

## Installation Procedures

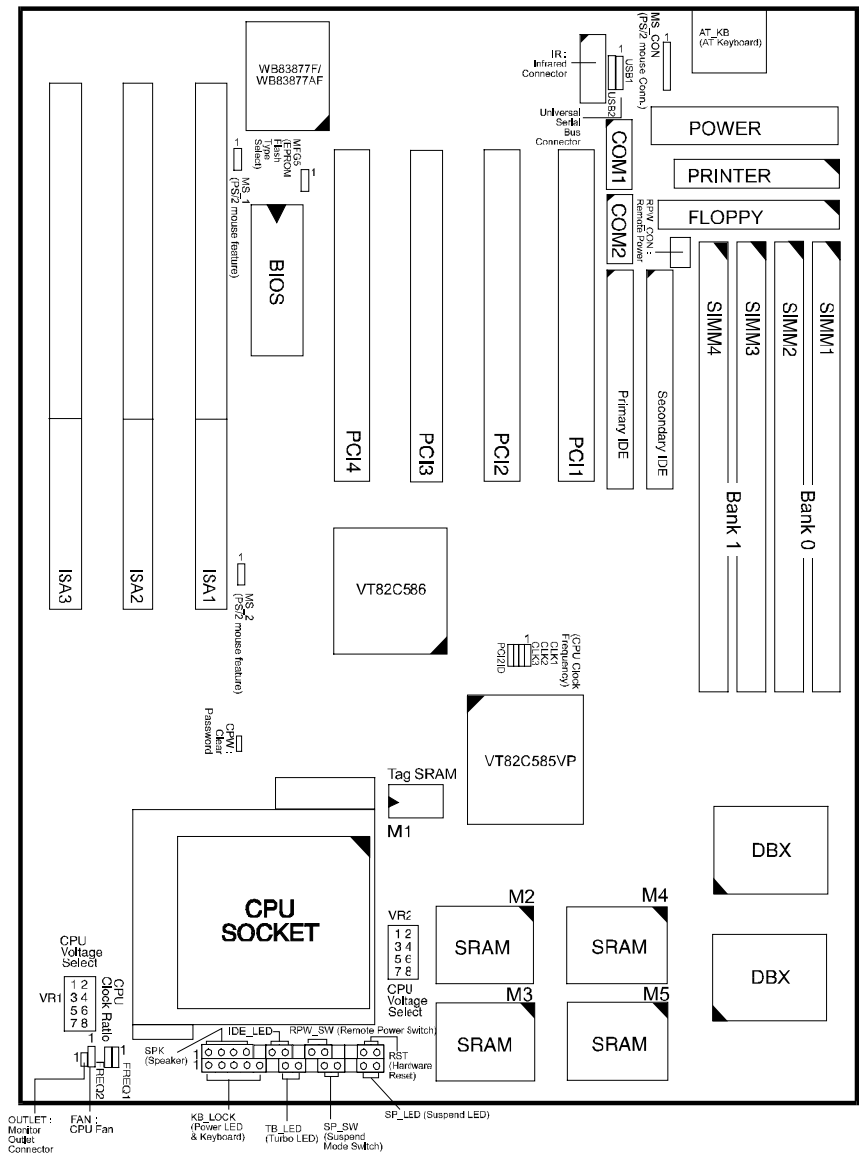
The PA-2005 has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

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

- Step 1 -  
Set system jumpers
- Step 2 -  
Install System RAM modules
- Step 3 -  
Install the CPU
- Step 4 -  
Install expansion cards
- Step 5 -  
Connect cables and power supply
- Step 6 -  
Set up BIOS feature (Please read Chapter Three.)

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

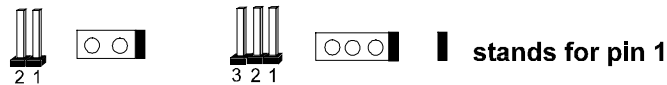
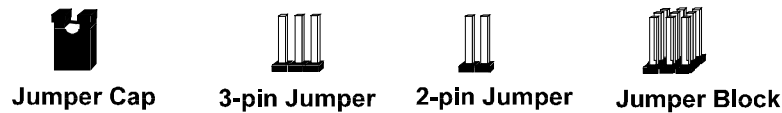
Mainboard Layout



## 1). Set System Jumpers

### *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. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pins 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 as above



Jumper cap is shown as above

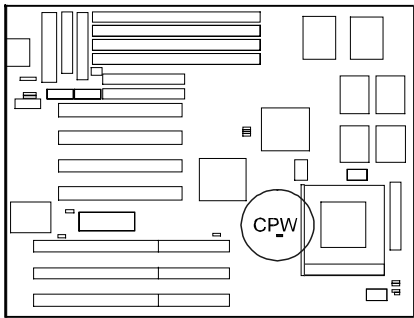


Jumpers in a Block

**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.

***Clear Password: CPW***

This jumper allows you to set the password configuration to **Enabled** or **Disabled**. You may need to enable this jumper if you forget your password.



1

Enable

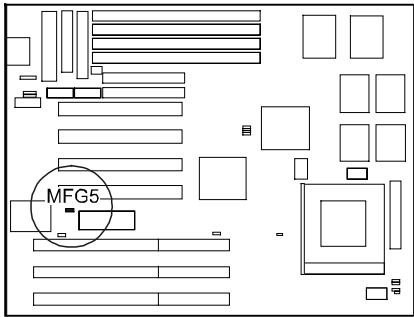


1

Disable  
(Default)

***Flash EPROM Type Selection: MFG5***

This jumper allows you to configure the Flash EPROM chip. This mainboard uses the SST chip as default.



1

Intel 28F001BX-T



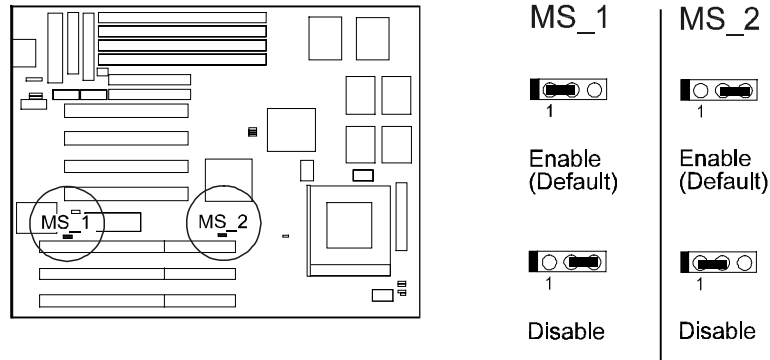
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SST 29EE010

**PS/2 Mouse Feature: MS\_1 and MS\_2 (optional)**

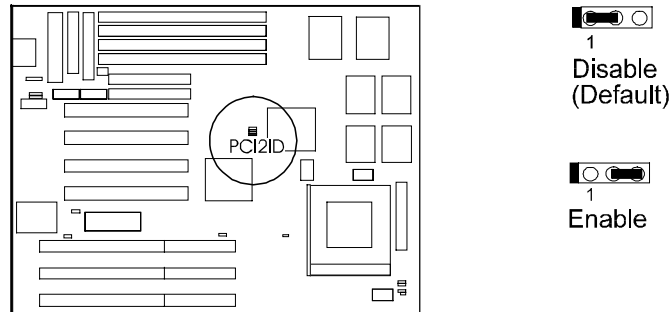
If your mainboard does not have these two jumpers, MS\_1 and MS\_2, do not need to refer to this **PS/2 Mouse Feature: MS\_1 and MS\_2** section.

These two jumpers allow you to release the **IRQ12**, if you do not install a PS/2 mouse.



**PCI2 ID: PCI2ID**

This setting is provided to allow you to install more than one PCI add-on card released before the launch of the PCI Encoding Standard in 1993.



**NOTE :** Please be aware that this feature is only provided for reasons of convenience and it is only in rare cases that the user needs to alter the default setting. Please consult your dealer for further information.

## 2). Install RAM Modules

### DRAM 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. The system RAM is comprised of industry-standard 72-pin Single In-line Memory Modules (SIMMs).

Occasionally the system must break apart data files because the entire file can not be fitted 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 with the lightning speed accessing a RAM, accessing a mechanical disk drive is a much slower process.

Burst Extended Data Out (BEDO) and Extended Data Out (EDO) memory are the latest DRAM chip designs that perform a lot better than Fast Page Mode DRAM type. With BEDO and EDO memory, CPU access to memory is 10 to 15% faster.

When more RAM is added, the working area of the computer is larger, thereby increasing total performance. You should verify the type and speed of the RAM currently installed from your dealer. Mixtures of the RAM types, other than those described in this manual, will have unpredictable results.

The PA-2005 is able to support standard **FPM (Fast Page Mode), BEDO (Burst EDO), and EDO (Extended Data Out) DRAM**; and can accommodate onboard memory from 8 to 512MB using SIMMs. The mainboard has two memory banks, Bank 0 and Bank 1. Each bank has two SIMM sockets which can accept either a pair of **4MB, 8MB, 16MB, 32MB, 64MB, or 128MB** SIMM in each socket. Bank 0 and Bank 1 allow different types of SIMMs (e.g. 4MB or 16MB); however, you must populate each memory bank with the same type of SIMM.

## RAM Module Configuration

TOTAL MEMORY	SIMM 1 & 2 (72-PIN X 2)	SIMM 3 & 4 (72-PIN X 2)
8MB	4MB & 4MB	
16MB	8MB & 8MB	
	4MB & 4MB	4MB & 4MB
24MB	8MB & 8MB	4MB & 4MB
32MB	8MB & 8MB	8MB & 8MB
	16MB & 16MB	
40MB	16MB & 16MB	4MB & 4MB
48MB	16MB & 16MB	8MB & 8MB
64MB	16MB & 16MB	16MB & 16MB
	32MB & 32MB	
72MB	32MB & 32MB	4MB & 4MB
80MB	32MB & 32MB	8MB & 8MB
96MB	32MB & 32MB	16MB & 16MB
128MB	32MB & 32MB	32MB & 32MB
	64MB & 64MB	
256MB	64MB & 64MB	64MB & 64MB
512MB	128MB* & 128MB*	128MB* & 128MB*

**NOTE :**

- 1, All memory banks use 72-pin memory modules.
2. \* A SIMM of this size was not available for testing when this manual was printed.

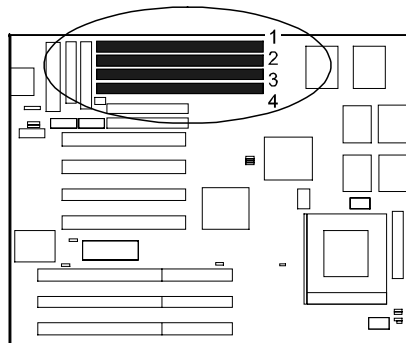
## Install SIMMs

Complete the following procedures to install SIMMs:

**CAUTION :**

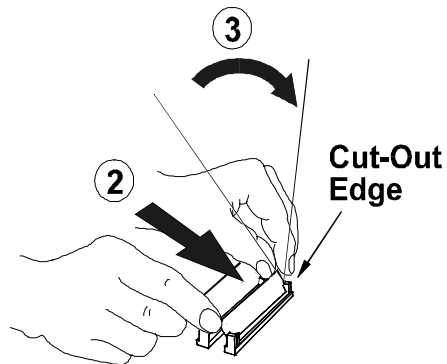
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.  
See "Handling Precautions" at the start of this manual.

1. Locate the SIMM slots on the mainboard. (See figure below.)



**NOTE :** SIMMs in each bank must be of the same type; and the BIOS automatically configures the memory size.

2. Carefully fit a SIMM at a 45 degree angle into each empty socket to be populated. All the SIMMs must face the same direction.



3. Swing each SIMM into its upright, locked position.  
When locking a SIMM in place, push on each end of the SIMM - do not push in the middle, as shown above.

### **Remove SIMMs**

To remove the SIMMs, pull the retaining latch on both ends of the socket and reverse the procedure above.

## Cache Memory

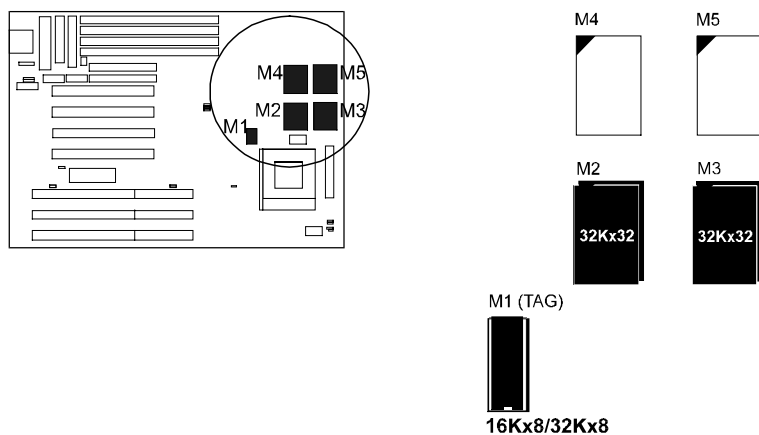
Cache memory access is very fast compared to main memory access. The cache holds data for imminent use. Since cache memory is from five to more than ten times faster than main memory, the CPU's access time is reduced, giving you better system performance.

Pentium mainboards may implement various types of L2 cache SRAMs. Pipeline Burst SRAM is one of them, delivering the best price performance ratio. They perform much better than asynchronous SRAMs.

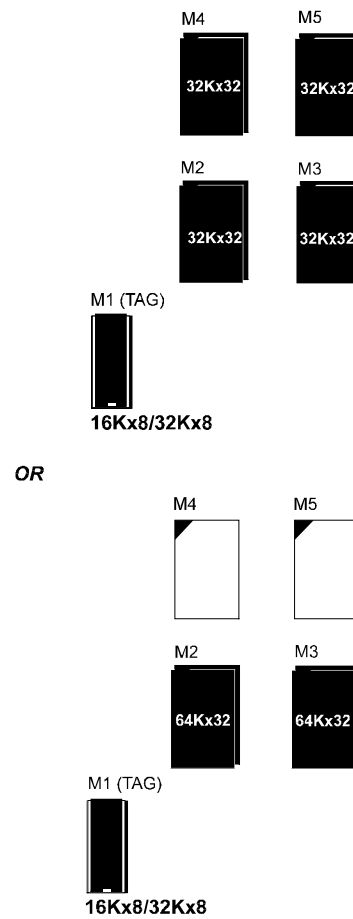
The PA-2005 comes with onboard 256KB/512KB/1MB synchronous 3V Pipeline Burst SRAMs. Please note that for 256KB secondary cache, M2 and M3 should be mounted with 32Kx32 Pipeline Burst SRAM. (Please refer to your dealer for the 512KB/1MB cache upgrade and the appropriate SRAM type.)

**NOTE :** Use the correct chips for the amount of cache memory you want to add. Install both the correct SRAM module and tag SRAM.

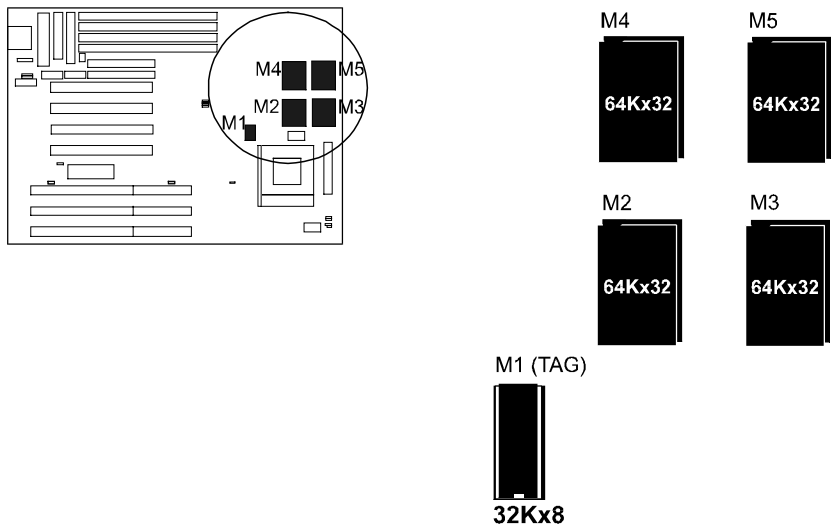
### 256KB Cache SRAM



512KB Cache SRAM

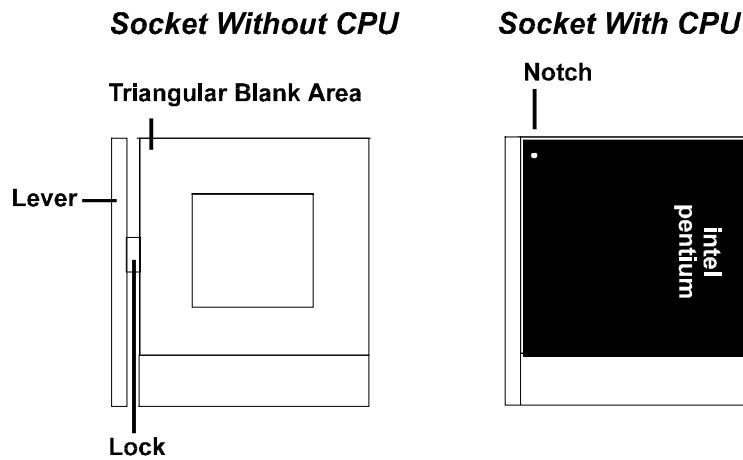
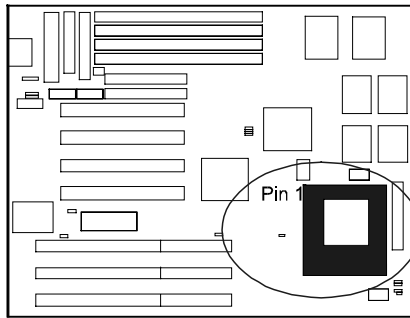


1MB Cache SRAM



### 3). Install the CPU

The CPU module resides in the Zero Insertion Force (ZIF) socket on the mainboard.



**CAUTION :**

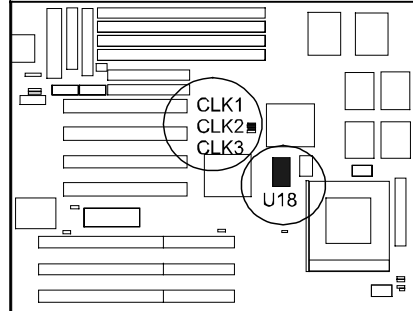
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.  
See "Handling Precautions" at the start of this manual.
3. Inserting the CPU chip incorrectly may damage the chip.



















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 orientate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. See the following sections for information on the CPU jumpers settings.

### CPU External Clock (BUS) Frequency: CLK1, CLK2, CLK3

The table below shows the jumper settings for the different CPU speed configurations.



CPU Speed	CLK1	CLK2	CLK3
75 MHz	 1	 1	 1
75 MHz	 1	 1	 1
66 MHz	 1	 1	 1
60 MHz	 1	 1	 1
55 MHz	 1	 1	 1
50 MHz	 1	 1	 1

The 75 MHz Settings in the left-hand side table is only for Cyrix 6x86-P200+ (150 MHz) and for IBM 6x86-P200+ (150 MHz).

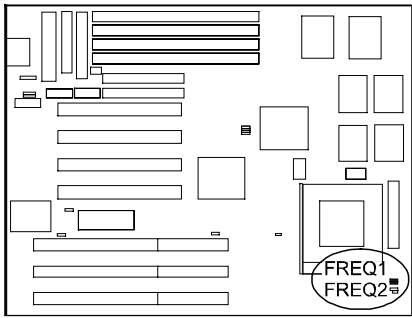
← for PLL52C59-14TSC onboard (U18)









← for W48C60-234 onboard (U18)

If Jumper CLK3 is a 1x3 pin-header, the mainboard supports 75 MHz; otherwise, the jumper is wired, the mainboard does not support 75 MHz.

**CPU to Bus Frequency Ratio: *FREQ1, FREQ2***









































These two jumpers are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.

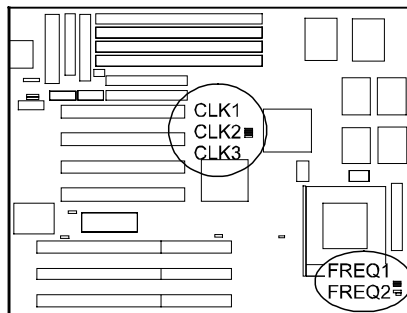


FREQ1	FREQ2	Ratio		
		Intel	Cyrix	AMD
 1	 1	3 x	3 x	
 1	 1	2.5 x	2.5 x	1.75 x
 1	 1	2 x	2 x	2 x
 1	 1	1.5 x	3.5 x	1.5 x

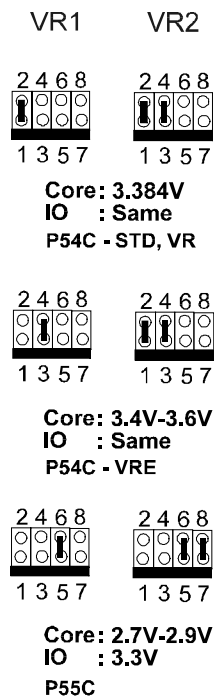
## Intel Pentium CPUs

### *Frequency*

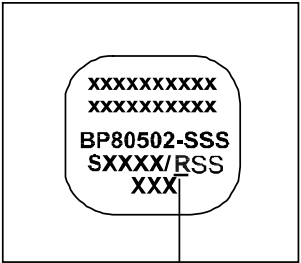
CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
					Internal	FREQ1	FREQ2
200 MHz	66 MHz	 1	 1	 1	3 x	 1	 1
166 MHz	66 MHz	 1	 1	 1	2.5 x	 1	 1
150 MHz	60 MHz	 1	 1	 1	2.5 x	 1	 1
133 MHz	66 MHz	 1	 1	 1	2 x	 1	 1
120 MHz	60 MHz	 1	 1	 1	2 x	 1	 1
100 MHz	66 MHz	 1	 1	 1	1.5 x	 1	 1
90 MHz	60 MHz	 1	 1	 1	1.5 x	 1	 1
75 MHz	50 MHz	 1	 1	 1	1.5 x	 1	 1



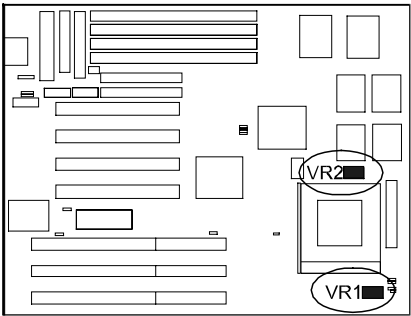
Voltage



Intel Pentium CPU  
Bottom Side Marking





















































R (Identifier for Voltage Range) :  
V for VRE Voltage Range  
or  
S for Standard Voltage Range

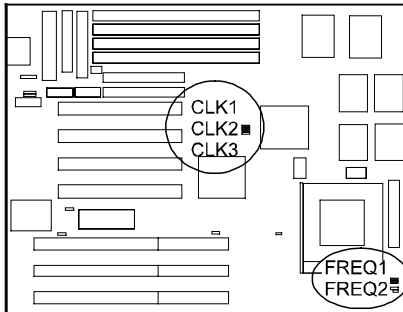


## AMD-K5/K6 CPUs

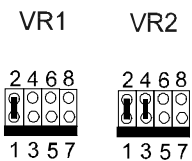
### Frequency

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
K6-200	200 MHz	66 MHz	 1	 1	 1	3 x	 1	 1
K6-166	166 MHz	66 MHz	 1	 1	 1	2.5 x	 1	 1
K5-PR200	133 MHz	66 MHz	 1	 1	 1	2 x	 1	 1
K5-PR166	116 MHz	66 MHz	 1	 1	 1	1.75 x**	 1	 1
K5-PR150	105 MHz	60 MHz	 1	 1	 1	1.75 x**	 1	 1
K5-PR133	100 MHz	66 MHz	 1	 1	 1	1.5 x	 1	 1
K5-PR120	90 MHz	60 MHz	 1	 1	 1	1.5 x	 1	 1
K5-PR100	100 MHz	66 MHz	 1	 1	 1	1.5 x	 1	 1
K5-PR90	90 MHz	60 MHz	 1	 1	 1	1.5 x	 1	 1
K5-PR75	75 MHz	50 MHz	 1	 1	 1	1.5 x	 1	 1

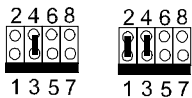
**NOTE :** \*\* For AMD CPUs only, jumper FREQ1/FREQ2 can be set for 1.75x bus ratio.



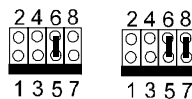
Voltage



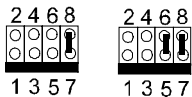
Core : 3.384V  
IO : Same  
AMD-K5 - C, F



Core : 3.4V-3.6V  
IO : Same  
AMD-K5 - B

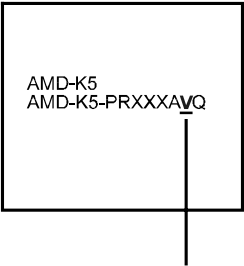


Core : 2.7V-2.9V  
IO : 3.3V  
AMD-K5 - H, J



Core : 2.9V  
IO : 3.3V  
AMD-K5 - K  
K6-166/200

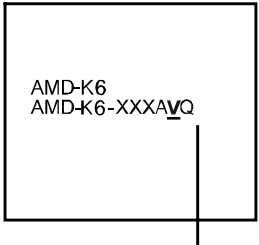
AMD-K5 CPU  
Top Side Marking



V (Identifier for Operation Voltage) :

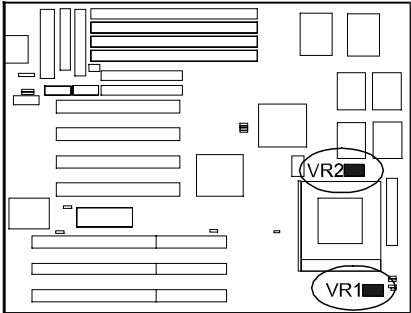
B	H	Please refer to the left-hand-side table
C	J	
F	K	

AMD-K6 CPU  
Top Side Marking






































V (Identifier for Operation Voltage) :

N	3.1-3.3V Core/3.135-3.6V I/O
L	2.755-3.045V Core/3.135-3.6V I/O



## Cyrix 6x86/MX CPUs

### Frequency

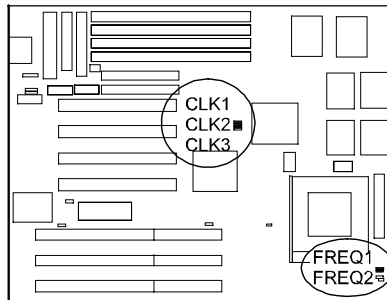
Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
6x86MX-PR200*	166 MHz	66 MHz	 1	 1	 1	2.5 x	 1	 1
6x86MX-PR166*	150 MHz	60 MHz	 1	 1	 1	2.5 x	 1	 1
6x86-P200+ 6x86L-P200+	150 MHz	75 MHz <sup>+</sup>	 1	 1	 1	2 x	 1	 1
6x86-P166+ 6x86L-P166+	133 MHz	66 MHz	 1	 1	 1	2 x	 1	 1
6x86-P150+ 6x86L-P150+	120 MHz	60 MHz	 1	 1	 1	2 x	 1	 1
6x86-P133+ 6x86L-P133+	110 MHz	55 MHz	 1	 1	 1	2 x	 1	 1
6x86-P120+ 6x86L-P120+	100 MHz	50 MHz	 1	 1	 1	2 x	 1	 1

#### NOTE :

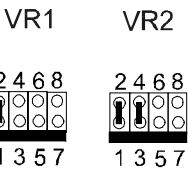
\* This CPU had not been tested when this manual was printed.

\*\* For Cyrix/IBM CPUs only, FREQ1/2 can be set for 3.5x bus ratio.

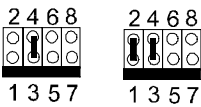
+ Please read Page 27 "CLK1, CLK2, CLK3".



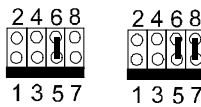
Voltage



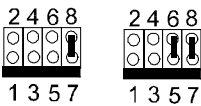
Core : 3.3V  
IO : Same  
Cyrrix 6x86-016



Core : 3.4V-3.6V  
IO : Same  
Cryix 6x86-028

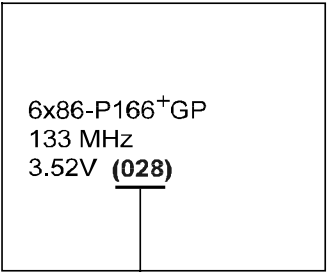


Core : 2.8V  
IO : 3.3V  
Cyrrix 6x86L \*

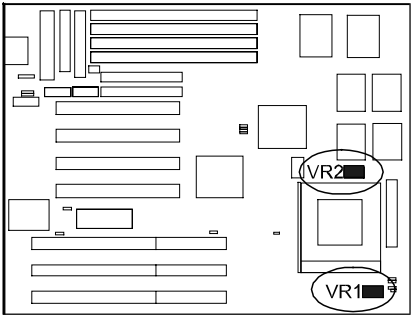


Core : 2.9V  
IO : 3.3V  
Cyrrix 6x86MX

Cyrrix 6x86 CPU  
Top Side Marking






































(016) : 3.3V  
(028) : 3.52V



## IBM 6x86/MX CPUs

### Frequency

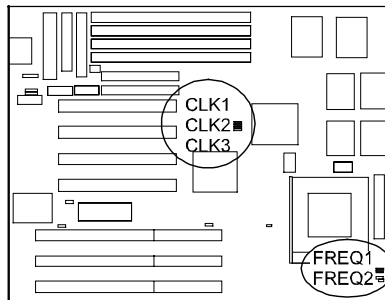
Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
6x86MX-PR200*	166 MHz	66 MHz	 1	 1	 1	2.5 x	 1	 1
6x86MX-PR166*	150 MHz	60 MHz	 1	 1	 1	2.5 x	 1	 1
6x86-P200+ 6x86L-P200+	150 MHz	75 MHz <sup>+</sup>	 1	 1	 1	2 x	 1	 1
6x86-P166+ 6x86L-P166+	133 MHz	66 MHz	 1	 1	 1	2 x	 1	 1
6x86-P150+ 6x86L-P150+	120 MHz	60 MHz	 1	 1	 1	2 x	 1	 1
6x86-P133+ 6x86L-P133+	110 MHz	55 MHz	 1	 1	 1	2 x	 1	 1
6x86-P120+ 6x86L-P120+	100 MHz	50 MHz	 1	 1	 1	2 x	 1	 1

#### NOTE :

\* This CPU had not been tested when this manual was printed.

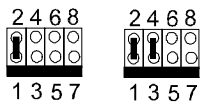
\*\* For Cyrix/IBM CPUs only, FREQ1/2 can be set for 3.5x bus ratio.

+ Please read Page 27 "CLK1, CLK2, CLK3".

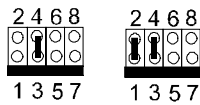


Voltage

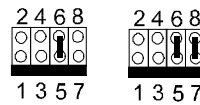
VR1      VR2



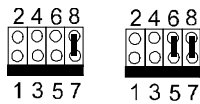
Core : 3.3V  
IO : Same  
IBM 6x86-016



Core : 3.4V-3.6V  
IO : Same  
IBM 6x86-028

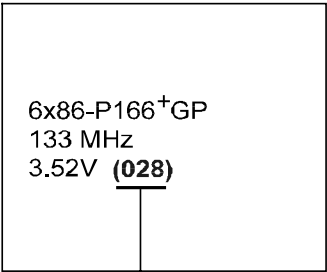


Core : 2.5V  
IO : 3.3V  
IBM 6x86L \*



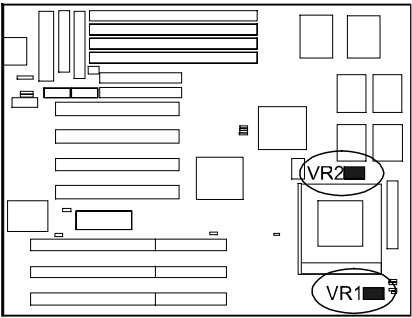
Core : 2.9V  
IO : 3.3V  
IBM 6x86MX

IBM 6x86 CPU  
Top Side Marking



(016) : 3.3V

(028) : 3.52V

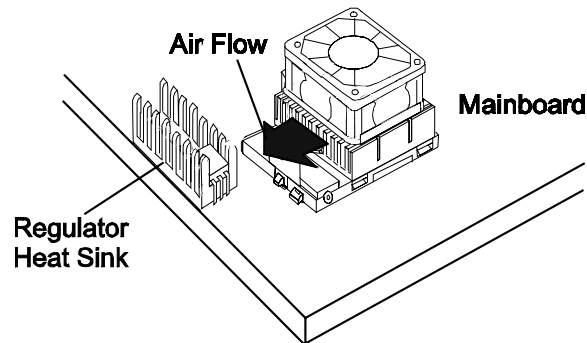


## Installation of Cyrix (or IBM) 6x86 CPU Fan

**CAUTION :** When you install a Cyrix (or IBM) 6x86 CPU fan, please pay attention to the direction of the air flow. Make sure that it lowers the temperature of the regulator. Otherwise, the system may overheat.

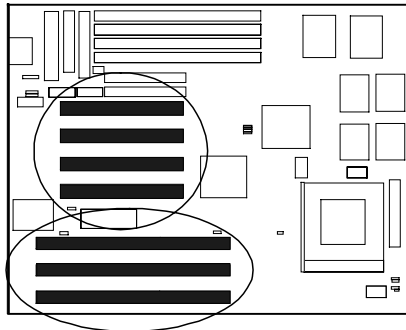
We recommend that you use one of the following two CPU fans for the Cyrix (or IBM) 6x86 CPU when you install the fan on the mainboard.

- 1). Supplier : BIRCHTECK, Taiwan (Phone : 886-2-7935677)  
Model Number - BEC6x86B1.
- 2). Supplier : Cyrix (or IBM). The fan comes with the Cyrix (or IBM) 6x86 CPU purchase. For the stable system performance, make sure that the air flow blow toward the regulator the temperature of the regulator.



## 4). Install Expansion Cards

Your PA-2005 features four 16-bit ISA Bus and four 32-bit PCI Bus expansion slots.



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.

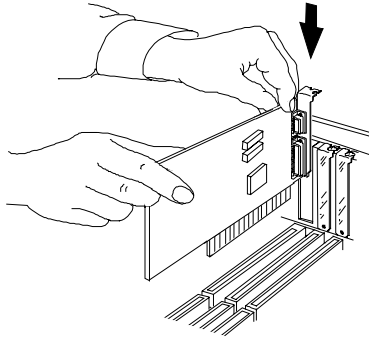
### **CAUTION :**

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.

To install an expansion card, do the following:

1. Remove the chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the chassis.  
Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the 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. (See figure below.)

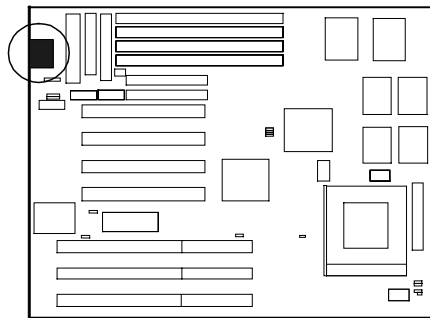


4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this “rocking” motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.

## 5). Connect Cables and Power Supply

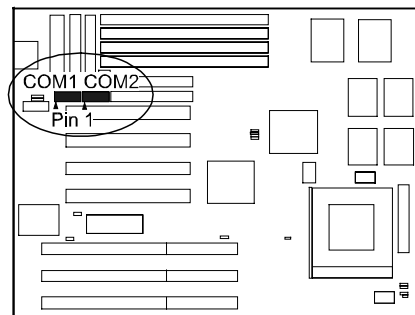
### ***Keyboard Connector: AT\_KB***

This 5-pin female connector is used for your 101-key enhanced keyboard or 106-key Windows 95 keyboard.



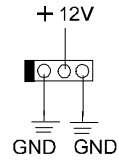
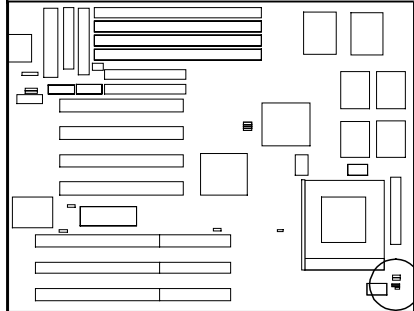
### ***Serial Port Connector: COM1 and COM2***

These two 10-pin male connectors allow you to connect with your devices that take serial ports, such as a serial mouse or a modem. The COM2 Port on the PA-2005 mainboard can also be used as another IR Port. Usually, your serial mouse is attached to COM1. Your modem is linked to COM2. When you do not use the modem, you can set the BIOS to let COM2 be an IR port to save a dedicated SIR port.



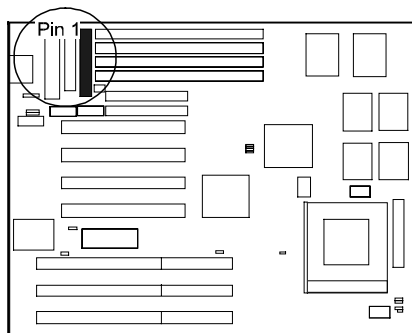
***CPU Fan Connector: FAN***

This connector is linked to the CPU fan.



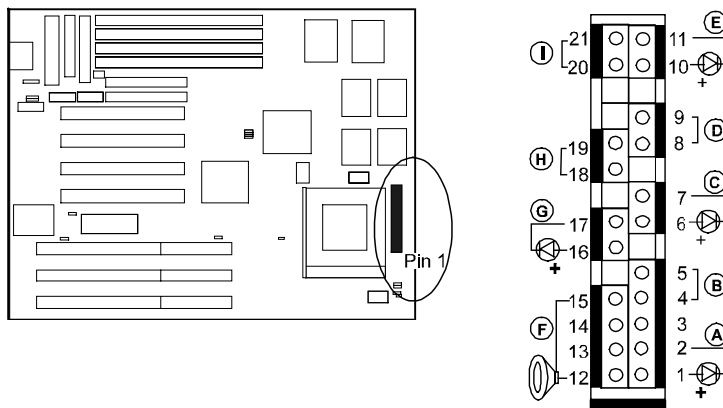
***Floppy Diskette Drive Connector: FLOPPY***

This 34-pin block connector connects to your floppy diskette drive (FDD) using the cable that is provided with this mainboard.



### Front Panel Block Connector: F\_PNL

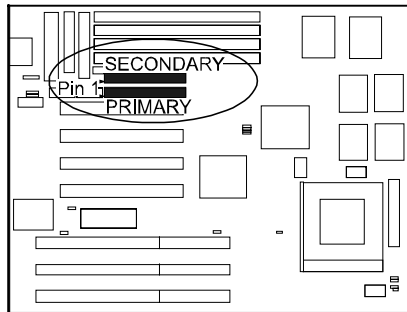
This block connector includes: PW\_LED, KB\_LOCK, TB\_LED, SP\_SW, SPK, SP\_LED, IDE\_LED, RPW\_SW, and RST connectors.



Item	Connector	Pin Type	Feature
A	PW_LED	2-pin male	indicates the system power status
B	KB_LOCK	2-pin male	allows the keyboard to access the system
C	TB_LED	2-pin male	indicates the system speed is in normal or turbo speed
D	SP_SW	2-pin male	Suspend mode switch
E	SP_LED	2-pin male	indicates the system into Suspend mode when LED lit
F	SPK	4-pin male	connects to speaker
G	IDE_LED	2-pin male	indicates the IDE HDD I/O access LED lit
H	RPW_SW	2-pin male	remote power switch
I	RST	2-pin male	allows you to reset the system

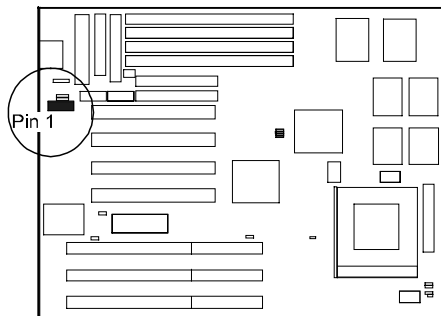
### ***IDE HDD Device Connector: PRIMARY and SECONDARY***

These two 40-pin block connectors are used for your IDE hard disks. If you have one IDE hard disk, connect it to the PRIMARY connector using the IDE HDD flat cable provided with the mainboard. The BIOS auto detection sets it to be a **Primary Master** disk. If you want to install another IDE hard disk or CD-ROM, please use the SECONDARY connector. If two hard disks are connected to the PRIMARY connector using the same cable, one of them is the master drive, the other one is the slave drive. You may need to set jumpers for the slave drive; please refer to the HDD manual for details.



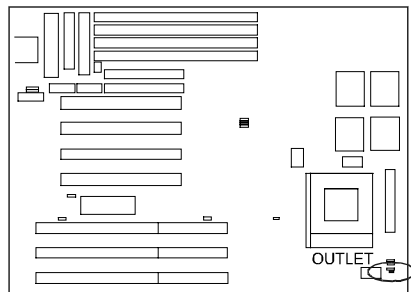
### ***Infrared Connector: IR***

This 10-pin male connector is used for connecting to the infrared (SIR) port and allows transmission of data to another system which also supports the SIR feature.



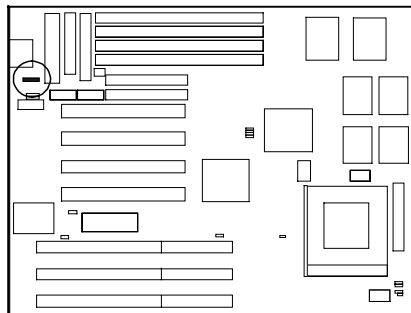
***Outlet Connector: OUTLET***

This 2-pin male connector is used for connecting to the system power supply for enabling (disabling) the power output from the direct connection of the system power supply. (This feature is designed for monitors without DPMS mode support and only applies if the monitor is directly connected to the system power supply.)



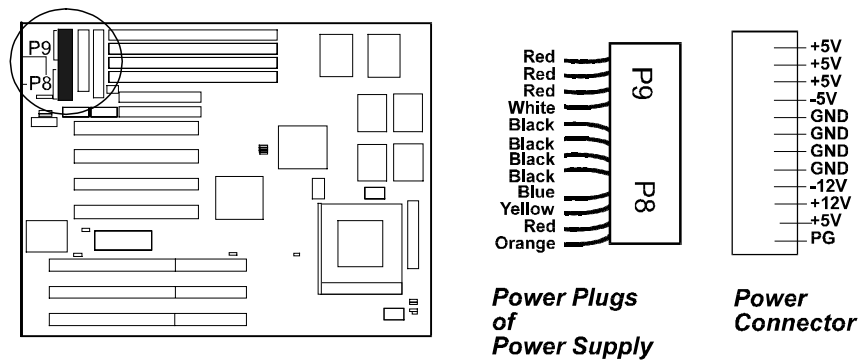
***PS/2 Mouse Connector: MS\_CON***

This connector is connected to the PS/2 mouse. Please read **Page 17**, also.



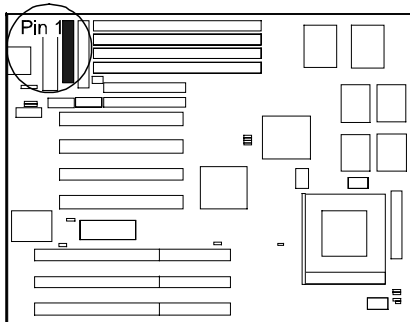
### ***Standard Power Connector: POWER***

This 12-pin block connector is used for connecting to the standard 5V power supply. In the picture below, notice that, in most cases, there are two marks **P8** and **P9** on the surface of the connector. You have to insert the **P8** plug into the **P8** section of the connector, and so forth for **P9**. Two black wires must be in the middle.



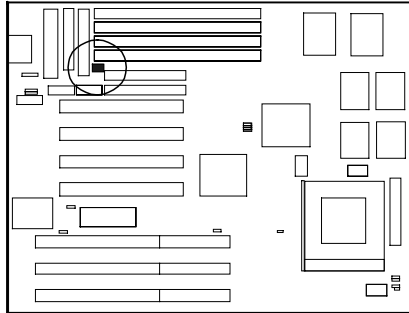
### ***Printer Connector: PRINTER***

This 26-pin male block connector is attached to your printer via a cable. When inserting the cable, please be sure that the red line is always on the same side as pin 1 of this connector.



***Remote Power Supply Connector: RPW\_CON***

This 3-pin male connector allows you to enable (or disable) the system power if the RPW\_SW is on (or off).



***Universal Serial Bus Connectors (reserved for future upgrade)***

This connects to the port that allows you to attach a USB hub. The USB connectors are built-in for future upgrade of devices or peripherals that support Universal Serial Bus features.

