

## 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.

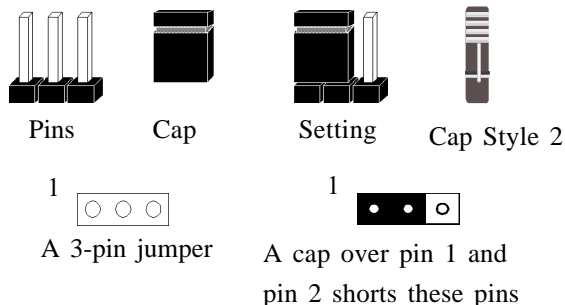


Figure 2-1

## 2-2 Installing an AMD Athlon Processor in Socket A

- 1 The Socket 462, designed for AMD Athlon/Duron /Thunderbird 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 of its 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 Plug and Play CPU Configuration

This board supports plug and play CPU configuration, if you install a CPU on this mainboard, the board will automatically detect and set the CPU system bus frequency speed. It is no longer necessary to make many jumper settings as on conventional mainboards.

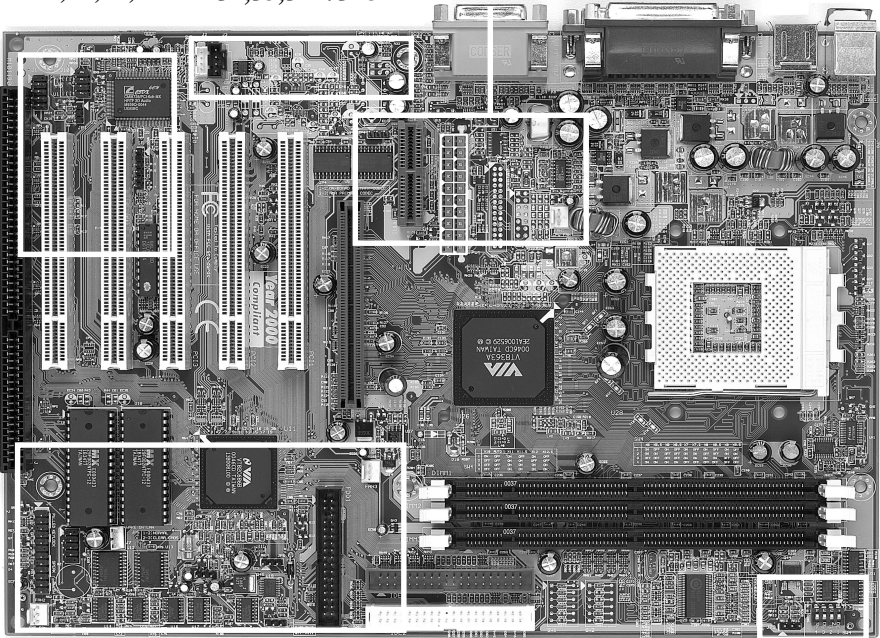
### CPU Host/PCI Clock Timing

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.
2. Move the cursor to Frequency/Voltage Control Setup menu and press Enter. Select the CPU Host/PCI Clock Setup commands at the left hand side of the BIOS screen.
3. Select the CPU Host/PCI Clock value according to the speed of your CPU processor and PCI bus. (See section 3-8)
4. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose to confirm. The system will automatically reboot and during start-up you will see the correct CPU type shown on the screen.



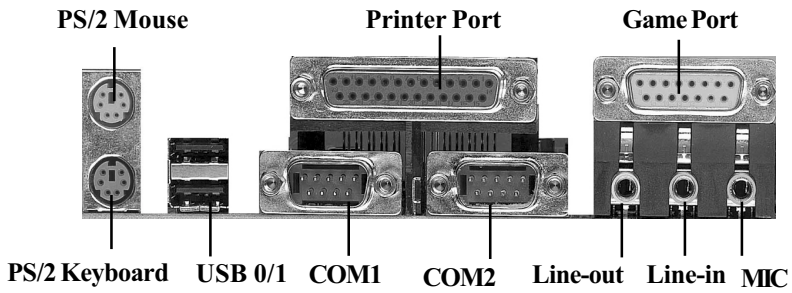
You do not need to make frequency ratio and voltage settings because this board will automatically set your CPU frequency ratio & voltage.

**JP1,J1,J4,J10    J2,J3,JP2/JP3**                      **AMR1,JP4,J8,J9,FAN1**



**J5,FAN2,FAN3,J6,J7,JP5,JP6,JP7**

**JP9,SW4**



Jumper & Connector No.	Function	Page
JP1	Onboard Audio Selector	14
JP2/JP3	Audio Line out or Speaker out	14
JP4	Primary Audio CODEC Selector	14
JP5	Clear CMOS Data	15
JP6	Chassis Intrusion Detection	15
JP7	Optional Boot BIOS Selector	15
J1	Optional S/PDIF-Out Connector	16
J2	Auxiliary Audio-in Connector	16
J3	CD-ROM Audio in Connector	16
J4	Infrared Connector	17
J5	Over-ride Power Button Connector	12
	Power Indicator LED Connector	12
	Green Switch/Green LED Connector	13
	System Reset Switch Connector	13
	Speaker Connector	13
	IDE Activity LED Connector	13
	Turbo LED Connector	13
J6	USB 2/3Connector	17
J7	WOL (Wake-on-LAN) Connector	18
J8	Optional LTI Riser	18
J9	Optional VGA Header	18
J10	Optional AC3 Surround/Center + Bass Connector	19
PW1	ATX Power Supply Connector	11
CN1	PS/2 Mouse and Keyboard Ports	19
FAN1/FAN2/FAN3	CPU/System/Chipset Cooling Fan Connectors	20
SW4	Optional CPU Clock Ratio Setting	20

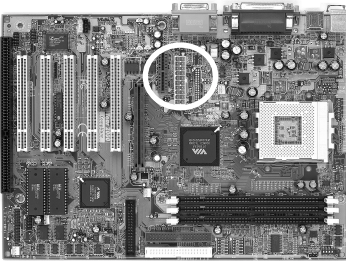
## 2-4 Connector and Jumper Settings

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.

12V	⑩	⑳	5V
5VSB	⑨	⑲	5V
PW-OK	⑧	⑱	-5V
Ground	⑦	⑰	Ground
5V	⑥	⑱	Ground
Ground	⑤	⑱	Ground
5V	④	⑱	PS-ON
Ground	③	⑱	Ground
3.3V	②	⑱	-12V
3.3V	①	⑱	3.3V

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 its minimum power state.

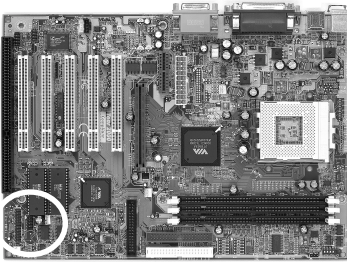
### Software Power-Off Control

This mainboard can be powered down using the Windows 95/98 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

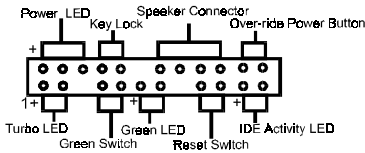
While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3-4)

## Front Panel Connector Set (J5) A through G

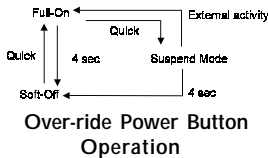


### A. Over-ride Power Button Connector

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 occurrence 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.



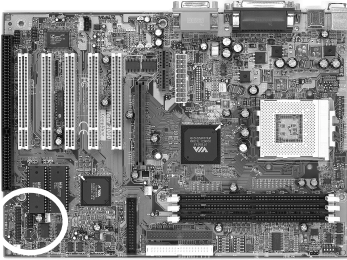
### B. Power Indicator LED Connector

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
Power Indicator LED	1	+5V DC
	2	No Connection
	3	Ground
Keyboard Lock	4	Key Lock
	5	Ground

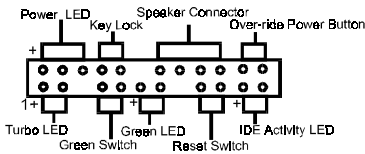
## Blinking LED in Suspend Mode

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 3-4)



### C. Green Switch/Green LED 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 its minimum power state. The system is waken 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	System
2	GND

### E. Speaker Connector

Pin	Definition
1	Speaker Signal
2	No Connection
3	No Connection
4	+5V DC

### F. IDE Activity LED Connector

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

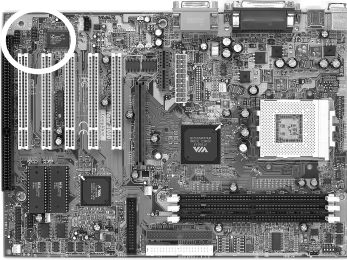
### G. Turbo LED Connector

This mainboard does not have a Turbo/De-turbo speed modes. So the turbo LED will always light .

## 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.

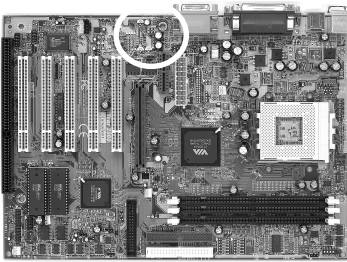
### Onboard Audio Selector (JP1)



- 1 ● | ○ Enabled (default)
- 1 ○ | ● Disabled

This function allows you to enable and disable the on board audio. You must set the jumper's cap to pins 1-2 to enable or set pins 2-3 to disable this function.

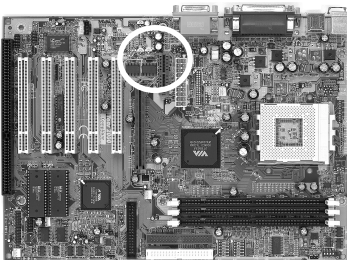
### Audio Line out or Speaker out (JP2/JP3)



- JP2 1 ● ● | ○ Line\_out
- JP2 1 ○ ● ● Speaker\_out(default)
- JP3 ● ● | ○
- JP3 ○ ● ●

This jumper allows you to select between audio line-out or speaker out function. Set both JP2 and JP3 pins to 1-2 for line-out function or set both JP2 and JP3 pins to 2-3 for speaker out function..

### Primary Audio CODEC Selector (JP4)

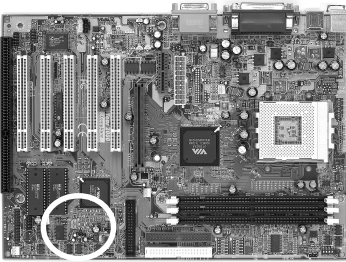


- 1 ● | ○ Onboard CODEC (Default)
- 1 ○ | ● AMR (Soft-Audio/Modem riser)

Short pin 1-2 to enable onboard AC`97 CODEC. Short pin 2-3 to enable AMR (Soft Audio/Modem riser).



## Clear CMOS data Jumper (JP5)



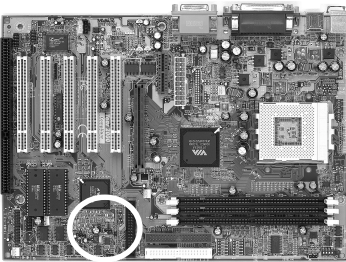
1    Normal (default)

1    Clear CMOS

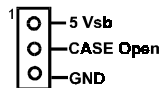
To clear the contents of the CMOS, please follow the steps below.

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.

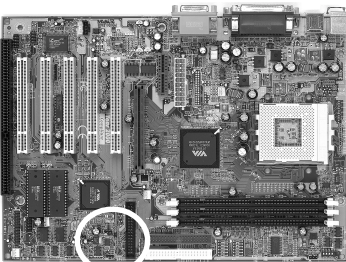
## Chassis Intrusion Detection (JP6)



This board supports the chassis instruction monitoring feature of the management extension hardware by means of a mechanical or photo sensor switch attached to the motherboard through this 1x3-pin chassis security header. The mechanical switch is set to open for normal computer operation.



## Optional Boot BIOS Selector (JP7)

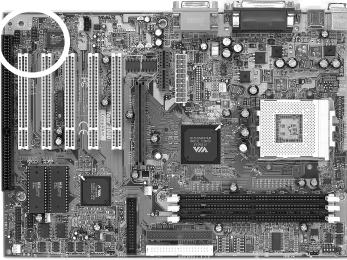


1    Boot BIOS select (default)

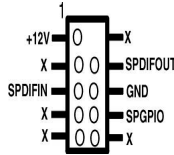
1    BIOS 1 (Power-on only) /  
BIOS 2 (Power-on + Reset)

This feature allows you to select a BIOS to boot up your system. Set the pin to 1-2 to enable Boot BIOS select in the BIOS Features Setup and then select either BIOS 1 or BIOS 2 for startup (see section 2-4). The feature also allows you to manually shift to another BIOS once the BIOS fail to boot. Set pin to 2-3 to boot from BIOS 1 and then press the power on button to boot up or press reset and power on button to boot from BIOS 2.

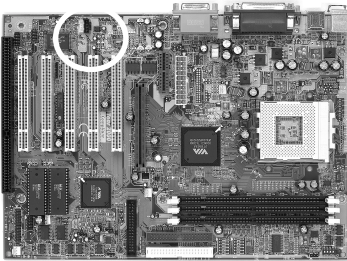
### Optional S/PDIF-out Connector (J1)



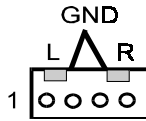
The S/PDIF-out connector supports the digital audio. This connector must be connected to the cable from an external device (i.e.2-channel decoded AC-3 from DVD decoders).



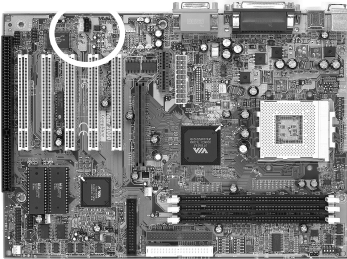
### Auxiliary Audio-in Connector (J2)



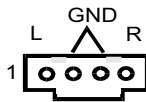
Use the auxiliary audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.



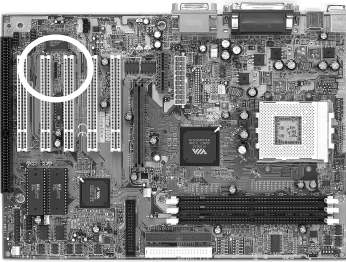
### CD-ROM audio in Connector (J3)



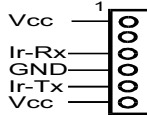
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.



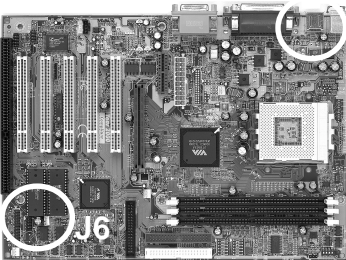
## Infrared Connector (J4)



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



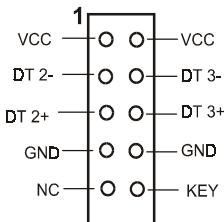
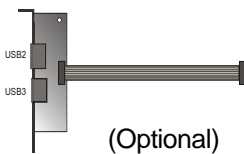
## USB 0/1 Ports and USB 2/3 Connector (J6)



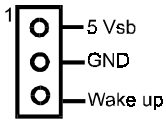
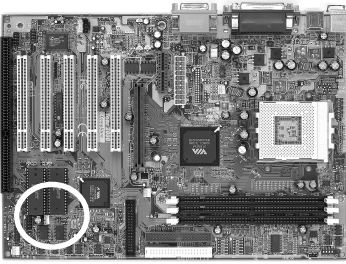
If you want to use a USB keyboard, you must enable the onchip USB & USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-4). USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice,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

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps. Based on off the shelf, low cost micro-controller technology, its modular layered software protocol supports sophisticated devices and application programs.

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 (USB2/3). Four USB peripherals or hub devices are able to be connected.



## WOL (Wake-on-LAN) Connector (J7)

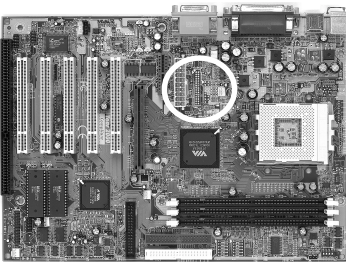


Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. 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.



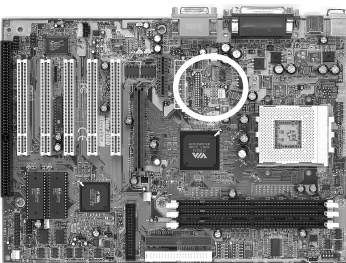
To support this function, a switching power supply with a minimum of **750mA 5VSB** standby signal is required.

## Optional LTI Riser (J8)



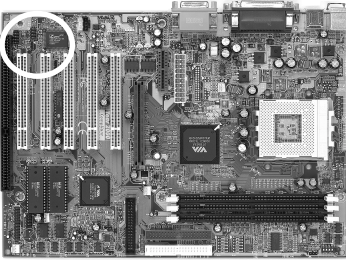
This connector is to be connected to an optional TV/LCD/2nd CRT Output adapter card.

## Optional VGA Header (J9)

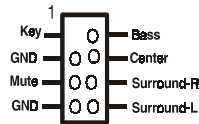


This board includes a VGA ports riser which is to be connected to this header.

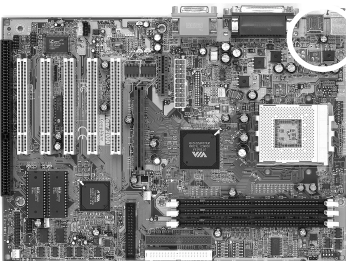
## Optional AC3 Surround/Center + Bass Connector (J10)



This connector is for Surround and Center+Bass speaker output ext. Plug in the optional AC3 Surround/Center+Bass 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.



## PS/2 Mouse and Keyboard Ports (CN1)

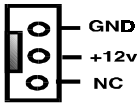
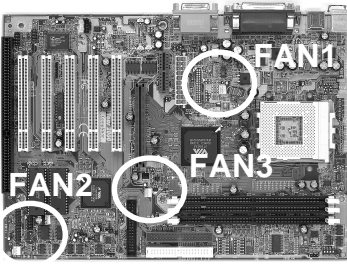


If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.



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

## CPU/System/Chipset Cooling Fan Connectors (FAN1/FAN2/FAN3)



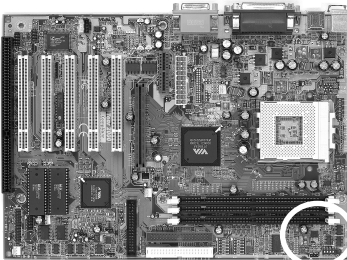
These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector.

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 4000 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.



FAN3 is an independent power line that is not control by system health monitor and power management.

## Optional CPU Clock Ratio Setting (SW4)



This feature allows you to set a CPU at a higher 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.

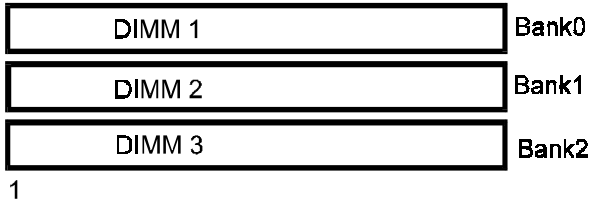


This option will not work with frequency lock CPU.

RATIO	X5	X5.5	X6	X6.5	X7	X7.5	X8	X8.5	X9	X9.5	X10	Auto	X11	X11.5	X12	X12.5
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

## 2-5 Main Memory Configuration

The DRAM memory system consists of three banks and the memory size ranges from **32MB~1GBytes**. It does not matter which bank you want to install first.



### *DRAM Specifications*

DIMM type: 3.3V, unbuffered, registered, 64/72-bit SDRAM with SPD\*

Module size: Single/double-side 32/64/128/256/512MBytes

Parity: Either parity or non-parity



This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.



Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

# ***Memo***