

Installation Procedures

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

To set up your computer, you must complete the following steps:

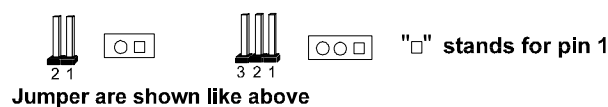
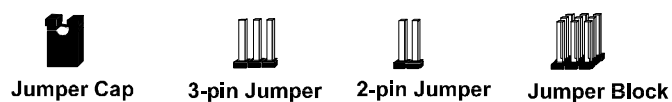
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Set up supporting software tools (see Chapter Four)

WARNING: Excessive torque may damage the mainboard. When using an electric screwdriver on the mainboard, make sure that the torque is set to the allowable range of 5.0 ~ 8.0kg/cm. Mainboard components contain very delicate Integrated Circuit (IC) chips. To prevent static electricity from harming any of the mainboard sensitive components, you should follow some precautions whenever working on the computer:

1. Unplug the computer when working on the inside.
2. Hold components by the edges and try not to touch the IC chips, leads, or circuitry.
3. Wear an anti-static wrist strap which fits around the wrist.
4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

1). Set System Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. A “1” is written besides pin 1 on jumpers with three pins. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pin/s according to the required configuration. A jumper is said to be **shorted** when the black cap has been placed on one or two of its pins. The types of jumpers used in this manual are shown below:



Jumpers are shown like above



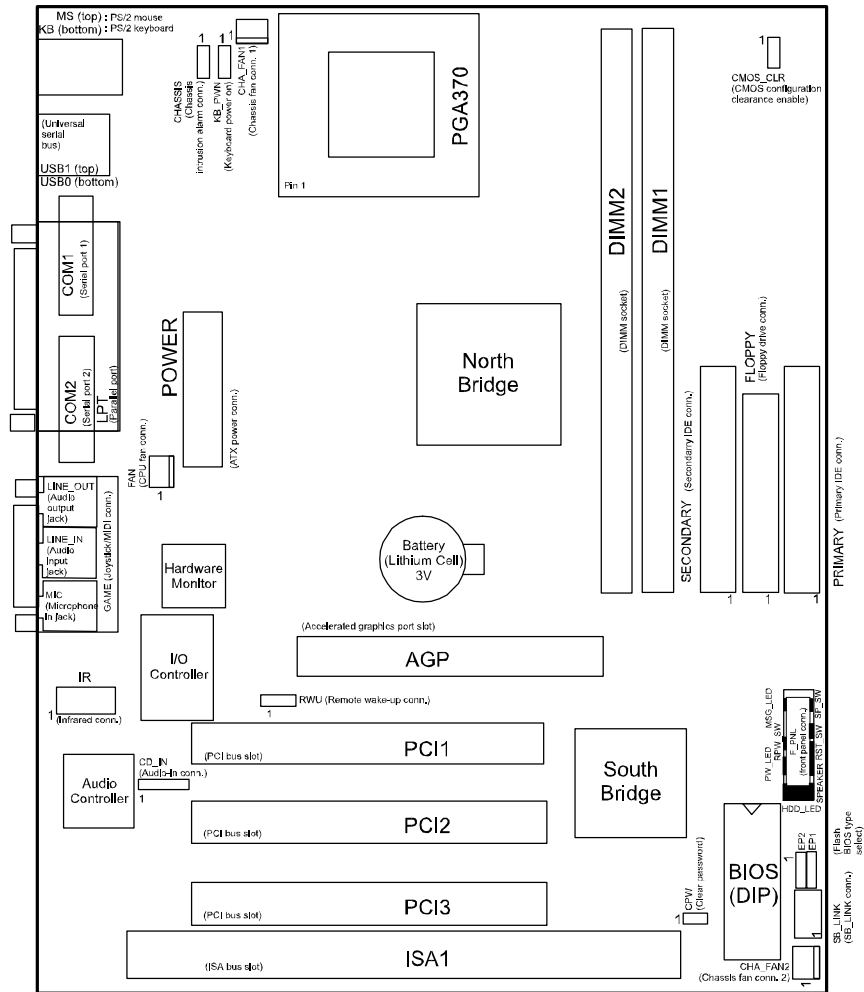
Jumpers cap like above



Jumpers in a Block

NOTE: Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

Mainboard Layout

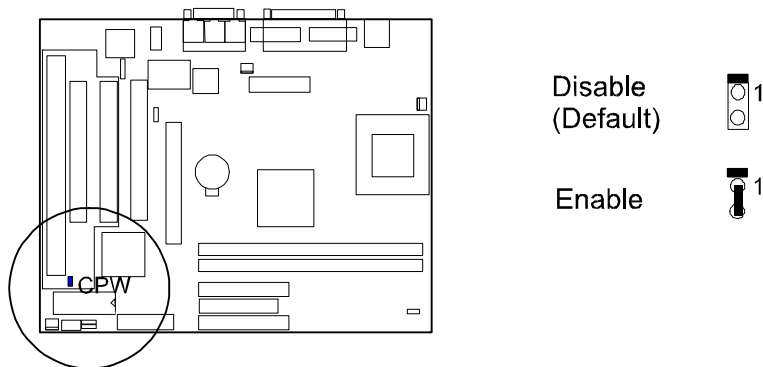


ONBOARD MARK	MEANING	PAGE
<i>Jumpers</i>		
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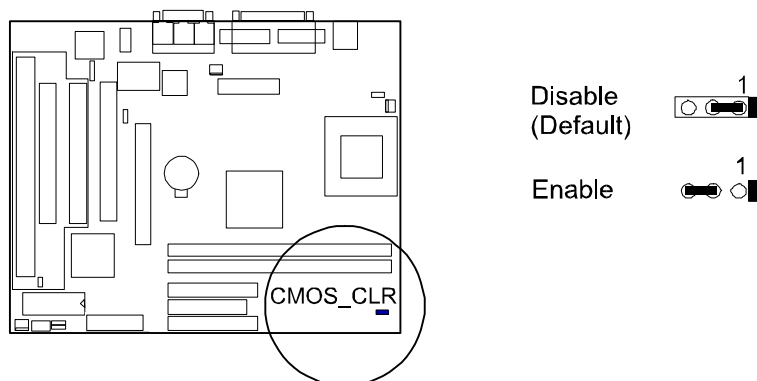
Clear Password: CPW

This jumper allows you to enable or to disable the password configuration. You may need to enable this jumper by shorting it with a jumper cap if you forget your password. To clear the password setting: (1) Turn off your computer, (2) Short this jumper by placing a jumper cap on it, (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) Remove the jumper cap, (7) Turn on your computer for the new settings to take effect.



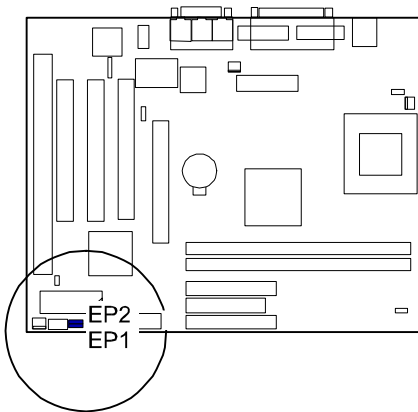
CMOS Clear: CMOS_CLR

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer, (2) Move this jumper to "Disable," (3) Move the jumper back to "Enable," (4) Turn on your computer, (5) Hold down the <Delete> key during bootup and enter BIOS Setup to re-enter user preferences.



Flash ROM Type Select: EP1, EP2

These two jumpers allow you to configure the flash ROM chip. This jumper setting was installed with the manufacturer default. If you want to know the flash ROM type installed on this mainboard, partially remove the sticker on top of the chip.



1MB

Intel 28F001

MXIC 28F1000

EP2

EP1

2MB

SST 29EE010

ATMEL AT29C010

EP2

EP1

MXIC 28F2000

SST 29EE020

ATMEL AT29C020

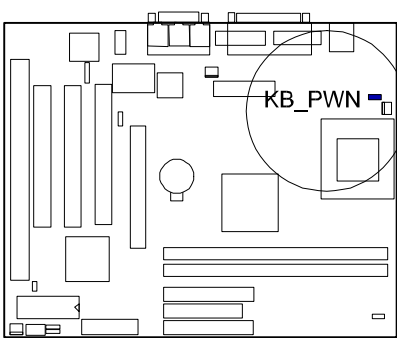
AMD 28F002

EP2

EP1

Keyboard Power-On Select: KB_PWN

This jumper allows you to use the item “POWER ON Function” under Integrated Peripherals of the BIOS Setup. To use this feature, set it at “enabled” and correspondingly set this feature at the BIOS Setup.



Disable
(Default)

1

Enable

1

2). Install RAM Modules

SDRAM

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. The mainboard RAM is comprised of two 168-pin Dual In-line Memory Modules (DIMMs). Each DIMM socket is able to support up to 128MB lightning-fast SDRAM.

SDRAM features an on-chip burst counter that can be utilized to increment column addresses for very fast burst access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM 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.

RAM Module Configuration

The mainboard provides two onboard DIMM sockets allowing 3.3V (unbuffered) SDRAM DIMM modules. Either 8, 16, 32, 64, 128, or 256MB DIMM can be installed on these two sockets. The maximum total memory supported is up to 256MB.

Memory Socket	Memory Module		Total Memory
DIMM Sockets 1&2 (DIMM1 & DIMM2)	8MB, 16MB, 32MB, 64MB, 128MB 168-pin 3.3V EDO/SDRAM DIMM	x2	
	Total System Memory (Max 256MB)	=	

Or one 256MB DIMM on either DIMM1 or DIMM2.

Memory Socket	Memory Module		Total Memory
DIMM Sockets 1/2 (DIMM1 or DIMM2)	256MB 168-pin 3.3V EDO/SDRAM DIMM	x1	256MB
	Total System Memory (Max 256MB)	=	256MB

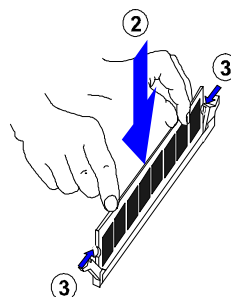
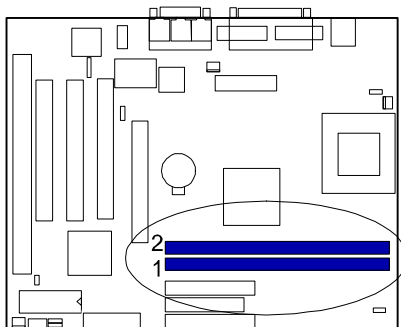
NOTE : This mainboard supports DIMMs with access speeds of 12ns, 10ns, or faster. ECC memory and parity check is also supported.

Install DIMMs

SDRAM DIMM modules have different pin contact on each side and therefore have a higher pin density. Complete the following procedures when installing DIMMs:

NOTE: Do not use memory modules with more than 24 chips per module. Modules with more than 24 chips exceed the design specifications of the memory subsystem and will be unstable. The notch on the DIMM module will shift between left, center, or right to identify the type and also to prevent the wrong type from being inserted into the DIMM slot on the mainboard. Ask your retailer for the specifications before purchasing.

1. Locate the DIMM slots on the mainboard. (See the following figure.)



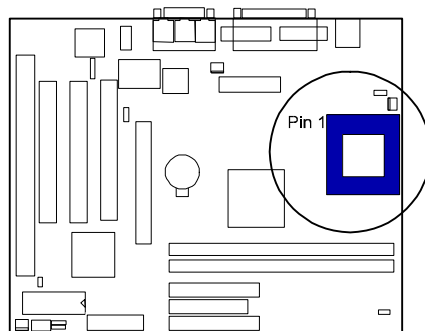
2. Install the DIMM straight down into the DIMM slot with both hands.
3. The clip on both ends of the DIMM slot will close up to hold the DIMM in place when the DIMM touches the slot bottom.

Remove DIMMs

Press the clips with both hands to remove the DIMM.

3). Install the Central Processing Unit (CPU)

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



CAUTION:

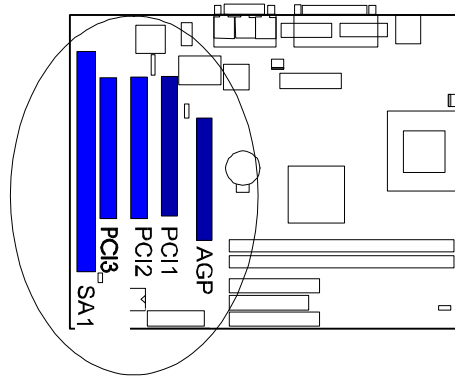
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.
3. Inserting the chip incorrectly may damage the chip.

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.

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. The mainboard features **one 32-bit AGP bus, one 16-bit ISA bus, and three 32-bit PCI bus** expansion slots.



CAUTION : Make sure to unplug the power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both the mainboard and expansion cards.

Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.

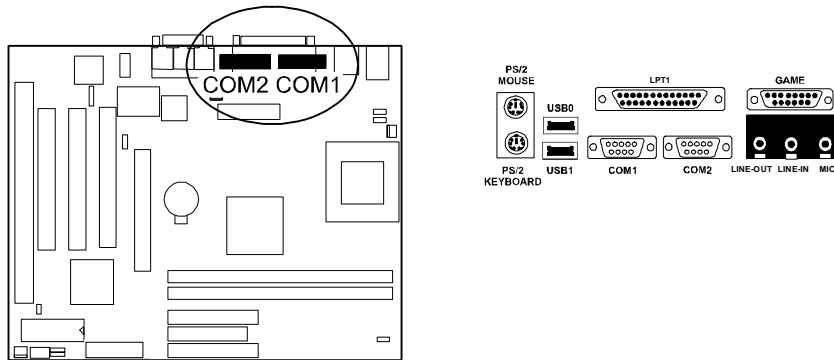
To install an expansion card, follow the steps below:

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 "locking" motion until the add-on 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

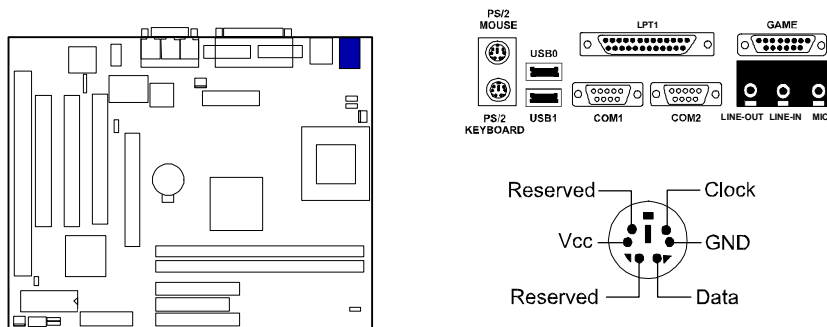
Serial Port Connectors: COM1, COM2

These two 9-pin D-sub male connectors allow you to connect with your devices that use serial ports, such as a serial mouse or a modem. Usually, it is recommended to connect the serial mouse to COM1 and the fax/modem to COM2.



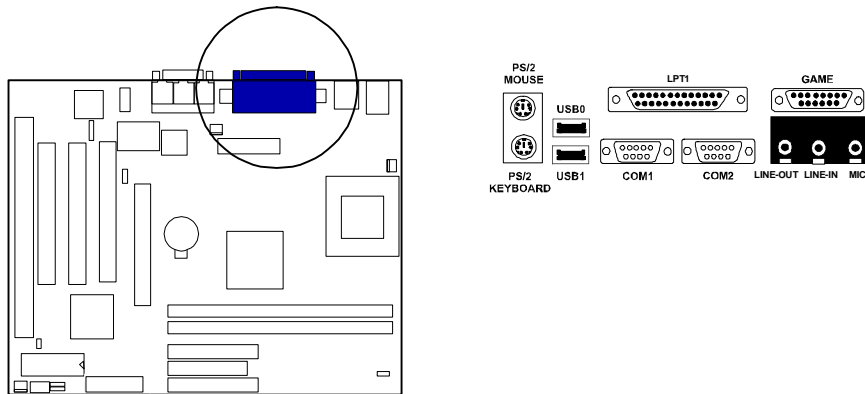
PS/2 Keyboard and Mouse Connector: KB and MS

These two 6-pin female connectors are used for your PS/2 keyboard and PS/2 mouse. The PS/2 keyboard connector is for a standard keyboard using a PS/2 plug (mini DIN). This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards. The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, expansion cards may be using IRQ12.



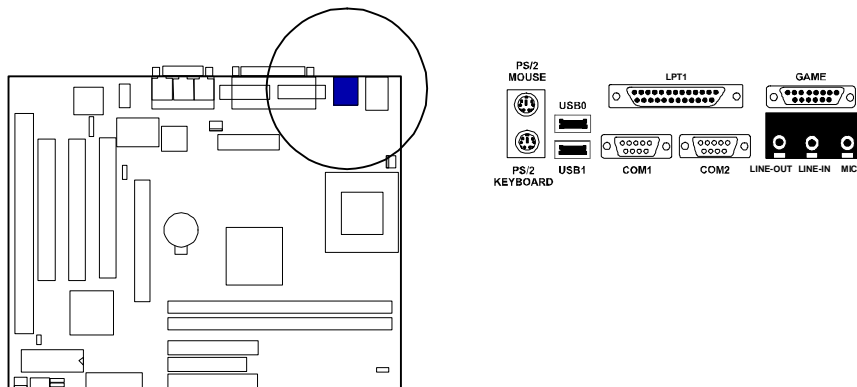
Printer Connector: LPT1

This 25-pin D-sub female connector is attached to your printer. Parallel printers must be connected to the parallel port (LPT1).



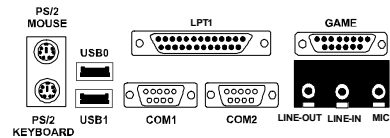
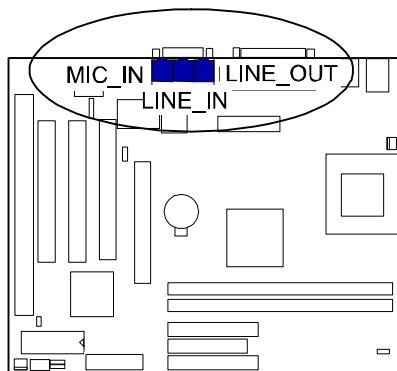
Universal Serial Bus Connectors: USB

These two connectors are used for linking with USB peripheral devices. Make sure to set the item USB Controller at *Enabled* under Integrated Peripherals of the BIOS Setup. Also, the version of the operating system you are using must be Windows 98 or above Windows 95 OSR2.1. Otherwise, USB supplement must be installed if you are using an older version.



Audio Port Connectors: *LINE-OUT, LINE-IN, MIC*

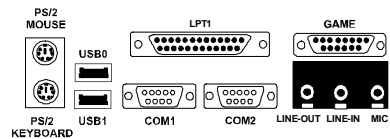
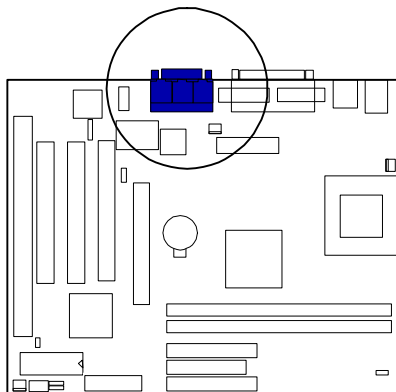
LINE-OUT can be connected to headphones or preferably powered speakers. LINE-IN allows tape players or other audio sources to be recorded by your computer or played through the LINE-OUT. MIC allows microphones to be connected for inputting voice.



NOTE: An external amplifier is necessary as the LINE-OUT connector does not support the pre-AMP function.

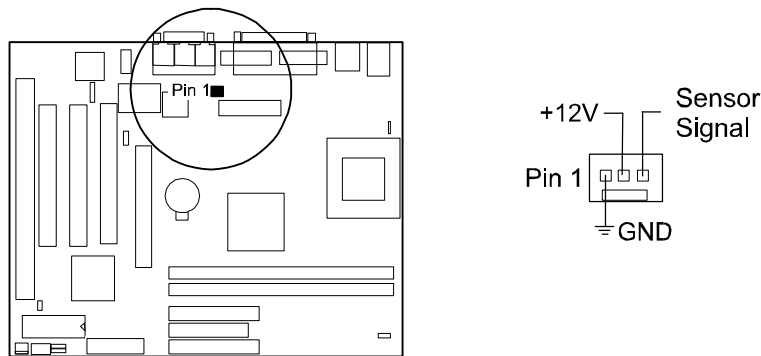
Joystick/MIDI Connector: *GAME*

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.



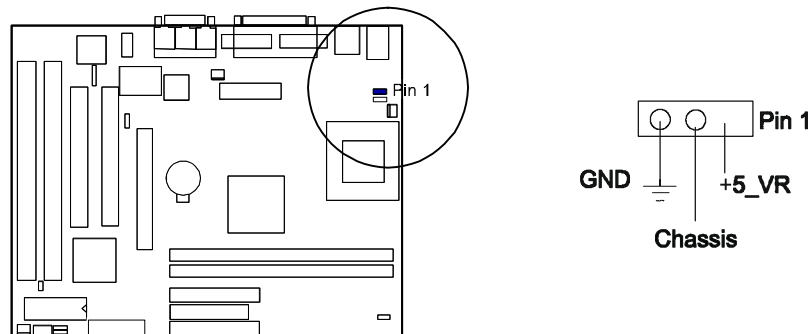
CPU Fan Connector: FAN

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. Refer to the CPU fan installation manual for more information.



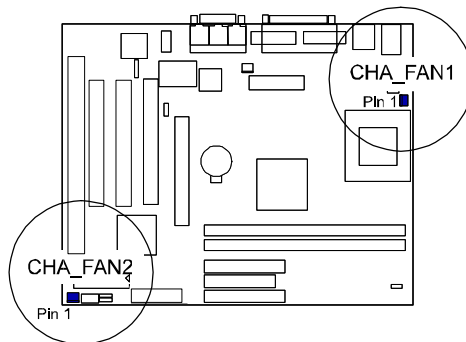
Chassis Intrusion Alarm Connector: CHASSIS

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.

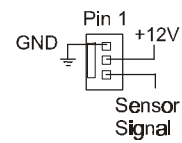


System Case Fan Connector: CHA_FAN1, CHA_FAN2

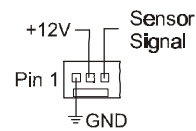
The mainboard features two 3-pin connector links to your cooling fan on the system case to lower the system temperature. Choose either one depending on the design of the system case. Depending on the fan manufacturer, the wiring and plug may be different. Connect the fan plug to the mainboard taking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



CHA_FAN1:



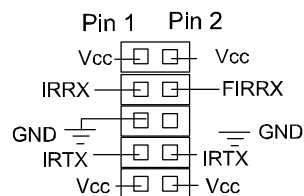
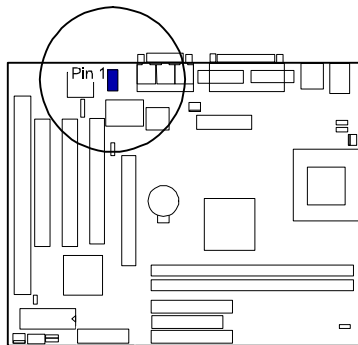
CHA_FAN2:



WARNING: 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.

Infrared Connector: IR

The 2x5 pin header is used for connecting to the infrared (SIR) port and allows transmission of data to another system which also supports the IR feature. This module mounts to a small opening on system cases that supports this feature.

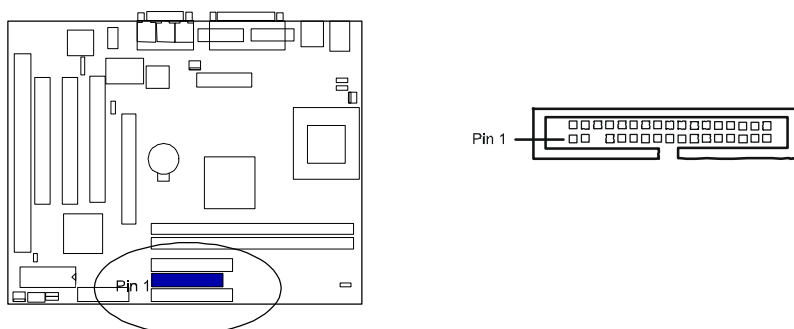


Floppy Diskette Drive Connector:

FDD

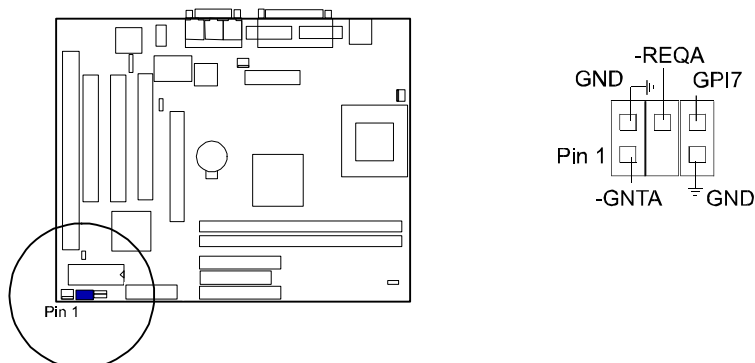
This 34 pin block connector connects to your floppy disk drive using the cable that is provided with this mainboard. After connecting the single end to the mainboard, connect the two plugs on the other end to the floppy drives. (Pin 4 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 4 plugged.)

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.



PCI Add-on Audio Card Connector: SB_LINK

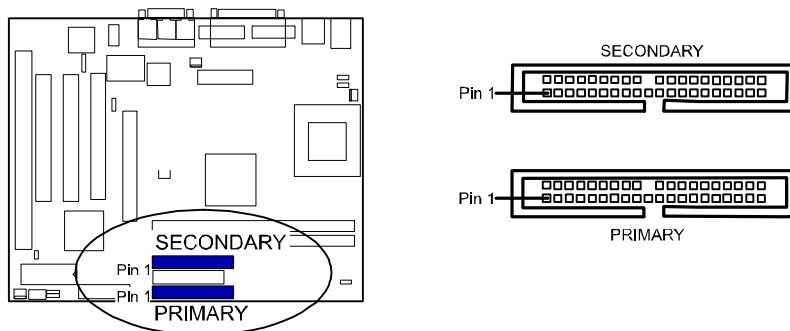
This connector allows you to connect to your Creative PCI add-on audio card connector cable when not using the onboard sound chip.



IDE HDD Device Connectors: PRIMARY, SECONDARY

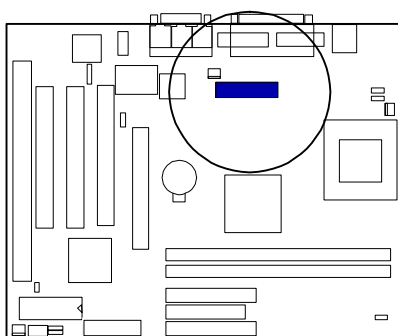
These two connectors, which supports the provided IDE hard disk ribbon cable, are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives. After connecting the single end to the mainboard, connect the two plugs at the other end to your hard disk(s). If you install two hard disks, 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. Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged.

TIP : You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select the boot disk through BIOS Setup.



ATX Power Connector: ATX_PWR

This 20-pin male block connector is connected to the ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.



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

NOTE : For the mainboard to use the Remote Keyboard+LAN Wake-up function, the ATX power supply used should have a current of 1Amp at 5V Stand-By.
To use the Remote LAN Wake-up function, the ATX power supply used should have a current of 720milliAmpere at 5V Stand-By.
To use the Remote Keyboard Wake-up function, the ATX power supply used should have a current of 400milliAmpere at 5V Stand-By.

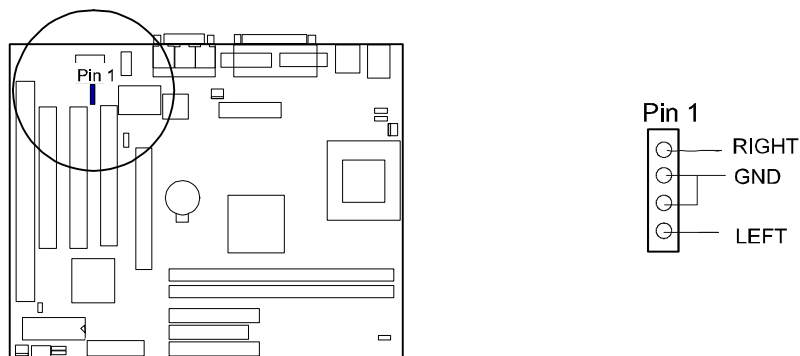
Remote Wake-Up Connector: RWU

This 3-pin connector allows the remote LAN server to wake up the system and then upload or download files to or from the client with a LAN card installed. With this feature, MIS or relevant persons can flexibly perform client maintenance during off-hours so that Total Cost of Ownership (TCO) will be dramatically lowered. Remote Wake-Up is a remote management tool with advantages that can reduce system management workload, provide flexibility to the system administrator job, and then of course save you time-consuming efforts and costs. Refer to the LAN card installation guide for details.



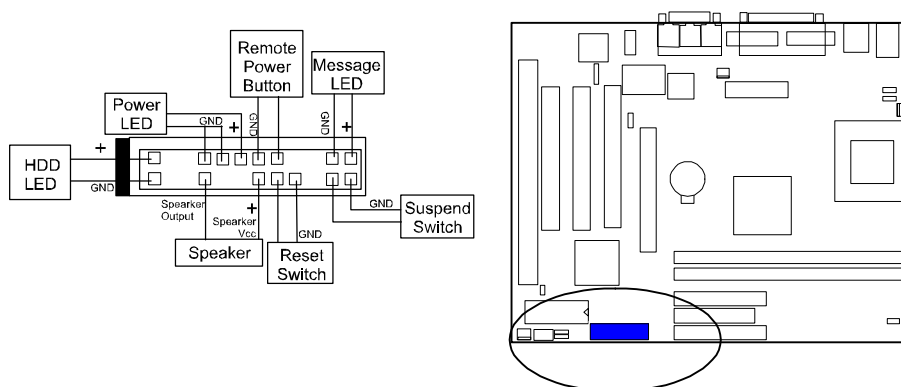
CD-ROM Drive Audio-out Connector: CD_IN

This 4-pin block connector is linked to the AUDIO-OUT port of your CD-ROM drive by a cable which comes with it. Read the CD-ROM drive manual for detailed installation instructions.



Front Panel Block Connector: F_PNL

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 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 Switch 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 is connected with the message LED. When the system is running normally, the indicator is on. When the system hangs up or down, the indicator will be off.

Suspend Switch is connected with suspend mode switch.

Reset Switch is connected to the reset switch. Push this switch to reboot the system instead of turning power switch off and on.

Speaker is connected with the case speaker.

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

Power Connection Procedures

1. After all jumpers and connections are made, close the system case cover.
2. Make sure that all switches are in the off position.
3. Connect the power supply cord into the power supply located at the back of your system case as instructed by the power supply user manual.
4. Connect the power cord into a power outlet that is equipped by a surge protector (if available).
5. You may then turn on your devices in the following order:
 - a. The display monitor
 - b. External SCSI devices (starting with the last device on the chain)
 - c. The system power
6. The power LED on the front panel will light. The monitor LED may light after the system if it complies with "green" standards or if it has a power standby feature. The system will then run power-on tests. While the tests are running, additional messages will appear on the screen. If you do not see anything within 30 seconds from the time you turn on the power, the system may have failed a power-on test (POST). Recheck the jumper settings and verify if the RAM module, hard disk drive, CPU, and add-on cards are connected properly or call the retailer for assistance.
7. During power-on, hold down the <Delete> key to enter BIOS Setup. Follow the next chapter for instructions.

Powering Off the Computer

You must first exit or shut down the operating system before switching off the power switch. For Windows 95/98 users, select "Shut Down the Computer" from the "Start" button and the system will power off automatically after Windows shut down, provided that the item Soft-Off by PWR-BTN under the Power Management Setup is set at *Instant-Off*.

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