Chapter 2

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!

2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.

Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

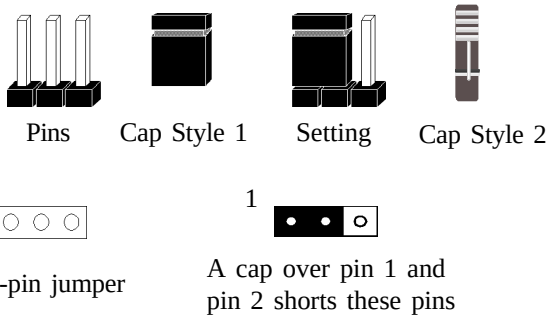


Figure 2-1

2-2 Installing a CPU Processor in Socket A

The Socket A, designed for AMD Athlon/Duron processors, has been incorporated as a standard mainboard specification. To insert your CPU into Socket A please do the following:

1. Locate a small dot marked on the top surface of the CPU close to one if it's corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 462 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 462 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.

Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burnout of your CPU.

2-3 CPU Jumper Configuration

Frequency Configuration

If you install a CPU on this mainboard, you must set **JP20** for CPU Bus Frequency. You may also select (fine tune) the external clock frequency according to your processor **SW1** (See Section 2-4).

* CPU Speed = Frequency ratio x System Frequency

You do not need to make voltage settings because this board will automatically sets your CPU voltage.

Overclocking

Operating a CPU at a higher frequency than it's specification allows is called overclocking. If the CPU frequency is set at a higher frequency than it's specification allows, it may or may not run at that frequency, depending on the quality of your CPU and the extent to which the frequency has been overset. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

Many processors are frequency locked processors and are not able to perform overclocking. Regardless of whether the processor is a frequency locked, overclocking may cause some processors to hang when turning on the system. When the processor hangs, the screen remains blank and the system does not boot. To solve this problem, do the following.

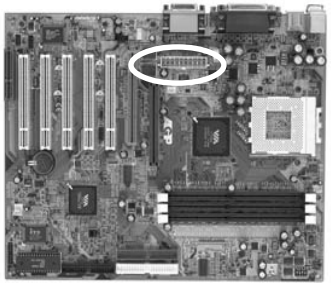
1. Turn off the computer and then press the Home key on your keyboard
2. Turn on your computer, wait for five seconds and then release the Home key. (Pressing the Home key allows the computer to boot at a low system speed.)
3. Enter BIOS and reconfigure your CPU parameters.

2-4 Connector and Jumper Settings

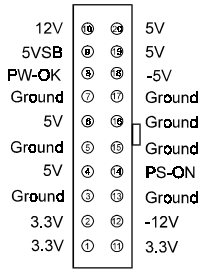
Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.

ATX Power Supply Connector (PW1)



The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.



The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

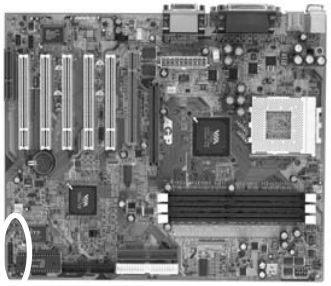
Software Power-Off Control

This mainboard can be powered down using theWindows 95 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

Power-On By Modem

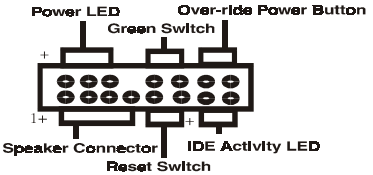
While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3-5)

Front Panel Connector Set (CN1) A through F

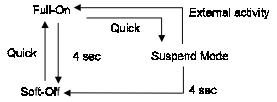


A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function. (See section 3-5)



When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.



Over-ride Power Button Operation

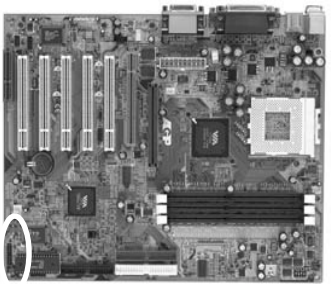
B. Power Indicator LED Connector

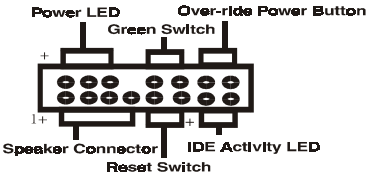
The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

Pin	Definition
1	+5V DC
2	Not Connected
3	Ground

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3-5)





C. Green Switch Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.

D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

Pin	Definition
1	Systeml
2	GND

E. Speaker Connector

Pin	Definition
1	+5V DC
2	NC
3	NC
4	Speaker Singal

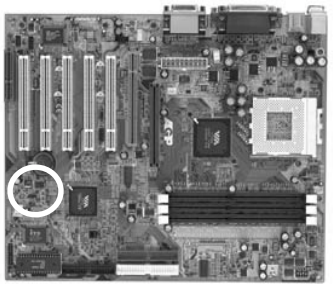
F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

Clear CMOS Data (JP1)



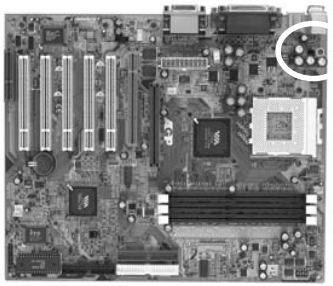
1 
Normal (default)

1 
Clear CMOS data

To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

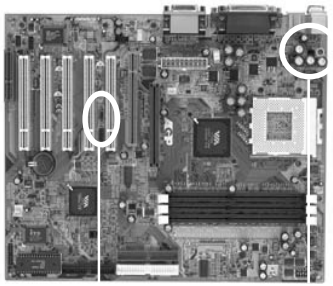
PS/2 Keyboard Power-on Function (JP5)



1  Disable (default) 1  Enable

This board is able to be turned on by the PS/2 keyboard (hot key). To use this function, select a hot key of your choice at the PS2KB Wakeup option under IRQ/Event Activity Detect in BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

USB 0/1 & 2/3 Device Power On Function (JP6 & JP21)

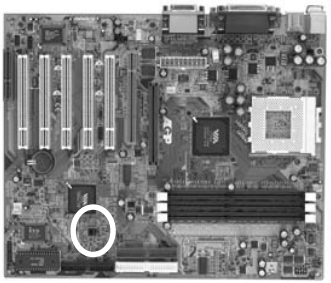


JP21 JP6

1  Disable (default) 1  Enable

This board is able to be turned on by a USB keyboard hot key or a USB mouse click. To use this function, select a hot key of your choice at the USB Resume From S3/S4/S5 option under IRQ/ Event Activity Detect in BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

CPU Bus Frequency (JP20)

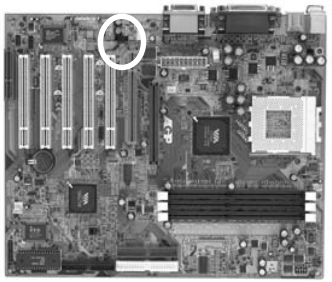


1 
100MHz (default)

1 
133MHz

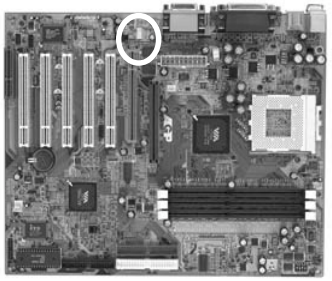
This jumper allows you to select the system bus frequency speed of your CPU. Set the jumper cap to pins 1-2 for 100MHz FSB, set the jumper cap to pins 2-3 for 133MHz FSB.

CD-ROM Audio-in (CN2)



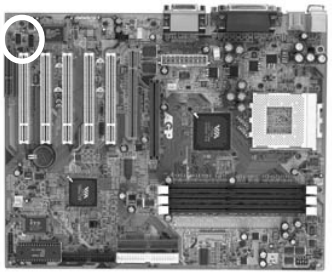
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

Auxiliary Audio-in (CN3)

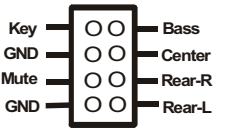


This connector is for use with a secondary CD-ROM, DVD-ROM or CDR/CDRW disk drive.

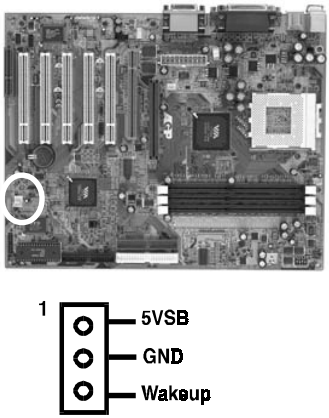
Optional Bass/Center and RearL/R Speaker Connector (CN4B)



This connector is for Center+Bass speaker output ext. Plug in the optional AC3 Surround Center/ Bass and Rear left/right jack extension into this connector. The black colored jack is for surround speaker output and the orange colored jack is for center+bass speaker output.



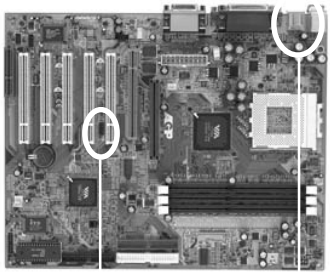
WOL (Wake-on-LAN) Connector (CN5)



Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. When a PC capable of receiving wake up command goes to sleep, the Magic Packet mode in the LAN controller is enabled. When the LAN controller receives a Magic Packet frame, the LAN controller will wake up the PC. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.

To support this function, a switching power supply with a minimum of **750mA** 5VSB standby signal is required.

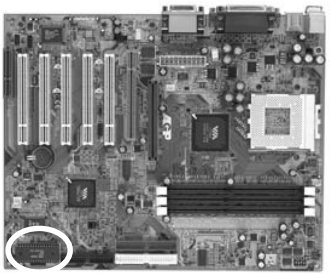
USB Ports and USB 3/4 Connector (USB1/CN6)



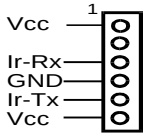
If you want to use a USB keyboard, you must enable the onchip USB & USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-4). USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

This board contains a USB Host controller and includes a root hub with two USB 0/1 ports (meets USB Rev 1.0 spec.) and a connector for optional USB Adaptor (USB3/4). Four USB peripherals or hub devices are able to be connected.

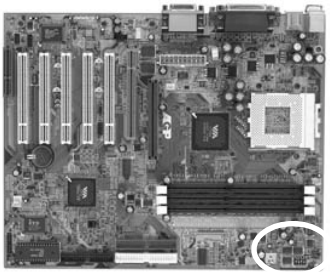
Infrared Connector (IR1)



If you enable the UART 2 Mode in BIOS's Integrated Peripherals menu the COM2 port will support IR functions. (See section 3-4)



Frequency Ratio Setting (SW1)

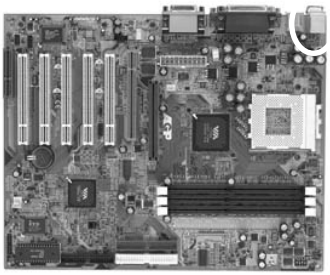


This feature allows you to set a CPU at a higher frequency clock ratio than it's specification allows. it may or may not run at that ratio, depending on the quality of your CPU and the extent to which the ratio has been overset

ON:short OFF:open	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	AUTO	11	11.5	12	12.5
1	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
3	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
4	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON

This option will not work with frequency lock CPU.

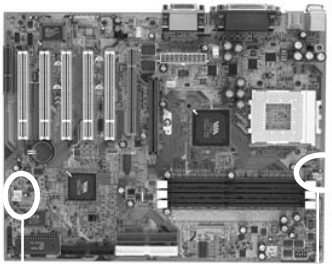
PS/2 Mouse and Keyboard Ports (PT1)



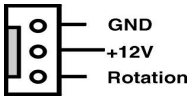
If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.

Pin	Definition
1	Data
2	No Connection
3	Ground
4	+ 5V (fused)
5	Clock
6	No Connection

CPU/System Cooling Fan Connectors (FAN1/FAN2)



FAN2 FAN1

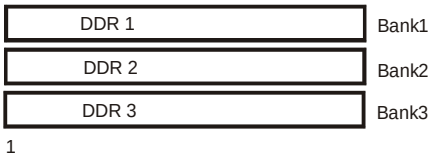


These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector.

The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 3500 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

2-5 Main Memory Configuration

The DDR SDRAM memory system consists three banks and can supports the memory size up to **1GB** per bank**.** If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.



DDR SDRAM Specifications

FSB Frequency	Internal System Bus Freq.
100 MHz	200 MHz
133 MHz	266 MHz

DIMM type: 2.5V, Registered 64/128/256-bit DDR SDRAM

Module size: Single/double-sided 64/128/256/512MB/1GB

Parity: Either parity or non-parity

DDR

Double Data Rate transfers allows for data to be fetched on both the rising and falling edges of the clock thus doubling the effective transfer rate of the clock. For example a 133MHz DDR clock would achieve a peak transfer rate equal to that of a 266MHz clock. The effective transfer rate is equal to the clock frequency multiplied by the bus width, doubled.