

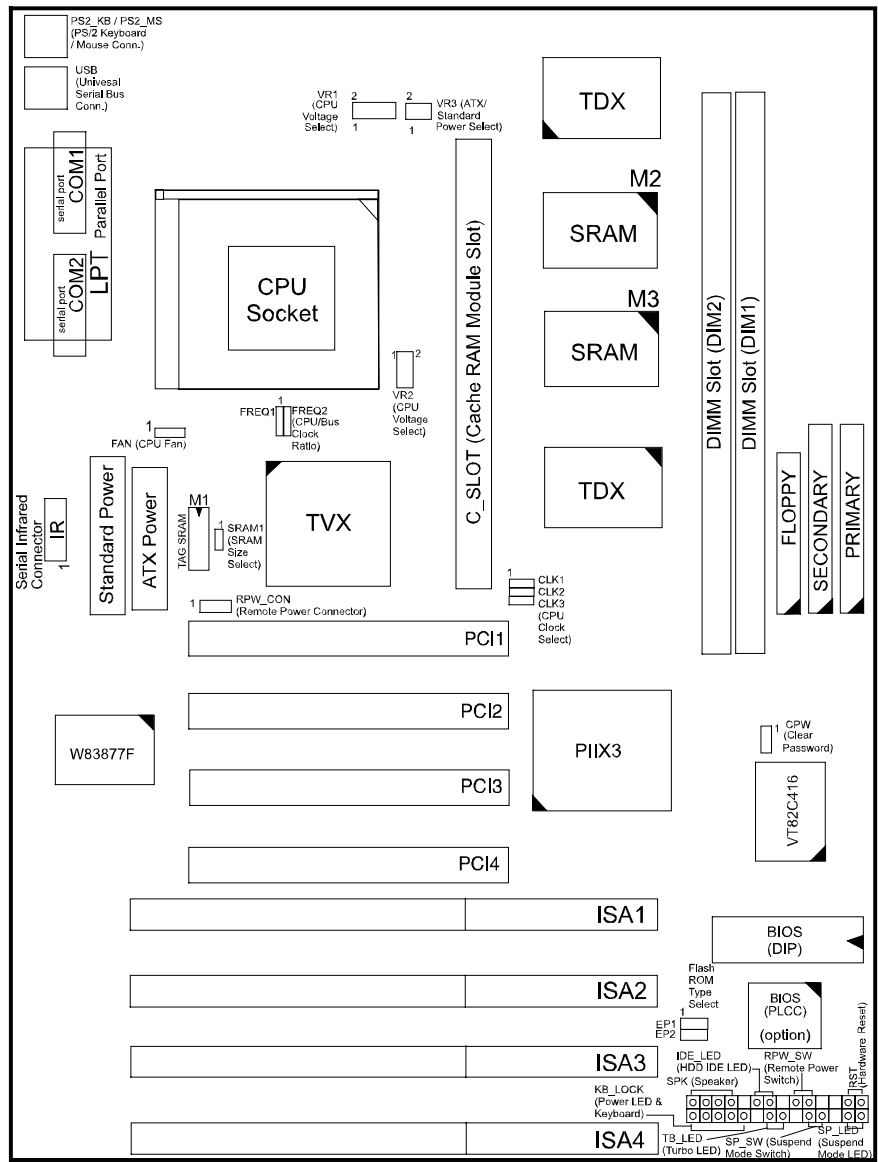
Installation Procedures

The PT-2010 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 3)

Mainboard Layout



1). Set System Jumpers

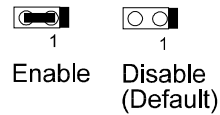
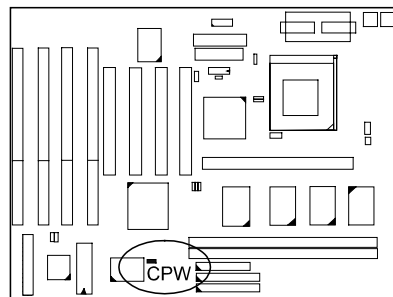
Jumpers

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 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.

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.

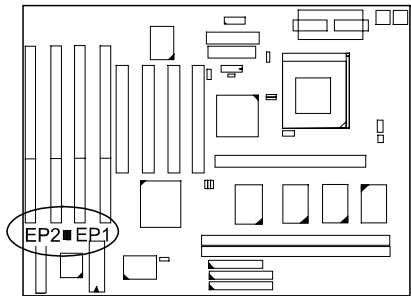
Clear Password: CPW













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.



Flash ROM Type Selection: EP1 and EP2

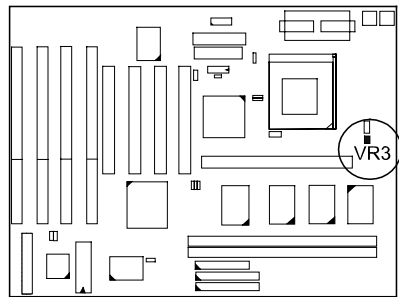
These two jumpers allow you to select the flash ROM type.





ROM Type	EP1	EP2
MXIC 28F1000		
Intel 28F001		
SST 29EE010		
ATMEL 29C010A		
MXIC 28F2000		
SST 29EE020		

Power Supply Selection: VR3

If you use an ATX power supply, please set this 4-pin jumper as shown below.



AT Power Supply (Default)	
ATX Power Supply	

2). Install System RAM Modules

SDRAM Memory

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance.

The mainboard supports lightening-fast SDRAMs through its two 168-pin Dual In-line Memory Modules (DIMM). SDRAM is an advanced new memory technology that boosts overall system performance with its ability to synchronize all operations with the processor clock signal. This makes the implementation of control interfaces easier, and speeds up column access time. SDRAM features an on-chip burst counter that can be utilized to increment column addresses for very fast burst accesses, which means that SDRAM allows new memory accesses to be initiated before the preceding access has been finished.

Before making DRAM module 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

TOTAL MEMORY	DIM1 BANK0 (168-PIN X 1)	DIM2 BANK1 (168-PIN X 1)
8MB	8MB	
16MB	16MB	
	8MB	8MB
24 MB	8MB	16MB
	24MB	
32 MB	32MB	
	8MB	24MB
	16MB	16MB
40MB	8MB	32MB
	16MB	24MB
48MB	16MB	32MB*
	24MB	24MB
64MB	32MB*	32MB*
72MB	64MB*	8MB
80MB	64MB*	16MB
96MB	64MB*	32MB*
128MB	64MB*	64MB*

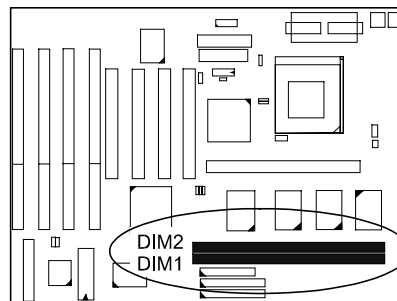
NOTE :

1. * A DIMM of this size was not available for testing when this book was printed.
2. DIM1 and DIM2 only support 3.3V (unbuffer) EDO and SDRAM modules.

Install DIMMs

Complete the following procedures to install DIMMs:

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



2. Insert the DIMM straight down onto the DIMM slot with both hands carefully until the clips on the ends of the slot close up to hold the DIMM firmly.

Remove DIMMs

Press the clips on the ends of the slot with both hands. The DIMM will spring out easily.

Cache Memory

Cache memory access is very fast compared to main memory access. The cache holds data for imminent use. Since cache memory is 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.

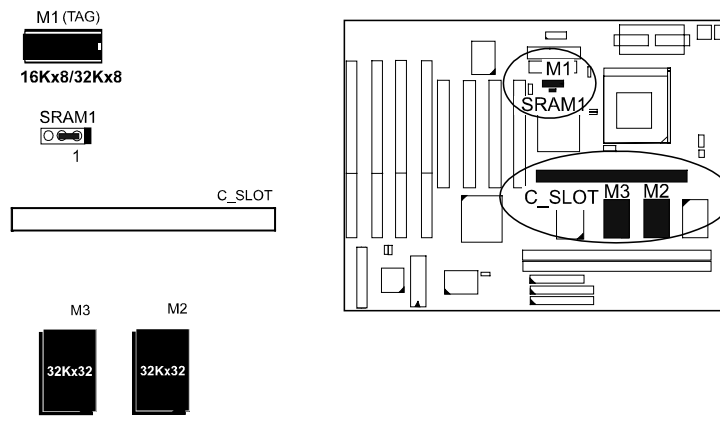
The specification of the SRAM module requires Intel Coast Standard version 3.X, such as FIC's PB512K-3.0.

The PT-2010 comes with onboard 256/512KB synchronous 3V Pipeline Burst SRAMs, and one optional 256/512KB SRAM module (FIC's PB512K-3.0 is recommended) that can be installed on the SRAM module slot.

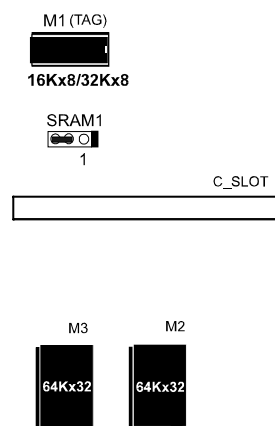
<p>NOTE : Use the correct chips for the amount of cache memory you want to add. Install both the correct SRAM module and tag SRAM.</p>

Onboard Cache RAM (256KB/512KB)

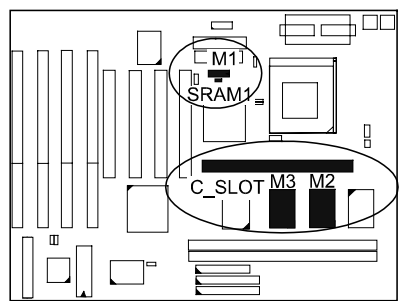
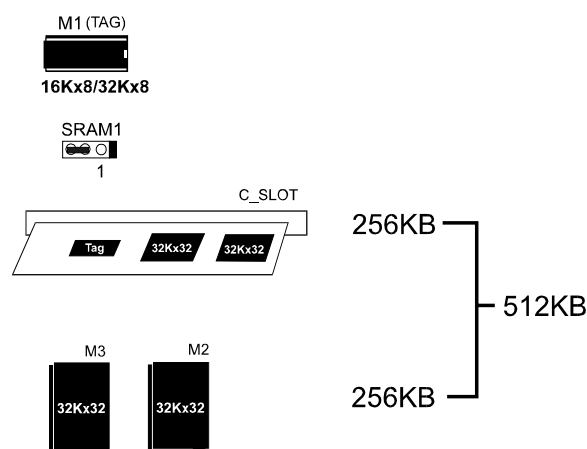
256KB



512KB

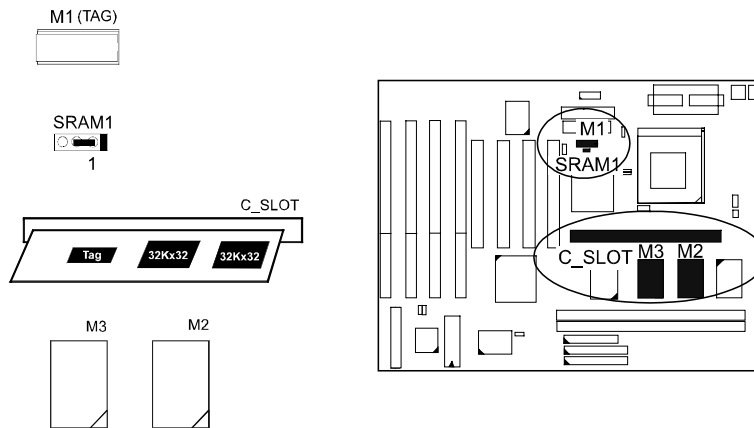


**Onboard Cache RAM and SRAM Module Mixture
(512KB)**

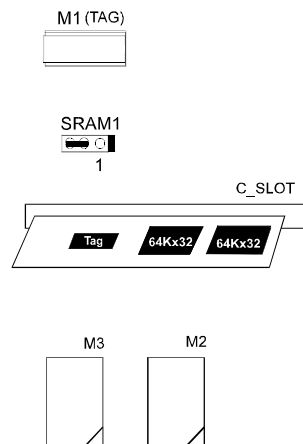


SRAM Module (256KB/512KB)

256KB

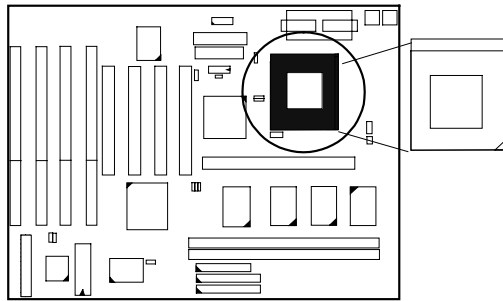


512KB



3). Install the CPU

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



CAUTION :

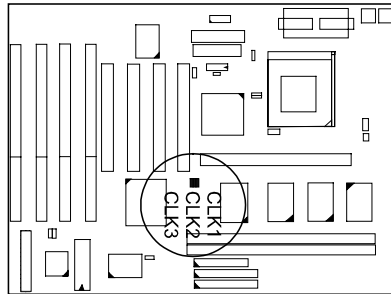
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.
See "Handling Precautions" at the start of this manual.
3. Inserting the CPU chip incorrectly may damage the chip.

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, and CLK3

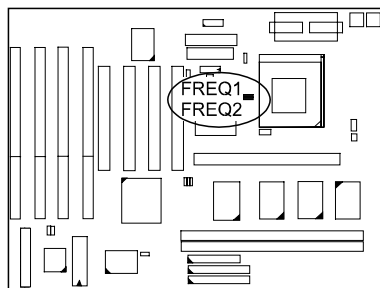
The table below shows the jumper settings for the different CPU speed configurations.



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

CPU to Bus Frequency Ratio: FREQ1 and FREQ2









































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

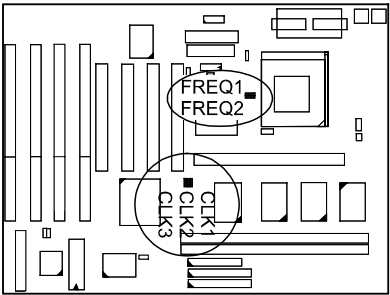


FREQ1	FREQ2	Ratio		
		Intel	Cyrix	AMD
		3 x	3 x	
		2.5 x	2.5 x	1.75 x
		2 x	2 x	2 x
		1.5 x	3.5 x	1.5 x

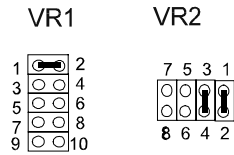
Intel Pentium CPUs

Frequency

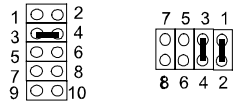
CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
					Internal	FREQ1	FREQ2
200 MHz	66 MHz				3 x	 1	 1
166 MHz	66 MHz				2.5 x	 1	 1
150 MHz	60 MHz				2.5 x	 1	 1
133 MHz	66 MHz				2 x	 1	 1
120 MHz	60 MHz				2 x	 1	 1
100 MHz	66 MHz				1.5 x	 1	 1
90 MHz	60 MHz				1.5 x	 1	 1
75 MHz	50 MHz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



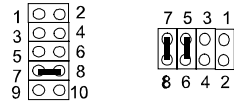
Voltage



Core : 3.4V-3.6V
IO : Same
P54C VRE

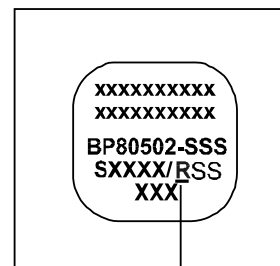


Core : 3.3V
IO : Same
P54C STD



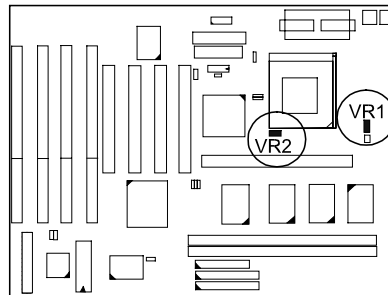
Core : 2.8V
IO : 3.3V
P55C

Intel Pentium CPU Bottom Side Marking



R (Identifier for Voltage Range) :

V for VRE Voltage Range
or
S for Standard Voltage Range

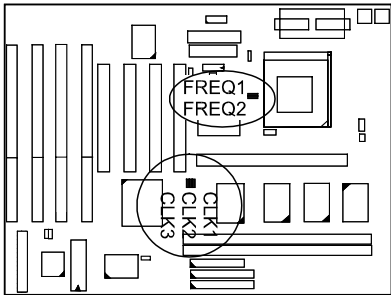


AMD-K5 CPUs

Frequency

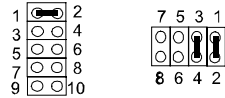
Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate			Remark
						Internal	FREQ1	FREQ2	
K5-PR200*	133 MHz	66 MHz				2 x Ext.	1	1	Newly released models
K5-PR166*	116 MHz	66 MHz				1.75 x Ext.**	1	1	
K5-PR150	105 MHz	60 MHz				1.75 x Ext.**	1	1	
K5-PR133	100 MHz	66 MHz				1.5 x Ext.	1	1	Currently available models
K5-PR120	90 MHz	60 MHz				1.5 x Ext.	1	1	
K5-PR100	100 MHz	66 MHz				1.5 x Ext.	1	1	
K5-PR90	90 MHz	60 MHz				1.5 x Ext.	1	1	
K5-PR75	75 MHz	50 MHz				1.5 x Ext.	1	1	

NOTE :
* This CPU had not been tested when this manual was printed.
** For AMD CPUs only, jumper FREQ1/FREQ2 can be set for 1.75x bus ratio.

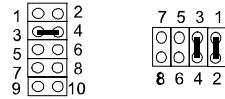


Voltage

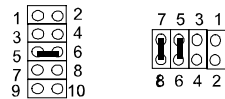
VR1 VR2



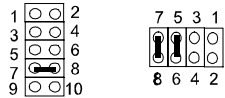
Core : 3.4V-3.6V
IO : Same
AMD-K5 - B



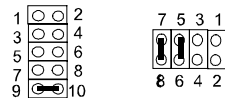
Core : 3.3V
IO : Same
AMD-K5 - C, F



Core : 2.9V
IO : 3.3V
AMD-K5 - H

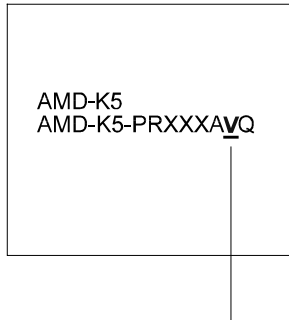


Core : 2.8V
IO : 3.3V
AMD-K5 - J



Core : 2.5V
IO : 3.3V
AMD-K5 - K

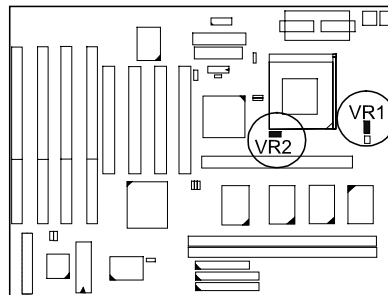
AMD-K5 CPU Top Side Marking



V (Identifier for Operation Voltage) :

B
C
F
H
J
K

Please refer to
the left-hand-side table



Cyrix 6x86 CPUs

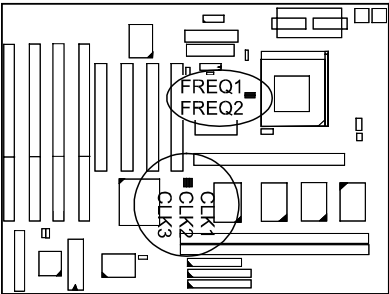
Frequency

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
M2 [*]	200 MHz	66 MHz				3.5 x ^{**}		
M2 [*]	180 MHz	60 MHz				3 x		
M2 [*]	166 MHz	66 MHz				2.5 x		
M2 [*]	150 MHz	60 MHz				2.5 x		
6x86-P166+ 6x86L-P166+	133 MHz	66 MHz				2 x		
6x86-P150+ 6x86L-P150+	120 MHz	60 MHz				2 x		
6x86-P133+ 6x86L-P133+	110 MHz	55 MHz				2 x		
6x86-P120+ 6x86L-P120+	100 MHz	50 MHz				2 x		

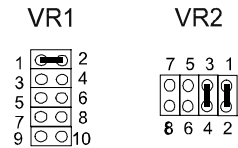
NOTE :

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

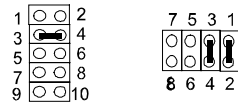
** For Cyrix/IBM CPUs only, FREQ1/2 can be set for 3.5x bus ratio.



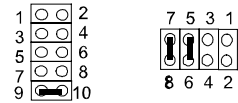
Voltage



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

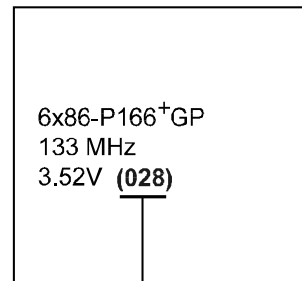


Core : 3.3V
IO : Same
Cyrix 6x86-016



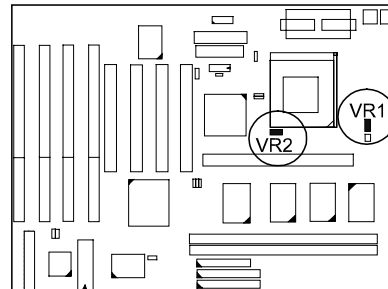
Core : 2.8V
IO : 3.3V
Cyrix 6x86L *

Cyrix 6x86 CPU Top Side Marking



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

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

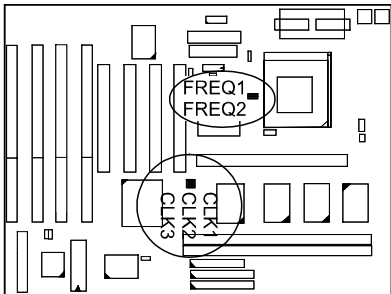


IBM 6x86 CPUs

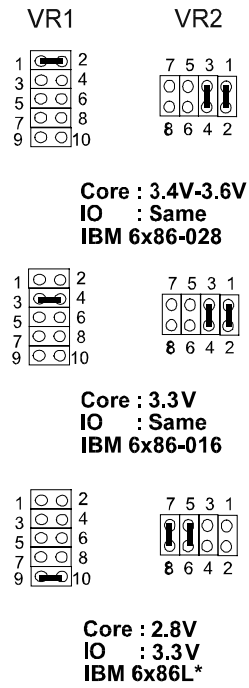
Frequency

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
M2*	200 MHz	66 MHz				3.5 x**		
M2*	180 MHz	60 MHz				3 x		
M2*	166 MHz	66 MHz				2.5 x		
M2*	150 MHz	60 MHz				2.5 x		
6x86-P166+ 6x86L-P166+	133 MHz	66 MHz				2 x		
6x86-P150+ 6x86L-P150+	120 MHz	60 MHz				2 x		
6x86-P133+ 6x86L-P133+	110 MHz	55 MHz				2 x		
6x86-P120+ 6x86L-P120+	100 MHz	50 MHz				2 x		

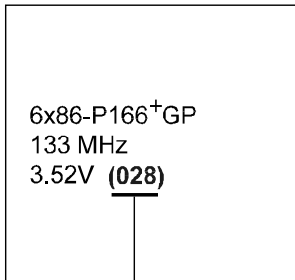
NOTE :
* This CPU had not been tested when this manual was printed.
** For Cyrix/IBM CPUs only, FREQ1/2 can be set for 3.5x bus ratio.



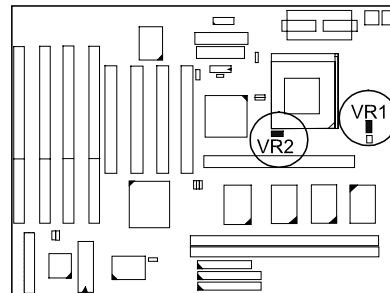
Voltage



IBM 6x86 CPU Top Side Marking



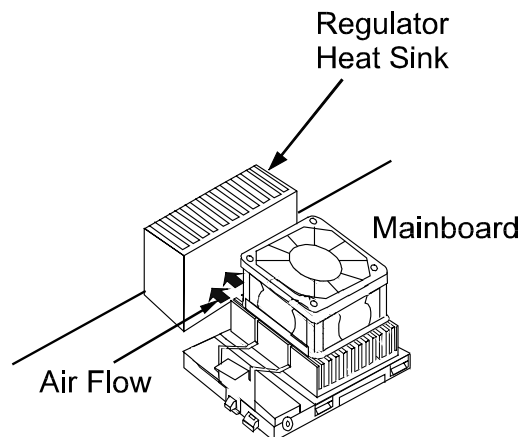
NOTE : * This CPU had not been tested when this manual was printed.



Installation of Cyrix (or IBM) 6x86 CPU Fan

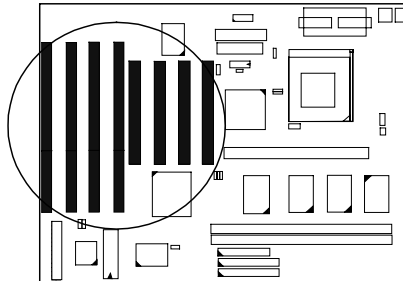
CAUTION : When you install a Cyrix (or IBM) 6x86 CPU fan, please pay attention to the direction of the air flow. Make sure the air flow is the direction of the regulator; otherwise, the system may overheat.

- 1). Supplier : BIRCHTECK, Taiwan (Phone : 886-2-7935677)
Model Number - BEC6x86B2.
- 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 mainboard 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.

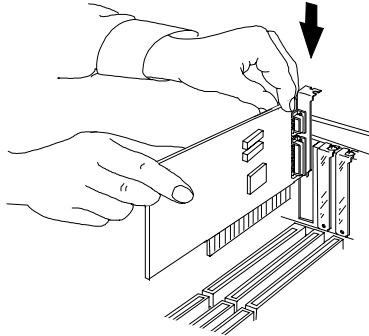
CAUTION :

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.)

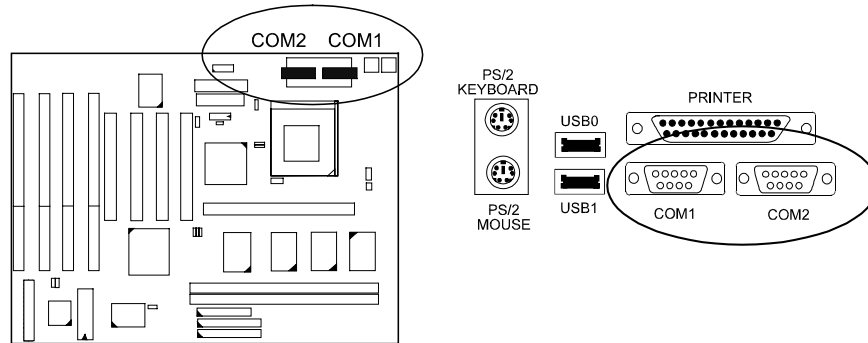


4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this “rocking” motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely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

5). Connect Cables and Power Supply

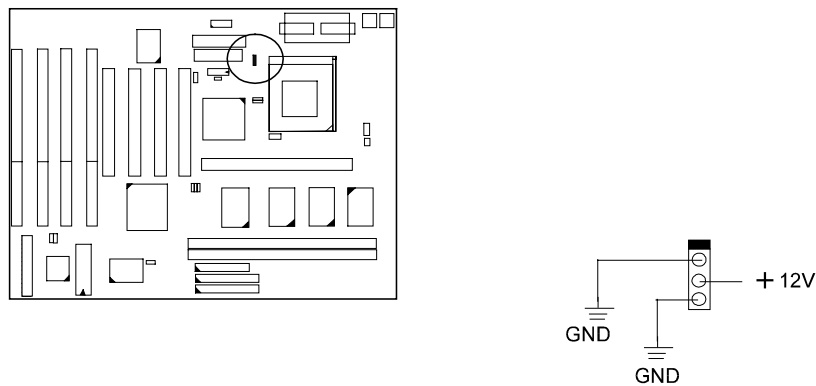
Serial Port Connector: COM1 and COM2

These two 9-pin D-Sub 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 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.



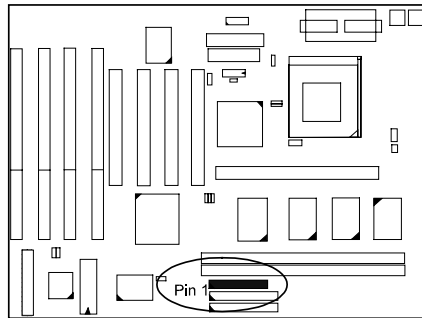
CPU Fan Connector: FAN

This connector is linked to the CPU fan.



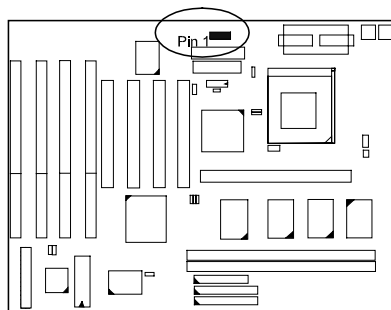
Floppy Diskette Drive Connector: FLOPPY

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



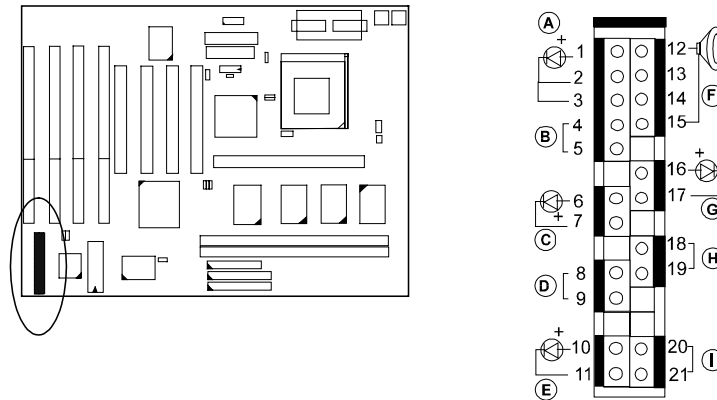
Infrared Connector: IR

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.



Front Panel Block Connector: F_PNL

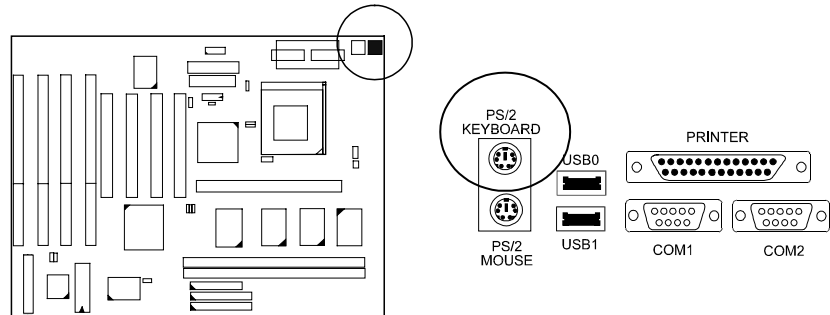
This block connector concludes : PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.



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

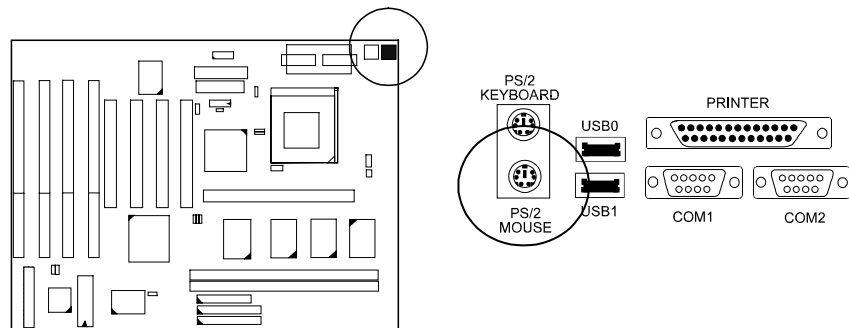
/2 Keyboard Connector: PS2_KB

This 6-pin female connector is used for your PS/2 keyboard.



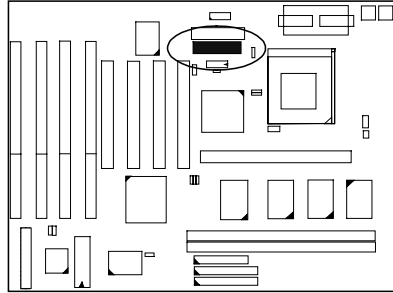
PS/2 Mouse Connector: PS2_MS

This connector is connected to the PS/2 mouse.



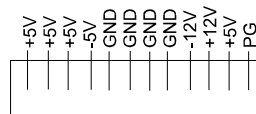
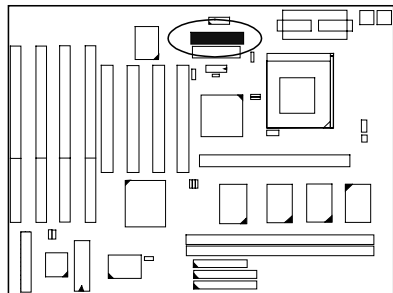
ATX Power Connector: ATXPOWER

This 20-pin male block connector is connected to the ATX power supply.

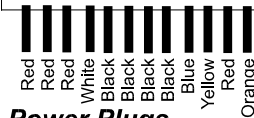
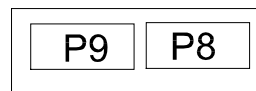


Standard Power Connector: POWER

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.



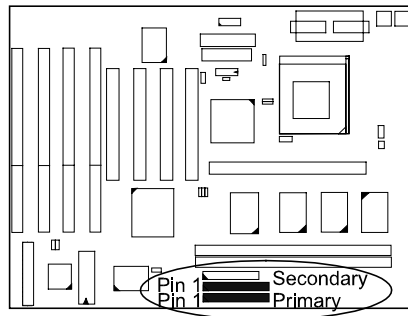
***Power
Connector***



***Power Plugs
of
Power Supply***

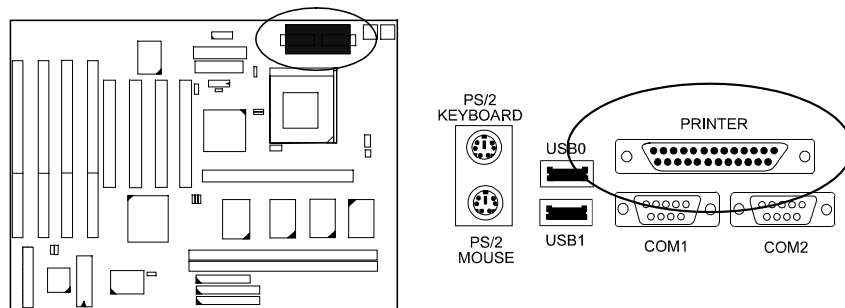
IDE HDD Device Connector: PRIMARY and SECONDARY

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.



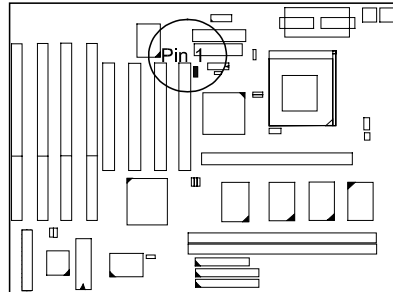
Printer Connector: PRINTER

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



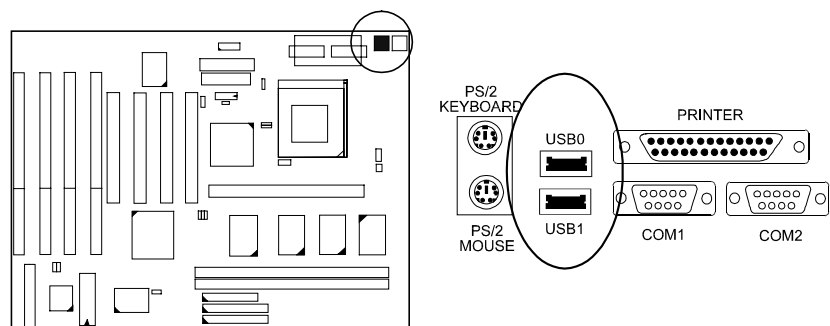
Remote Power Supply Connector: RPW_CON

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

These two connectors are used for linking with the peripherals devices that support Universal Serial Bus connection.



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