

Installation

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:

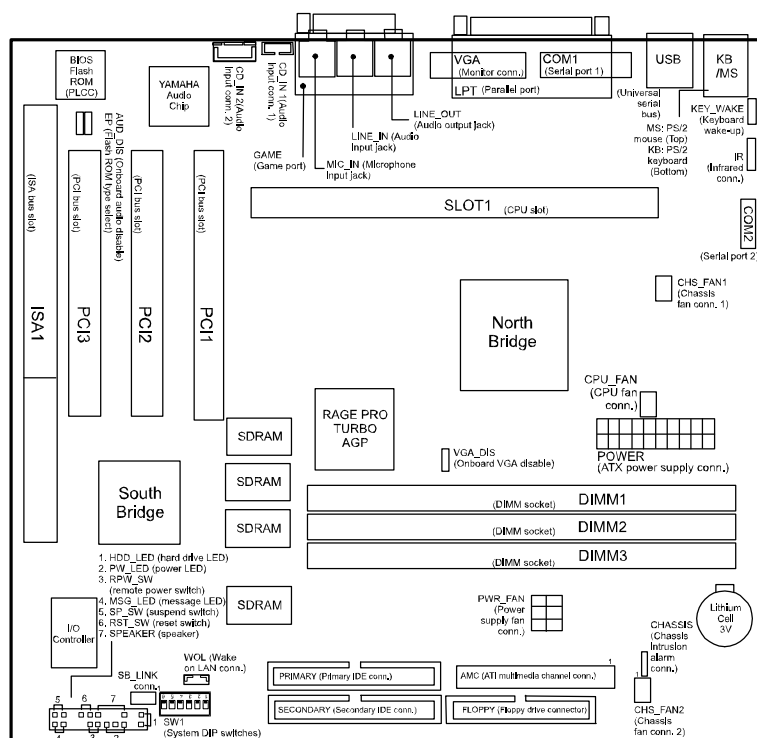
- [Step 1 - Set system jumpers/switches](#)
- [Step 2 - Install memory modules](#)
- [Step 3 - Install the CPU](#)
- [Step 4 - Install expansion cards](#)
- [Step 5 - Connect devices](#)
- [Step 6 - Set up BIOS feature](#)
- [Step 7 - Set up software utilities](#)



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.

Mainboard Layout

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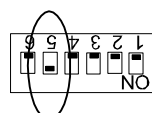


Onboard Mark	FUNCTION	PAGE
SW1-5	Clear CMOS Data	10
SW1-6	Clear Password	10
EP	Flash ROM Type Select	11
KEY_WAKE	Keyboard Wake-up Select	11
VGA_DIS	Onboard VGA Features Select	12
AUD_DIS	Onboard Audio Features Select	12
SW-1/2/3/4	CPU to Bus Freq. Ratio Select	20
DIMM1/2/3	DIMM Memory Module Socket	14
ISA	ISA Bus Expansion Slot (16-bit)	22
PCI1/2/3	PCI Bus Expansion Slot (32-bit)	22
SLOT1	CPU Cartridge Slot	18
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KB/MS	PS/2 Keyboard/Mouse Connector	25
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FLOPPY	Floppy Disk Drive Connector	26
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PWR_FAN	Power Supply Fan Connector	28
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WOL	Wake-On-LAN Connector	29
Front Panel Block Connector	Connectors to Front Panel	29
USB0/1/2	Universal Serial Bus Connector	31
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IR	Infrared Port Module Connector	32
CD_IN1/2	CD Drive Audio-out Connector	32
DFP	Digital Flat Panel Connector (optional)	32
GAME	Joystick/MIDI Connector	33
L_IN/L_OUT	Audio Line-In Jack/Audio Line-Out Jack	33
MIC_IN	Audio Microphone Jack	33
VGA	Video Graphics Accelerator	34
AMC	ATI Multimedia Channel Connector	34

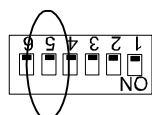
1). Set System Jumpers/Switches

Clear CMOS: SW1-5

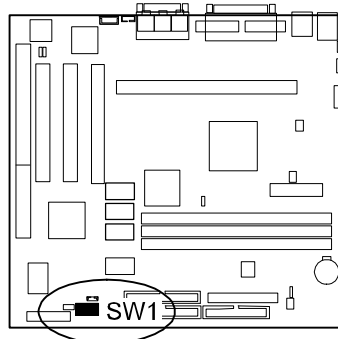
The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer, (2) Move the CMOS Clear switch SW1-5 to "On" (Enabled), (3) Turn on your computer, (4) Hold down the <Delete> key during bootup and enter BIOS Setup to re-enter user preferences, (5) Turn off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



Enable
(Clear CMOS)

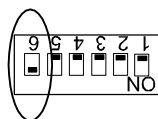


Disable (Default)

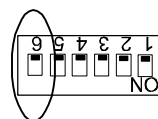


Clear Password: SW1-6

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)

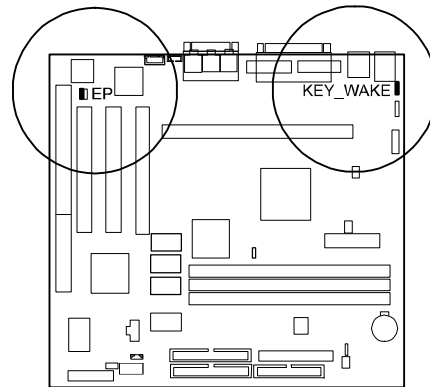
Flash ROM Type Selection: EP

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.



Enable



Disable
(Default)

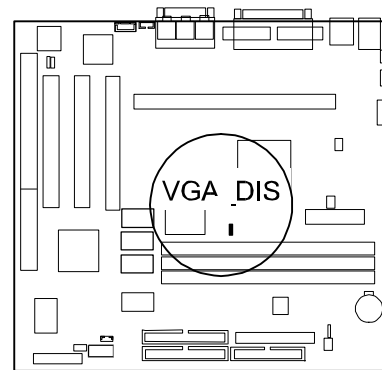
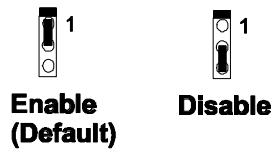


NOTE: For the mainboard to use the Keyboard Wake-up + Wake-on-LAN function, the ATX power supply used should have a current of 1AMP at 5V Stand-By. To use the Keyboard Wake-up function only without using the Wake-on-LAN function, the ATX power supply used should have a current of 400milliAmpere at 5V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

Onboard VGA Feature Selection: VGA_DIS

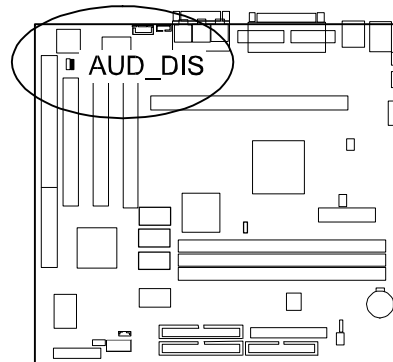
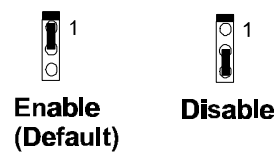
This 3-pin jumper allows you use another add-on PCI VGA card instead of the onboard AGP VGA feature.

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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 768MB* (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.

<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	
3	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	x1	

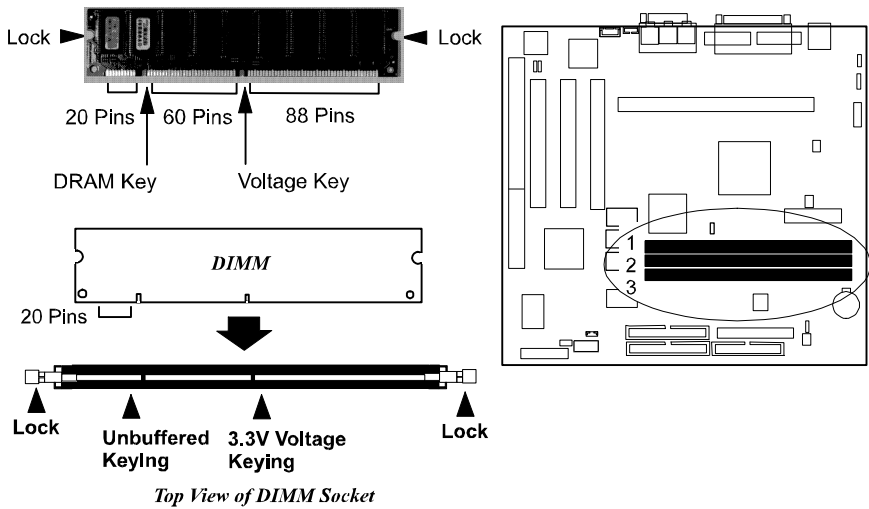
Total System Memory allowed up to 768MB =

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

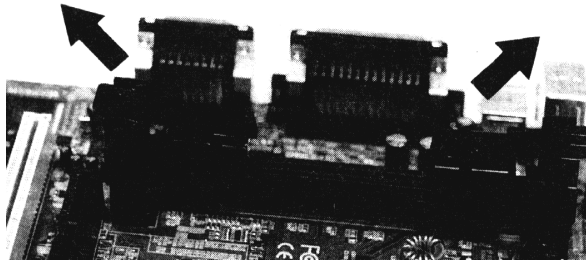
Two options of Retention Mechanism Assembly are offered for installing your CPU on this board. One is installed on the board by the manufacturer. The assemblies are foldable for saving space when shipping and packing.

The other option is the non-foldable Retention Mechanism Assembly (two pieces) and two Retention Mechanism Attachment Mount (two pieces) that are packed in a plastic bag with the board. You need to mount them before installing the CPU module.

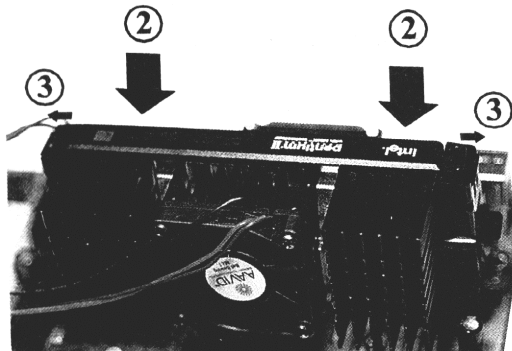
This section introduces you on how to install these devices.

1). Install with Foldable Retention Mechanism Assembly

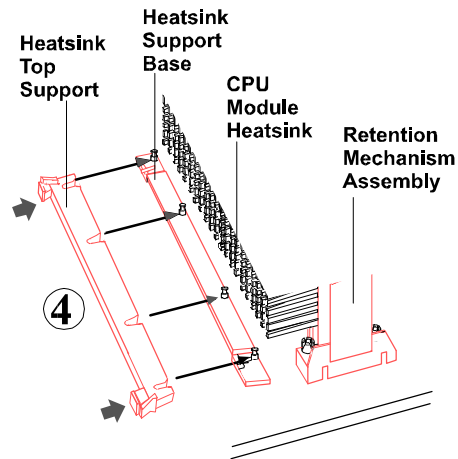
1. Pull out two sets of the Retention Mechanism Assembly upward to the right position.



2. Insert the CPU module onto the SLOT1 along the Retention Mechanism Assembly.

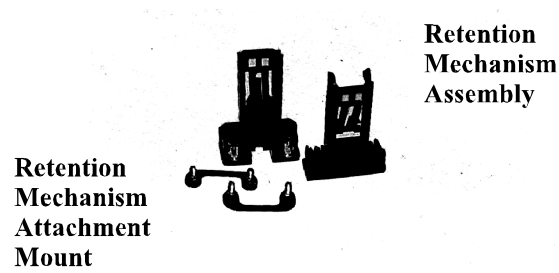


3. Pull the buttons outwards until click to the right positions.
4. Hook the Heatsink Top Support to the Heatsink Support Base to affix the CPU module.

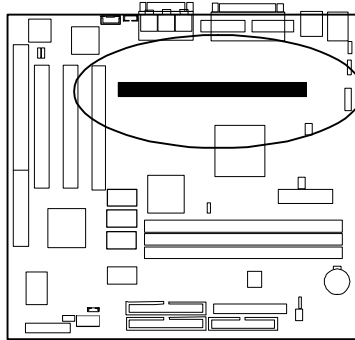


II). Install with Non-Foldable Retention Mechanism Assembly

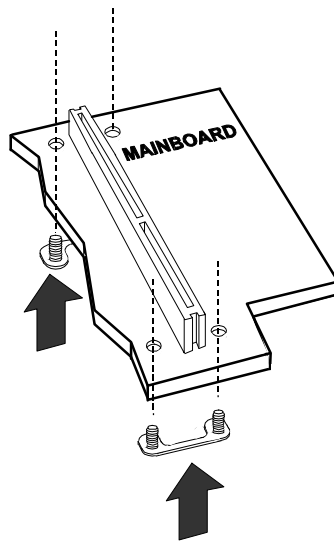
1. Unpack the plastic bag. Take out the Retention Mechanism Assembly (two pieces) and Retention Mechanism Attachment Mount (two pieces).



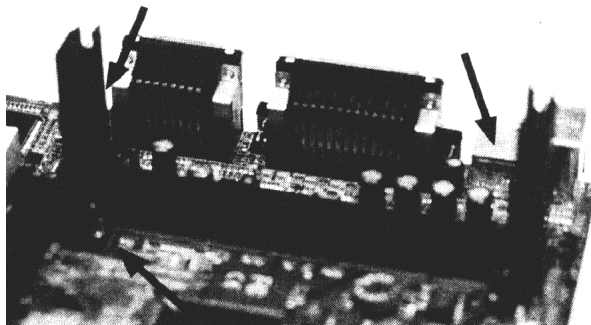
2. Locate SLOT1 on the Mainboard.



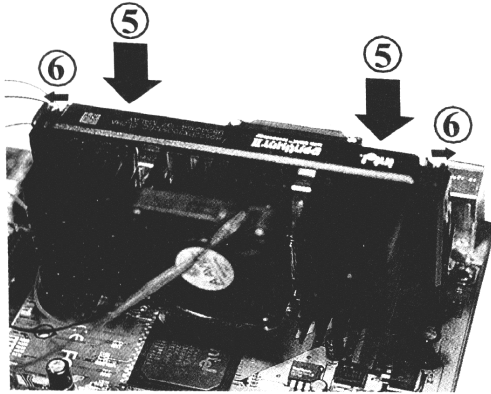
3. Install two Retention Mechanism Attachment Mounts on the board.



4. Place the Retention Mechanism Assembly on the board, on top of the Retention Mechanism Attachment Mounts. Affix the Retention Mechanism Assembly with four screws. (As the arrows point.)

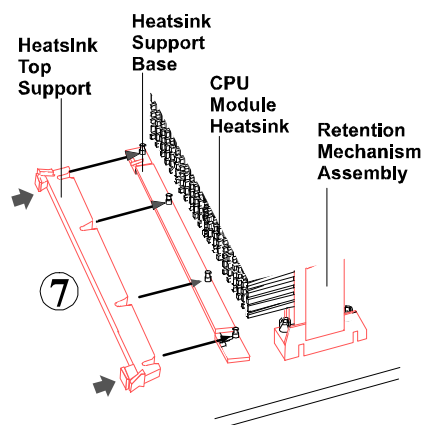


5. Insert the CPU module onto the SLOT1 along the Retention Mechanism Assembly.



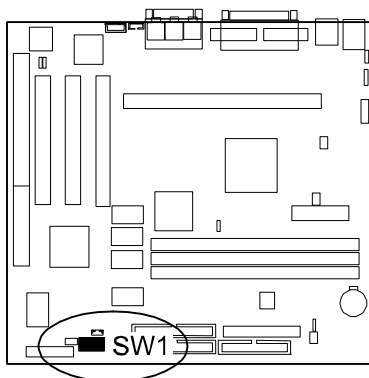
6. Pull the buttons outwards until click to the right positions.

7. Hook the Heatsink Top Support to the Heatsink Support Base to affix the CPU module.



CPU Internal Frequency Selection: SW1-1, SW1-2, SW1-3, SW1-4

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

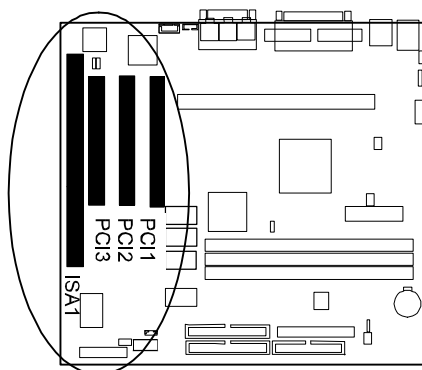


Ratio	CPU Speed		SW1-1	SW1-2	SW1-3	SW1-4
	100MHz	66MHz				
3.5 x	350MHz	233MHz	ON	ON	OFF	OFF
4.0 x	400MHz	266MHz	ON	OFF	ON	ON
4.5 x	450MHz	300MHz	ON	OFF	ON	OFF
5.0 x	500MHz	333MHz	ON	OFF	OFF	ON
5.5 x	550MHz	366MHz	ON	OFF	OFF	OFF
6.0 x	600MHz	400MHz	OFF	ON	ON	ON
6.5 x	650MHz	433MHz	OFF	ON	ON	OFF
7.0 x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



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 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 Devices

Connectors



NOTE: Some pins are used for connectors or power sources. These are clearly separated from jumpers. Placing jumper caps over these will cause damage to the mainboard.

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 board. 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.

Connectors allow the board to link electronically with other parts of the system. Some malfunctions encountered may be caused by loosed or improper connections. Ensure that all connections are in place and firmly attached.

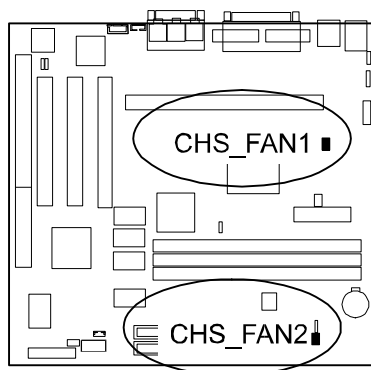
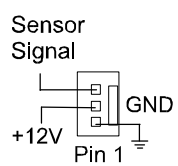
System Case Fan Connector: CHS_FAN1, CHS_FAN2

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.



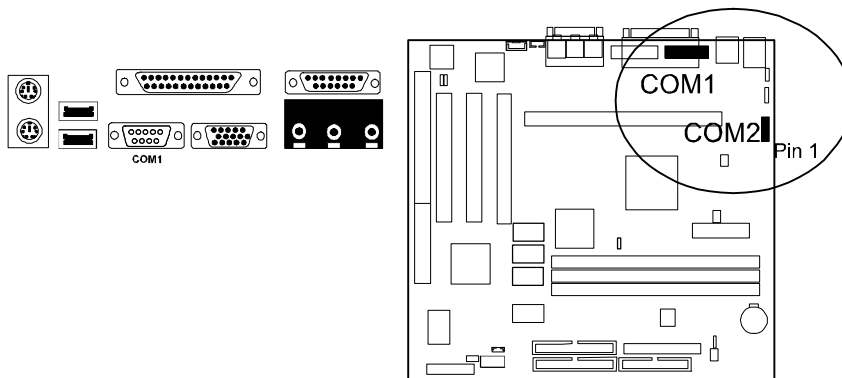
CAUTION: Without sufficient air circulation, the CPU cartridge may overheat and cause damage to both the CPU cartridge and the mainboard. Damage may occur to the mainboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

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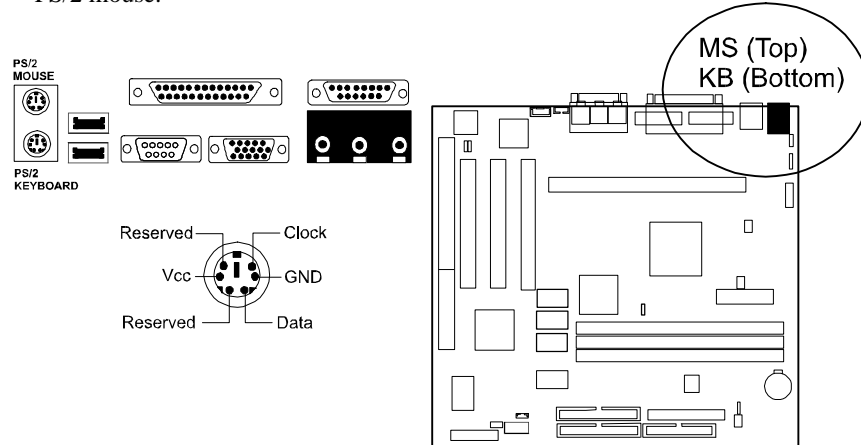
Serial Port Connectors: COM1, COM2

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.



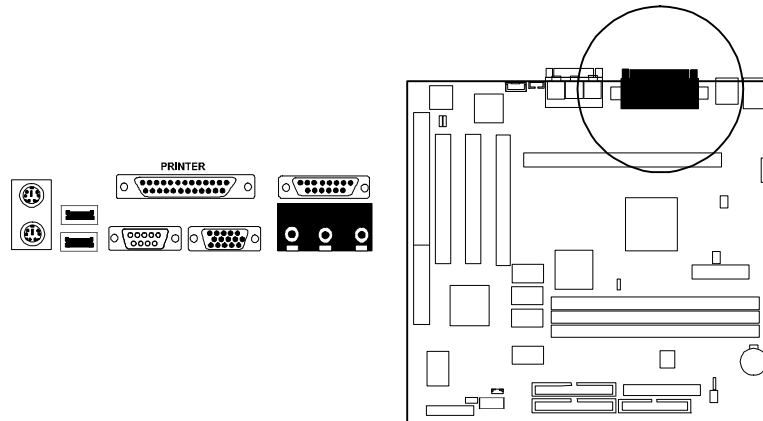
PS/2 Keyboard and Mouse Connector: KB, MS

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



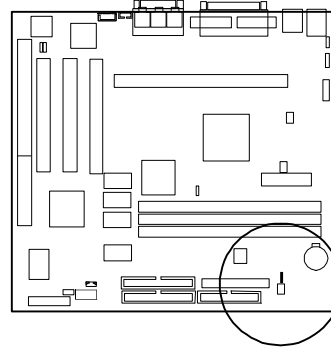
Printer Connector: LPT

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



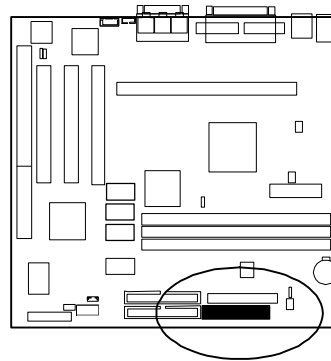
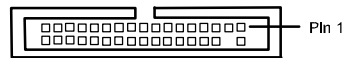
System Chassis Open Alarm Connector: CHASSIS

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.



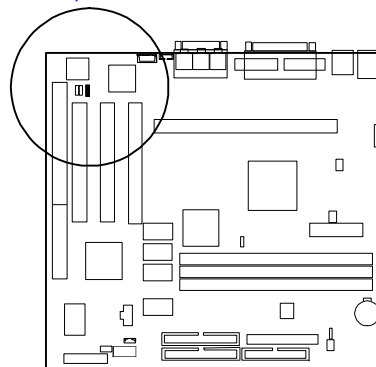
Floppy Diskette Drive Connector: FLOPPY

This connector provides the connection with your floppy disk drive. The red stripe of the ribbon cable must be the same side with the Pin 1.



SPDIF Connector: SPDIF (optional)

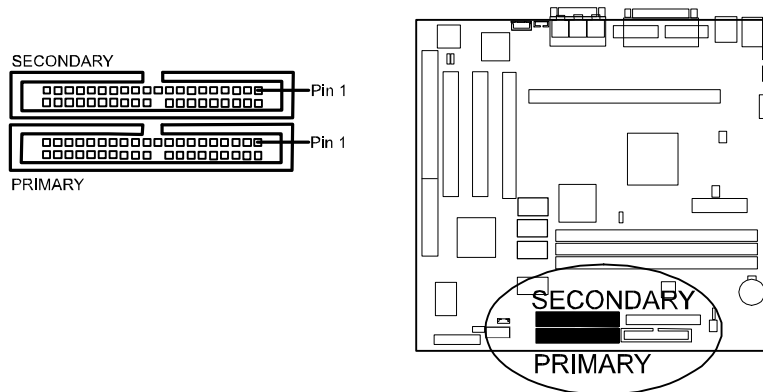
The connector allows this mainboard to connect to an AC-3 decoder with amplifier with 5.1-channel speakers



IDE HDD Device Connectors: PRIMARY, SECONDARY

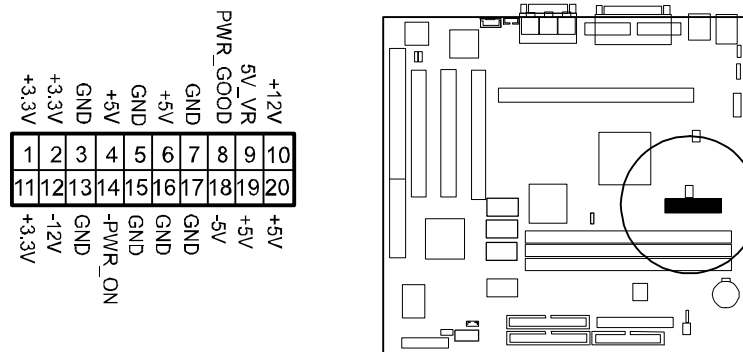
These two connectors are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives.

The red stripe of the ribbon cable must be the same side with the Pin 1.



ATX Power Connector: POWER

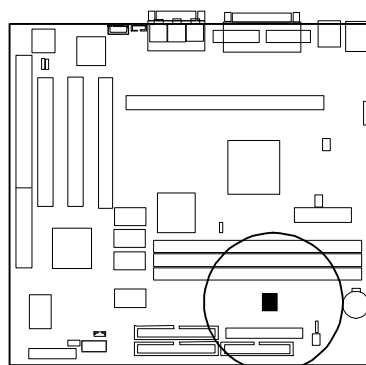
This connector is connected to the ATX power supply.



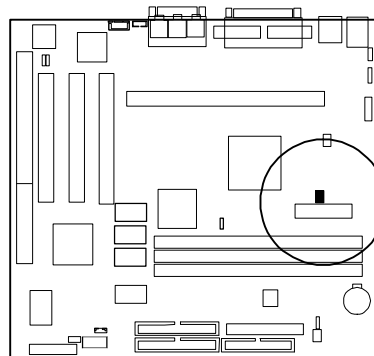
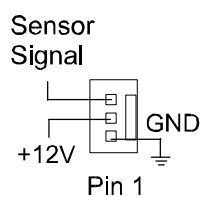
Power Fan Connector: PWR_FAN

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.

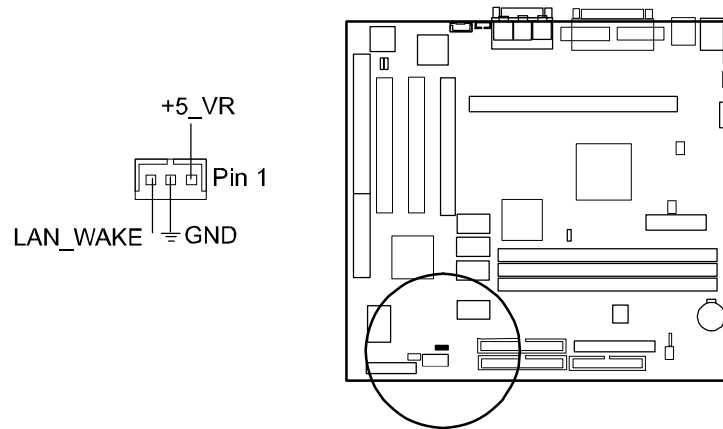
4	1	SENSE
5	2	+12V
6	3	Vcc3

***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. Please read the CPU fan installation guide before connection.

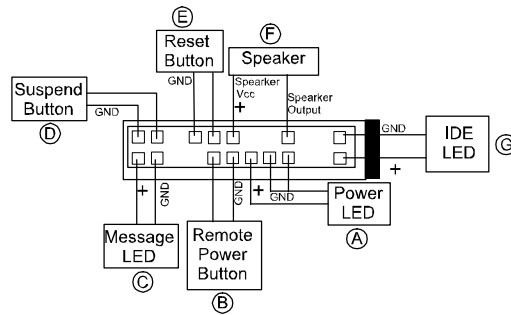
***Wake-On-LAN Connector: WOL***

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.

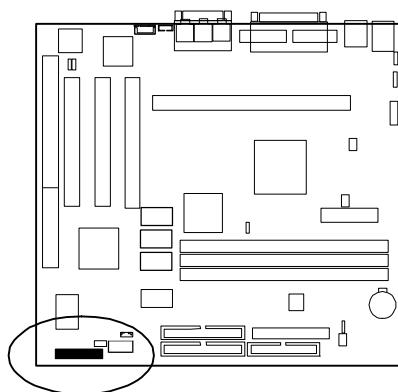


Front Panel Block Connector

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.



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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.

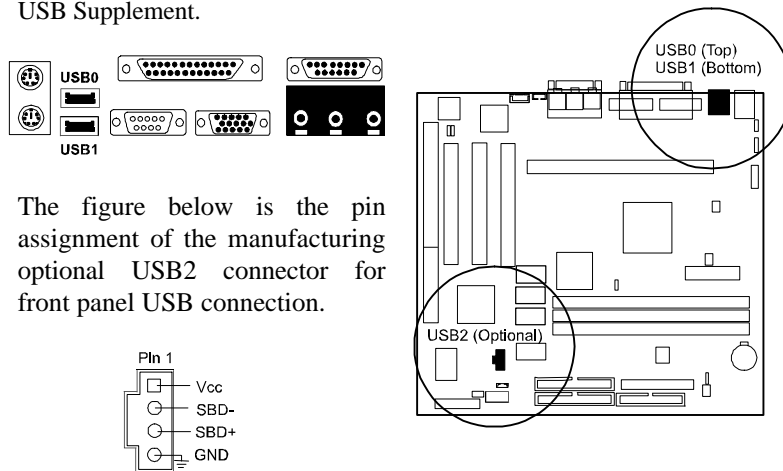
Reset Button (E) is connected to the reset switch. Push this switch to reboot the system instead of turning power switch off and on.

Speaker (F) is connected with the case speaker.

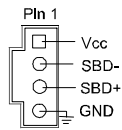
IDE LED (G) is connected IDE device indicator. This LED will blink when the hard disk drives are activated.

Universal Serial Bus Connectors: USB0, USB1, USB2 (optional)

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 USB2 connector is used, it will make either USB0 or USB1 disabled. Your operating system must support USB features, such as MS Windows 98, MS Windows 95 OSR2.5 with USB Supplement.

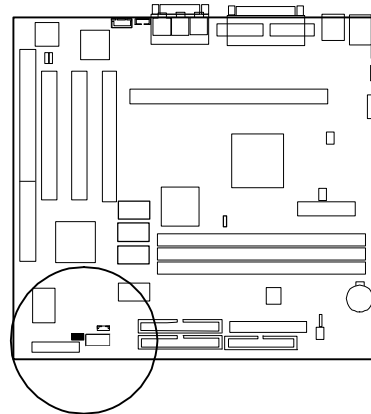
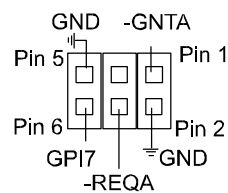


The figure below is the pin assignment of the manufacturing optional USB2 connector for front panel USB connection.



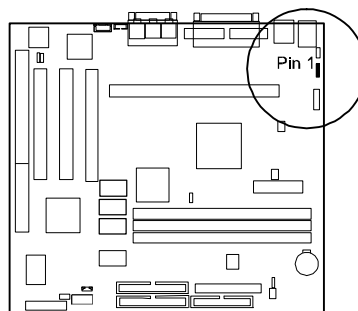
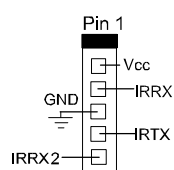
PCI Audio Card Connector: SB_LINK

This 6-pin male connector allows you to connect to your Creative® sound card or compatible.



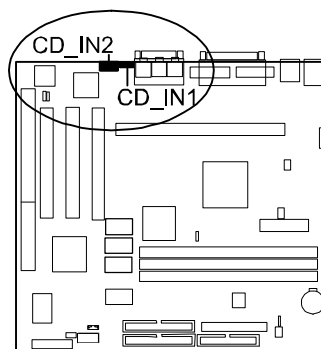
Infrared Connector: IR

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.



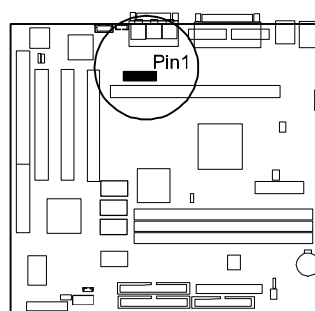
CD-ROM Drive Audio-out Connector: CD_IN1, CD_IN2

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.



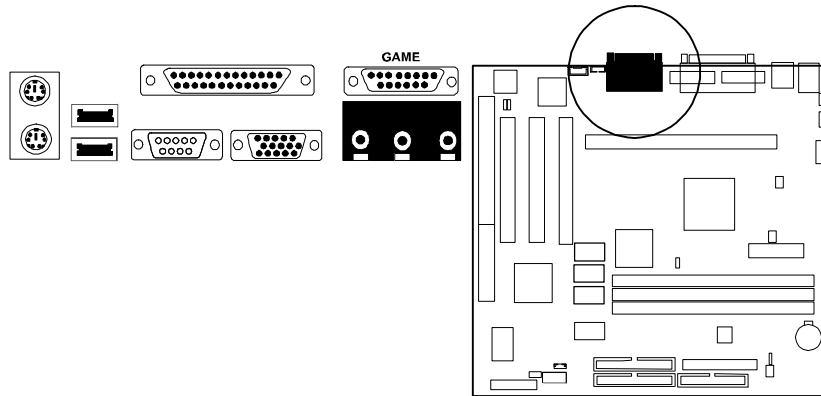
Digital Flat Panel Monitor Connector: DFP (optional)

The connector is linked to the DFP monitor by a cable. Your DFP monitor must be TFT type and supports EDID 2.0 or above.



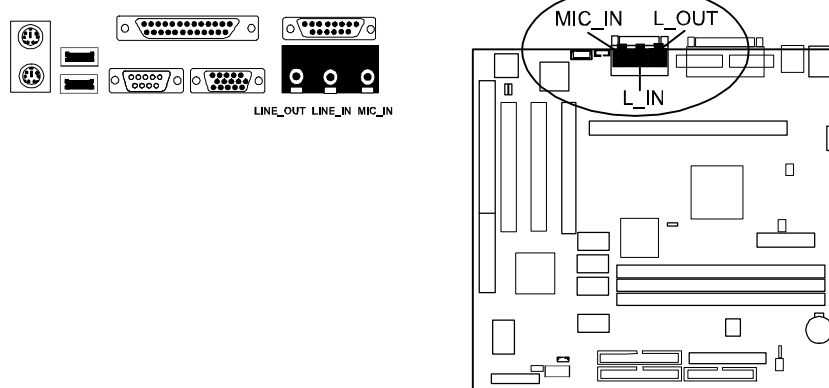
Joystick/MIDI Connector: GAME

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.



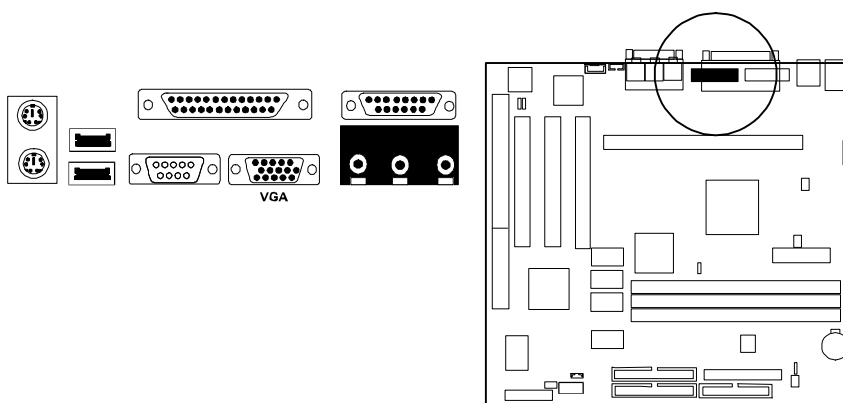
Audio I/O Jacks: L_OUT, L_IN, MIC_IN

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.



Video Graphics Accelerator: 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 (please read page 12).



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 I²C 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.

