to re-enter user preferences, (5) Turn off your computer, (6) Move the Clear Password switch SW1-6 to "Off" (Disabled), (7) Turn on your computer for the new settings to take effect.



Enable  
(Clear Password)



Disable (Default)

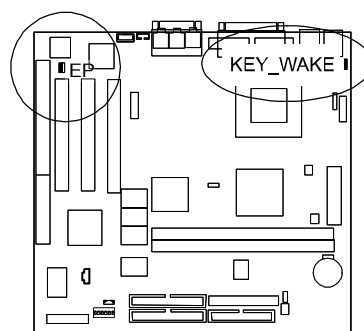
### ***Flash ROM Type Selection: EP***

The jumper allows you to configure the type of flash ROM chip. This jumper setting is correct by manufactory default. If you want to know the flash ROM type installed on this board, remove the sticker from the chip to see its type.

**2MB  
MXIC 28F2000**



**SST 29EE020  
ATMEL 29C020  
AMD 28F020**



### ***Keyboard Wake-up Selection: KEY\_WAKE***

The 3-pin jumper allows you to use your keyboard to power-on or wake-up your system.



**NOTE:** For the mainboard to use the Keyboard Wake-up + Wake-on-LAN function, the ATX power supply used should have a current of 1AMP at 5V Stand-By. To use the Keyboard Wake-up function only without using the Wake-on-LAN function, the ATX power supply used should have a current of 400milliAmpere at 5V Stand-By.



**Enable**

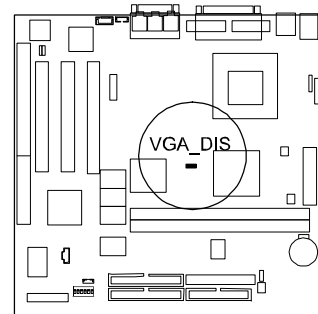
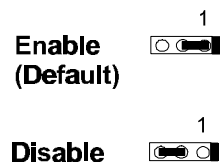


**Disable  
(Default)**



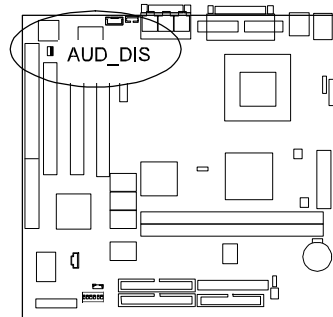
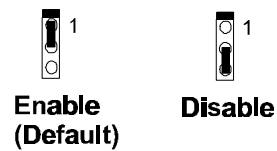
***Onboard VGA Feature Selection: VGA\_DIS***

This 3-pin jumper allows you use another add-on PCI VGA card instead of the onboard AGP VGA feature.



***Onboard Audio Feature Selection: AUD\_DIS***

This 3-pin jumper allows you to use another add-on PCI sound card instead of the onboard audio feature.



## 2). Install RAM Modules

### SDRAM Memory

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance. Occasionally the system must break apart data files because the entire file does not fit into the RAM area. Consequently, when the system needs data that is not in RAM, it must access the disk where the balance of the data is stored.

Compared to the lightning speed access of the system has to RAM, accessing a mechanical disk drive is a slow process. The board RAM is comprised of three industry standard 168-pin Dual In-line Memory Modules (DIMMs). Each DIMM socket is able to support up to 256MB 3.3V (unbuffered) with data access time of 12ns, 10ns, 8ns or less EDO DRAM or lightning-fast SDRAM. ECC memory and parity check are also supported. If the DIMM runs at the speed of 100MHz, it must meet the PC100 specifications. Use the same memory size of DIMM on each socket for better performance. The maximum total memory supported is up to 512MB (a RAM module of this size was not available for testing).

PC100 DIMMs may have a serial EEPROM containing a number of critical timing parameters and data regarding the chip and DIMM vendor. This guarantees that the onboard core chipset will properly recognize the DIMM by reading all of the important timing parameters specified in the EEPROM on the serial presence detect interface. The DIMM supplier must understand these differences in detail and provide the correct information so that the core chipset will be programmed properly to control memory. Before making SDRAM upgrades, you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual, will have unpredictable results.

## Installation Procedures

<i>Socket</i>	<i>Acceptable Memory Module</i>		<i>Total Memory</i>
1	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	x1	
2	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	x1	

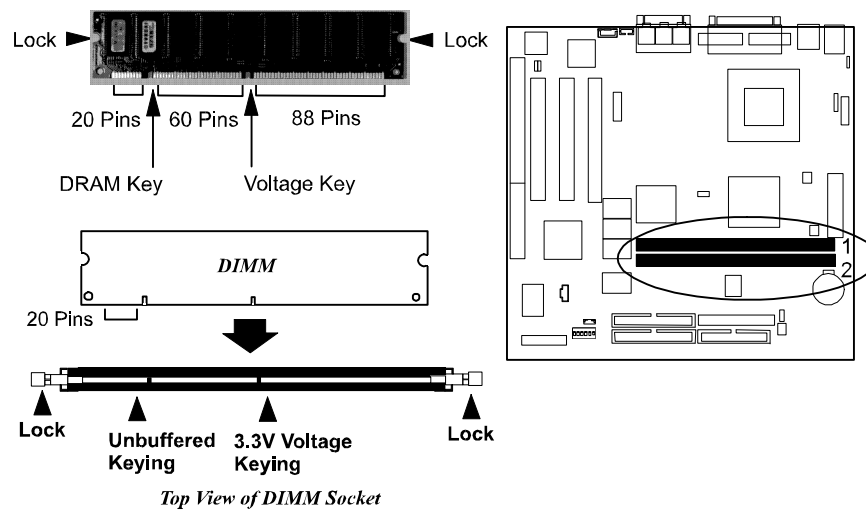
*Total System Memory allowed up to 512MB* =

### Install and Remove DIMMs

This mainboard supports 100MHz SDRAM DIMMs; when the system frequency set to 100MHz, PC100-compliant SDRAM should be used.

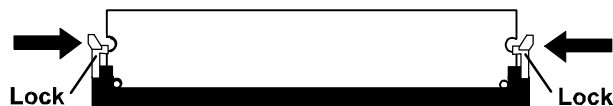
Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the mainboard.



2. Install the DIMM straight down into the DIMM slot with both hands.

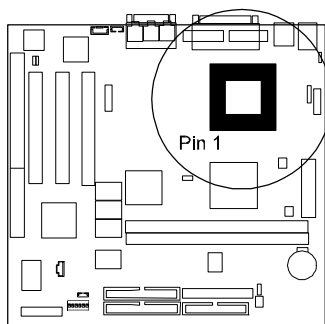
3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot bottom.



Press the clips with both hands to remove the DIMM.

### 3). Install the CPU

The CPU module resides in the ZIF PGA370 socket on the motherboard.



**CAUTION:**

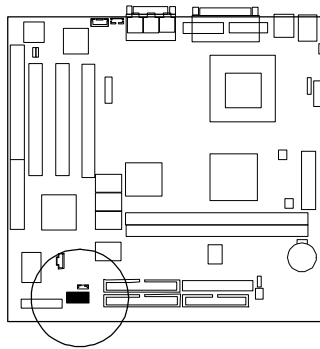
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.
3. Inserting the chip incorrectly may damage the chip.

To install the CPU, do the following:

1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. The chip has a notch to correctly locate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. See the following sections for information on the CPU jumpers settings.

### ***CPU Internal Frequency Selection: SW1-1/ -2/-3/-4***

These four switches are used to decide the internal frequency of the CPU.

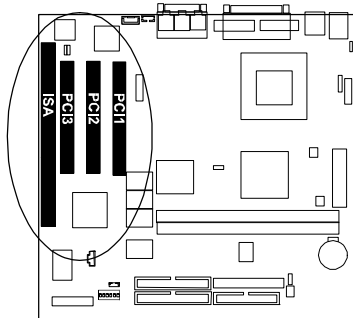


Ratio	CPU Speed		SW1-1	SW1-2	SW1-3	SW1-4
	100MHz	66MHz				
3.5 x	350MHz	233MHz	ON	ON	OFF	OFF
4.0 x	400MHz	266MHz	ON	OFF	ON	ON
4.5 x	450MHz	300MHz	ON	OFF	ON	OFF
5.0 x	500MHz	333MHz	ON	OFF	OFF	ON
5.5 x	550MHz	366MHz	ON	OFF	OFF	OFF
6.0 x	600MHz	400MHz	OFF	ON	ON	ON
6.5 x	650MHz	433MHz	OFF	ON	ON	OFF
7.0 x	700MHz	466MHz	OFF	OFF	ON	ON
7.5 x	750MHz	500MHz	OFF	OFF	ON	OFF

## 4). Install Expansion Cards

This section describes how to connect an expansion card to one of your system's expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system.

For example, expansion cards can provide video and sound capabilities. This mainboard features [one 16-bit ISA bus](#), and [three 32-bit PCI bus](#) expansion slots. (PCI3 is shared with ISA1.)

**CAUTION:**

1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.
3. Inserting the chip incorrectly may damage the chip.

To install an expansion card, do the following:

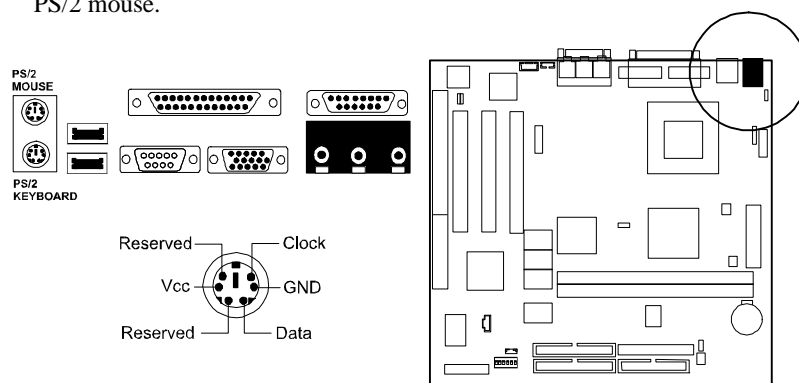
1. Remove the computer chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the computer chassis. Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the computer chassis. Keep the slot cover mounting screw nearby.
3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot.

4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this rocking motion until the add n card is firmly seated inside the expansion slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.
6. Replace the computer system cover.
7. Setup the BIOS if necessary.
8. Install the necessary software drivers for the expansion card.

## 5). Connect Cables and Power Supply

### *PS/2 Keyboard and Mouse Connector: KB and MS*

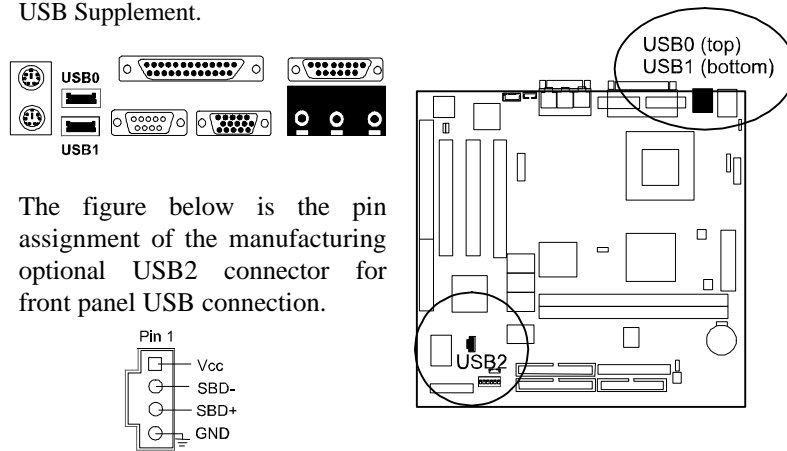
These two 6-pin female connectors are used for your PS/2 keyboard and PS/2 mouse.



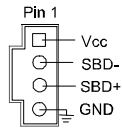


### ***Universal Serial Bus Connectors: USB0, USB1, USB2***

These two connectors that integrated on the edge of the board are used for linking with USB peripheral devices. Also, this board provides an manufacturing optional connector USB2 for linking with the USB socket on the front panel of some system cases. If this connector is onboard and is used, the USB0 connector is disabled. Your operating system must support USB features, such as MS Windows 98, MS Windows 95 OSR2.5 with USB Supplement.

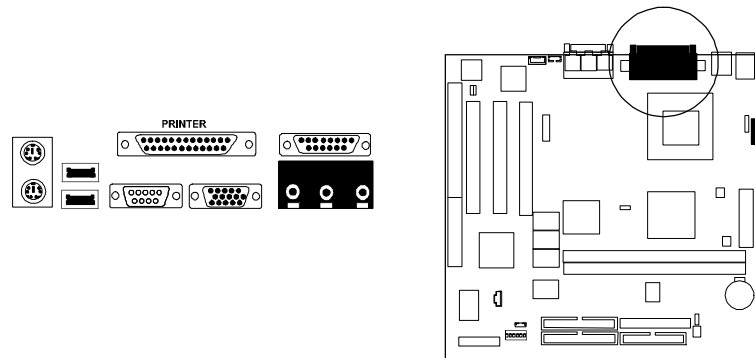


The figure below is the pin assignment of the manufacturing optional USB2 connector for front panel USB connection.



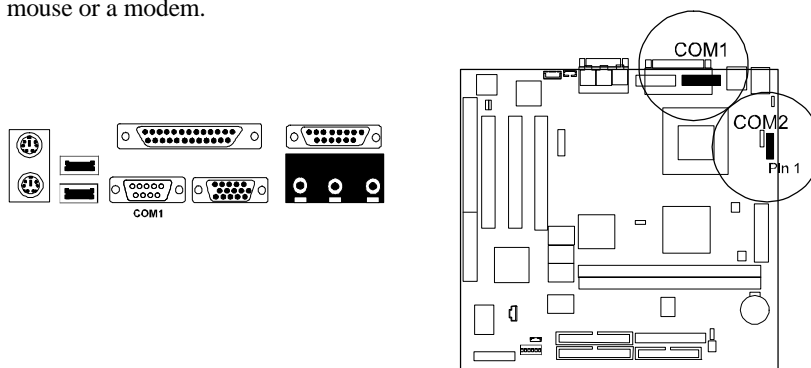
### ***Printer Connector: LPT***

This 25-pin D-Sub female connector is attached to your printer.



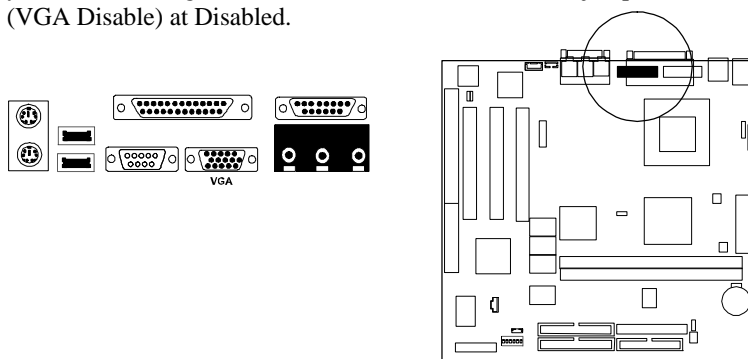
### ***Serial Port Connectors: COM1, COM2***

COM1 (9-pin D-sub male connector) and COM2 (9-pin male connector) allow you to connect with your devices that use serial ports, such as a serial mouse or a modem.



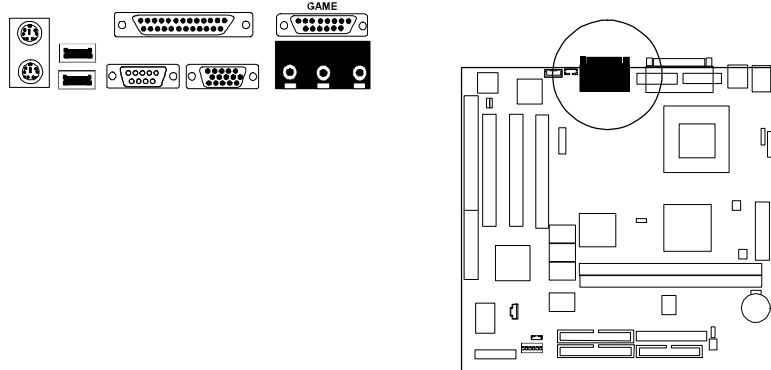
### ***Video Graphics Accelerator Connector: VGA***

This 15-pin female D-sub connector is connected to your display monitor. If you are not using the onboard VGA feature, set the jumper VGA\_DIS (VGA Disable) at Disabled.



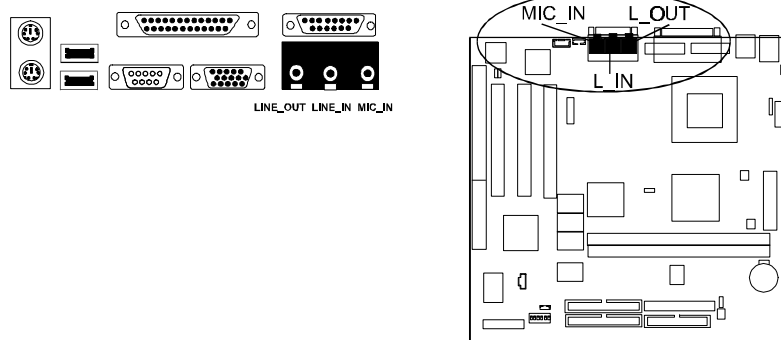
***Joystick/MIDI Connector: GAME***

This 15-pin female connector allows you to connect game joysticks or game pads for playing games. Connect MIDI devices for playing or editing audio.



***Audio I/O Jacks: L\_IN, L\_OUT, MIC\_IN***

L\_OUT can be connected to headphones or preferably powered speakers. L\_IN allows tape players or other audio sources to be recorded by your computer or played through the L\_OUT. MIC\_IN allows microphones to be connected for input voice.



### ***CPU Fan Connector: CPU\_FAN***

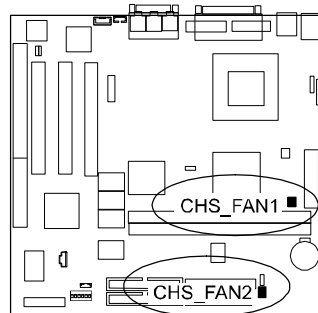
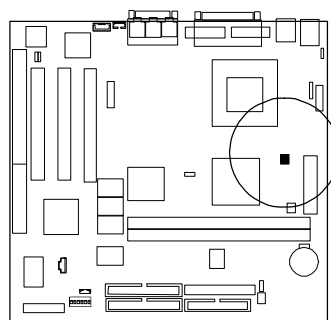
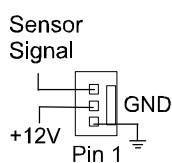
This connector is linked to the CPU fan for cooling the processor temperature. When the system enters the suspend mode, the CPU fan will shut off.



**CAUTION:** Without sufficient air circulation, the CPU cartridge may overheat and cause damage to both the CPU cartridge and the mainboard. Damage may occur to the mainboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

### ***System Case Fan Connectors: CHS\_FAN1, CHS\_FAN2***

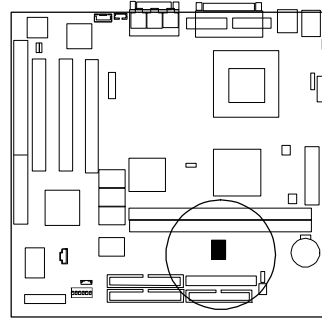
These two 3-pin connector links to your cooling fan on the system case to lower the system temperature. Depending on the fan manufacturer, the wiring and plug may be different. Connect the fan plug to the mainboard taking into consideration the polarity of the connector.



***Power Fan Connector: PWR\_FAN***

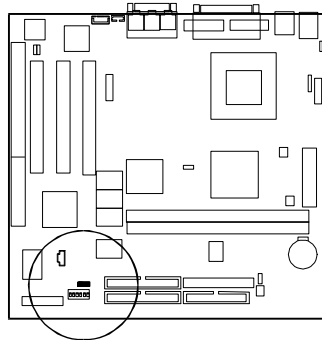
This connector is connected with your power supply that supported a 6-wire plug to lower the power supply temperature. The signal which comes from the hardware monitor chip lowers the temperature of the power supply.

4	1	SENSE
5	2	+12V
6	3	Vcc3



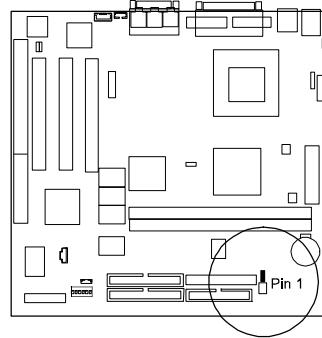
***Wake-On-LAN Connector: WOL***

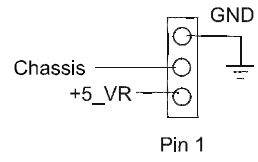
This 3-pin connector allows remote LAN servers to manage the system that installed this board via a network adapter which also supports WOL. When you install a adapter with WOL connector, please read the network adapter card installation guide for details.



***System Chassis Intrusion Alarm Connector: CHASSIS***

The 3-pin male connector allows you to enable (or disable) system alarm activation if and when the system outer casing is being removed. A high level signal to the connector will indicate to the system that the chassis has been opened.

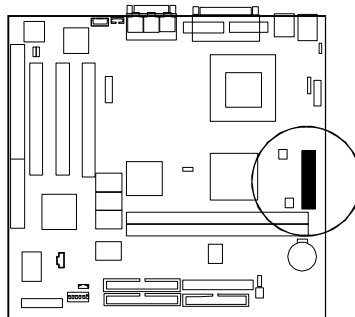




### ATX Power Connector: **POWER**

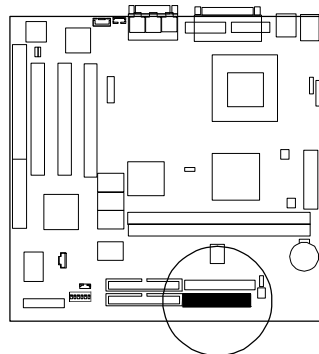
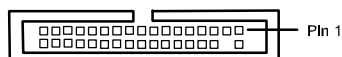
This connector is connected to the ATX power supply.

+3.3V	11	1	+3.3V
-12V	12	2	+3.3V
GND	13	3	GND
-PWR_ON	14	4	+5V
GND	15	5	GND
GND	16	6	+5V
GND	17	7	GND
-5V	18	8	PWR_GOOD
+5V	19	9	5V_VR
+5V	20	10	+12V



### Floppy Diskette Drive Connector: **FLOPPY**

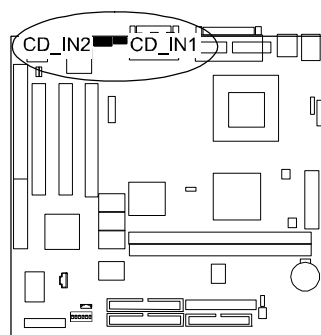
This 34 pin block connector connects to your floppy disk drive using the cable that is provided with this mainboard. After connecting the single end to the mainboard, connect the two plugs on the other end to the floppy drives.



**NOTE:** Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The four corners of the connectors are labeled on the mainboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives. IDE ribbon cable must be less than 18in. (46cm), with the second drive connector no more than 6in. (15cm) from the first connector.

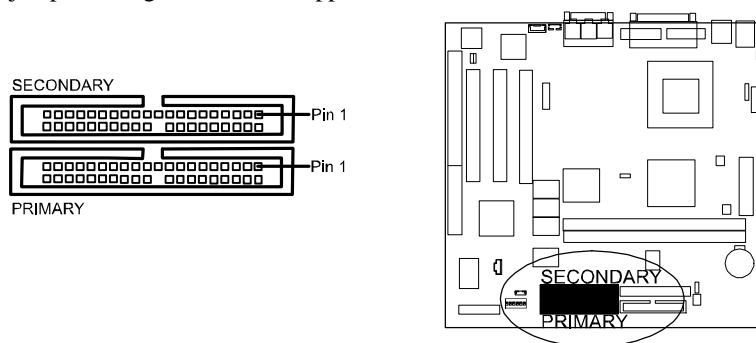
***CD-ROM Drive Audio-out Connector: CD\_IN1, CD\_IN2***

These two 4-pin block connector are used for different specifications about the AUDIO\_OUT port of your CD-ROM drive by a cable which comes with it.



***IDE HDD Device Connectors: PRIMARY, SECONDARY***

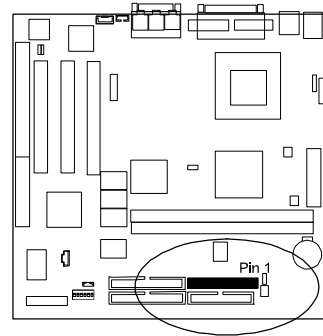
These two connectors, which supports the provided IDE hard disk ribbon cable, are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives. After connecting the single end to the mainboard, connect the two plugs at the other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Refer to the documentation of your hard disk for the jumper settings. BIOS now supports SCSI device or IDE CD-ROM bootup.





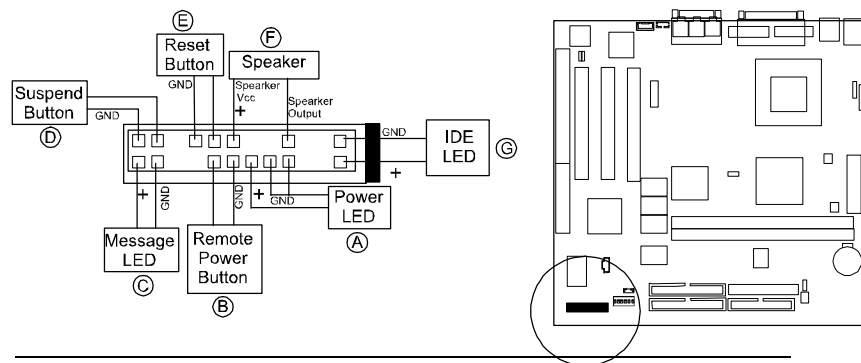
### ***ATI Multimedia Channel Connector: AMC***

This bi-directional video port allows direct connection to popular video upgrades such as video capture/conferencing, hardware DVD or MPEG-2 decoder, or TV tuner with intercast support. It includes an I<sup>2</sup>C interface for controlling AMC peripherals. If an ATI add-on card allowing an AMC interface such as ImpacTV2 is installed, this connector provides user with the linkage between the mainboard and the card. Refer to the card manual for more details.



### ***Front Panel Block Connector***

This block connector concludes the connectors for linking with IDE LED, power LED, remote power button, message LED, suspend button, reset button and speaker on the front panel of the system case. Please identify polarities of plug wires for the case speaker and LEDs. Please ask vendor about this information when you buy them and install the system by yourself. The plug wires' polarities of this buttons will not affect the function.



**Power LED (A)** is connected with the system power indicator to indicate whether the system is on/off. When the system enter the suspend mode, it blinks.

**Remote Power Button (B)** is connected with remote power (soft power) switch. Push this switch will turn off and on the system instead of turning the power switch on the power supply.

**Message LED (C)** is connected with the message LED. When the system is running normally, the indicator is off. It is controlled by the operating system or application software.

**Suspend Button (D)** is connected with suspend mode switch.

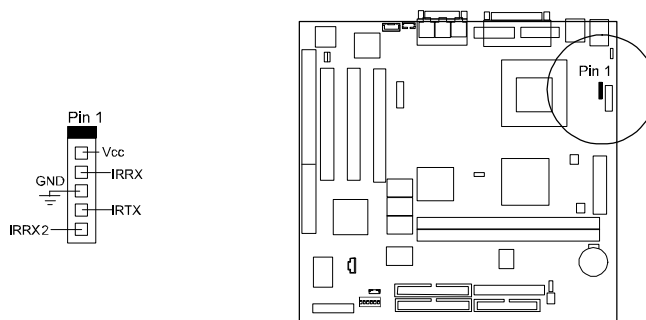
**Reset Button (E)** is connected to the reset switch. Push this switch to reboot the system instead of turning power switch off and on.

**Speaker (F)** is connected with the case speaker.

**IDE LED (G)** is connected IDE device indicator. This LED will blink when the hard disk drives are activated.

### ***Infrared Connector: IR***

This 5-pin connector is used to link with your IR device to allow transmission of data to another system that also supports the IR feature. This module mounts to a small opening on system cases that supports this feature.



***Digital Front Panel Connector: DFP (optional)***

This optional connector linked with the digital flat panel display device.

