# Installation Procedures

The PT-2006 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 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 torgue is from 5.0 to 8.0 kg/cm to avoid damaging chips' pins.

Mainboard Layout
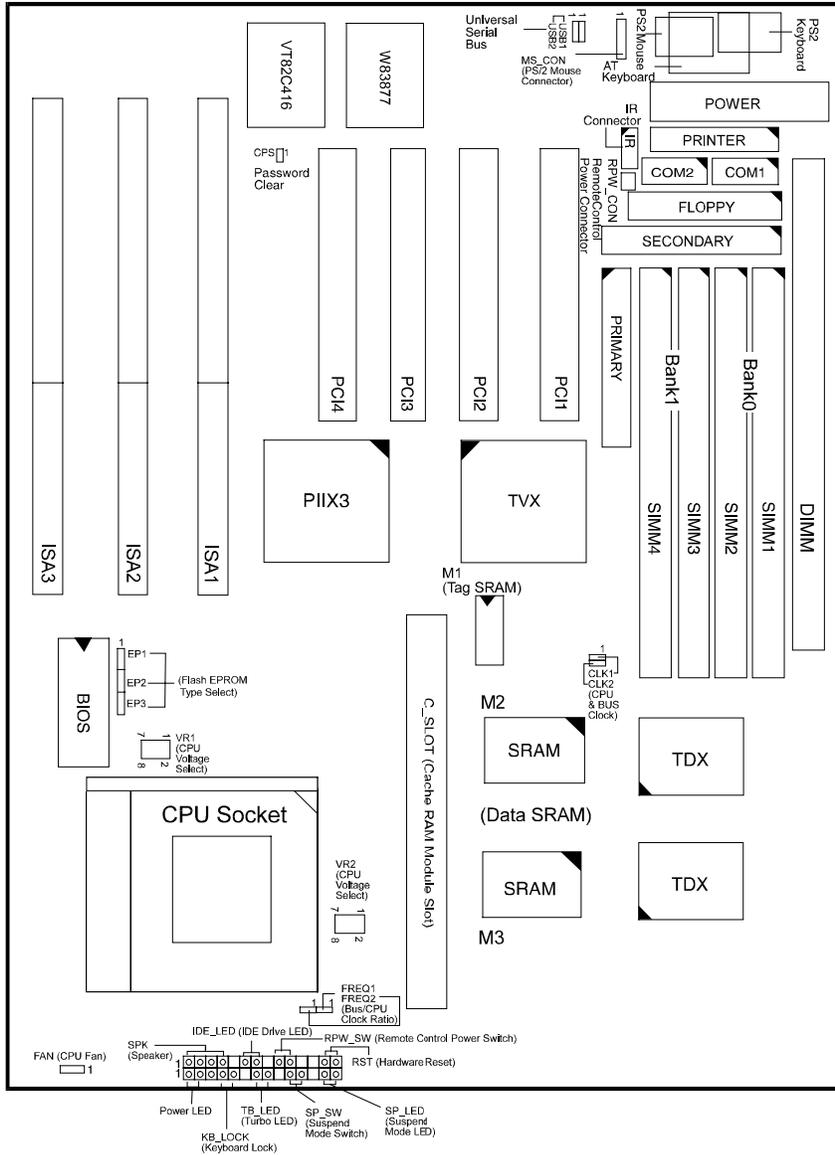
1). Set System Jumpers

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:

3 2 1

stands for pin 1

Jumper cap is shown as above

stands for pin 1

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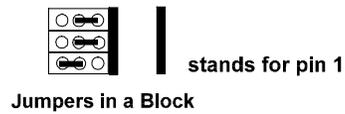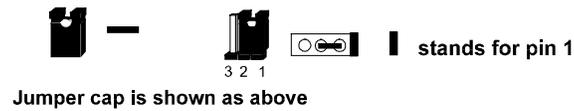
NOTE : Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.


Power Supply Type Selection: PWR1

This jumper allows you to select your power supply type: an AT power supply or remote power supply.

PWR1

AT Power
(Default)

Remote Power
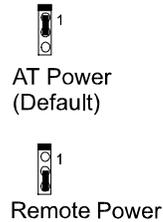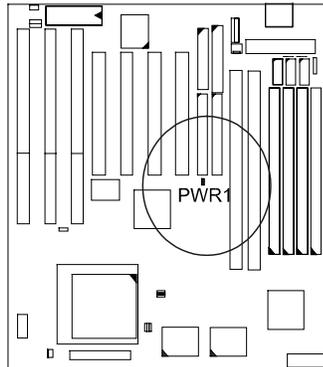
Clear Password: CPS

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.
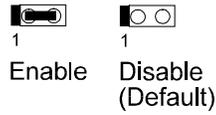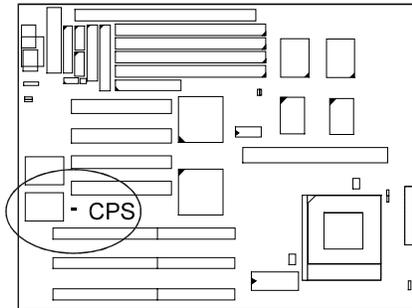
Flash ROM Type Selection: EP1, EP2, EP3

These jumpers allow you to select the flash ROM type.
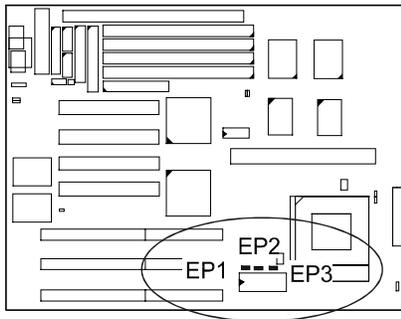
	EP1	EP2	EP3
Intel 28F001	1	1	1
SST 29EE010	1	1	1
AMD 28F020	1	1	1
SST 29EE020	1	1	1

2). Install System RAM Modules

DRAM and SDRAM

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

The PT-2006's RAM is comprised of four industry standard 72-pin Single In-line Memory Modules (SIMMs) and one Dual In-line Memory Modules (DIMMs). Each SIMM socket supports from 4 to 64MB FPM (Fast Page Mode) and high-speed EDO (Extended Data Out) DRAM. Each DIMM socket is able to support up to 64MB EDO DRAM or lightning-fast SDRAM.

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 access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM upgrades you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual will have unpredictable results.

RAM Module Configuration

SIMMs and DIMMs in Bank 0 and Bank 1 can be installed in many combinations. Some of them are listed in the following table.

(Unit : MB)

| TOTAL MEMORY	SIMM (Bank 0)	SIMM (Bank 1)	DIM (Bank 1
8	4 & 4		
			8
16	8 & 8		
			16
32	16 & 16		
			32
64	32 & 32		
			64*
128	64 & 64		
			64*

NOTE : * RAM module of this size was not available for testing at press time. Also, the DIMM and SIMMs are not recommended install on the mainboard at the same time

Install SIMMs

Complete the following procedures to install SIMMs:

> **CAUTION :** Always turn the system power off before installing or removing any device; and see "Handling Precautions" at the start of this manual.

1. Locate the SIMM slots on the mainboard. (See figure below.)
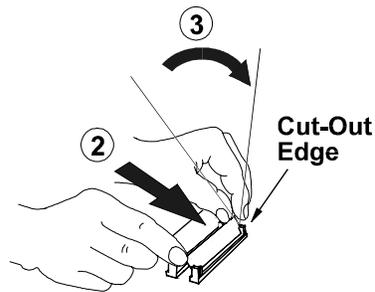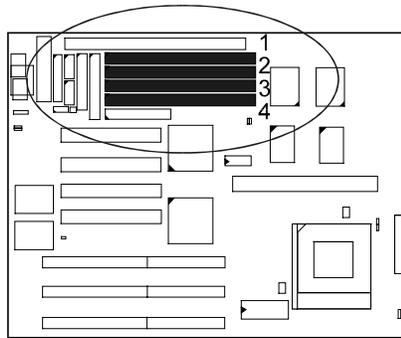
> **NOTE :** SIMMs in each bank must be of the same type; and the BIOS automatically configures the memory size.

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.

Install DIMMs

Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the mainboard. (See figure below.)
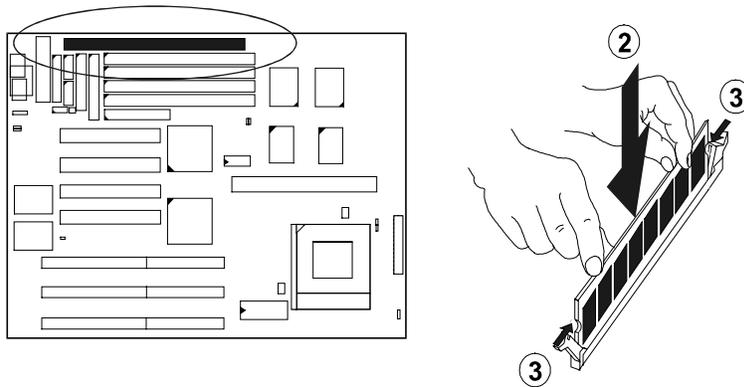
2. Install the DIMM straight down into the DIMM slot with both hands.

3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot's bottom.

Remove DIMMs

Press the clips with both hands to remove the DIMM.

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.

The PT-2006 comes with onboard 256/512KB synchronous 3V Pipeline Burst SRAMs and one cache SRAM module slot which allows you to expand the cache RAM size. The specification of the cache SRAM module requires Intel Coast. Standard version 3.X, such as FIC PB512K-3.0.

Please note that for 256K secondary cache, M2 and M3 should be mounted with 32Kx32 Pipeline Burst SRAM. (Please refer to your dealer for the 512KB cache upgraded and the appropriate SRAM type).

Install Cache SRAM Module
1.   Locate the C_SLOT on the mainboard. (See figure below.)
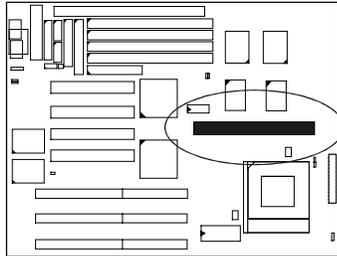

 2.   Insert the cache SRAM module straight down onto the slot.

256/512KB Cache SRAM (Onboard)

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

256KB
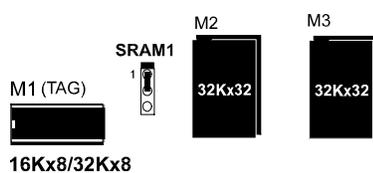

512KB
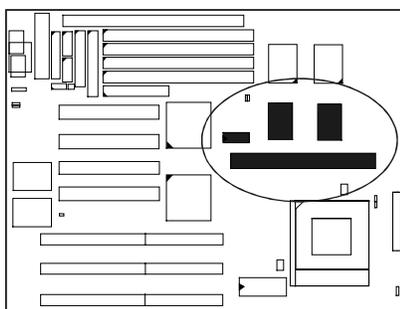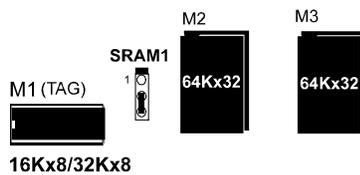
512KB Cache RAM (Onboard and SRAM Module)

512KB

M1 (TAG)
16Kx8/32Kx8

SRAM1
1

M2
32Kx32

M3
32Kx32

256KB

512KB

256KB

Tag 32Kx32 32Kx32
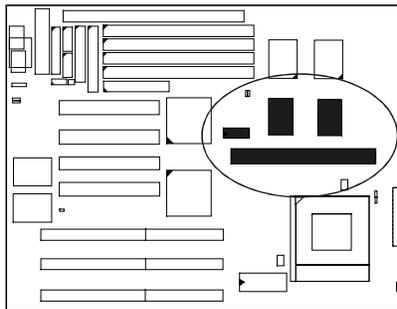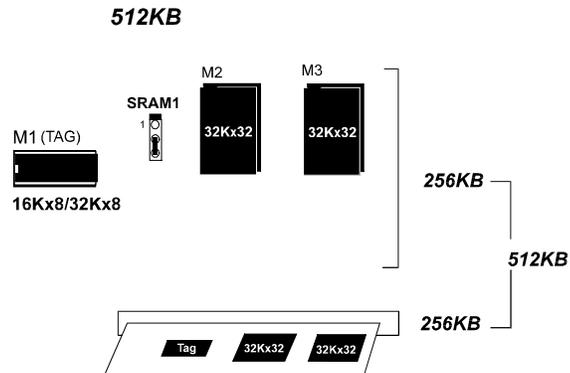
256/512KB Cache RAMh (SRAM Module)

256KB

SRAM1
1

Tag 32Kx32 32Kx32

512KB

SRAM1
1

Tag 64Kx32 64Kx32
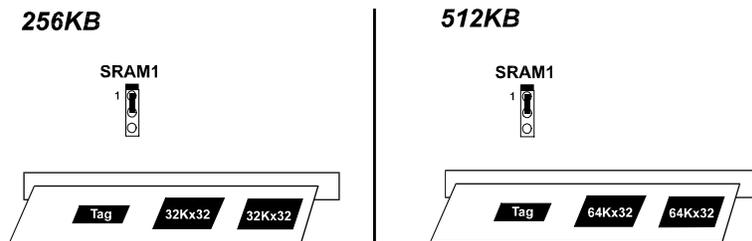
3). Install the CPU

The CPU module resides in the Zero Insertion Force (ZIF) socket on the mainboard.
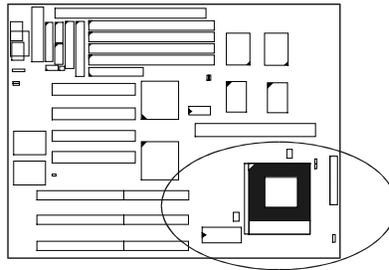
CAUTION :
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.
   See "Handling Precautions" at the start of this manual.
3. Inserting the CPU chip incorrectly may damage the chip.

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

The table below shows the jumper settings for the different CPU speed configurations.
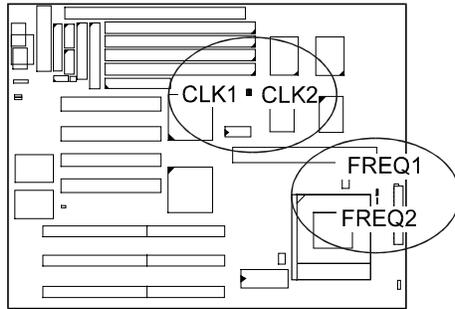
CLK1   CLK2

1 — 66 MHz   1 — 66 MHz

1 — 60 MHz   1 — 60 MHz

1 — 55 MHz   1 — 55 MHz

1 — 50 MHz   1 — 50 MHz

## CPU to Bus Frequency Ratio:FREQ1 and FREQ2

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

FREQ1   FREQ2

1 — 3 x Ext.   1 — 3 x Ext.

1 — 2.5 x Ext.   1 — 2.5 x Ext

1 — 2 x Ext.   1 — 2 x Ext.

1 — 1.5 x Ext.   1 — 1.5 x Ext.

Intel Pentium CPUs

Frequency

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

Voltage

VR1   VR2

**Intel Pentium CPU
Bottom Side Marking**

```
xxxxxxxxxx
xxxxxxxxxx
BP80502-SSS
SXXXX/RSS
XXX
```
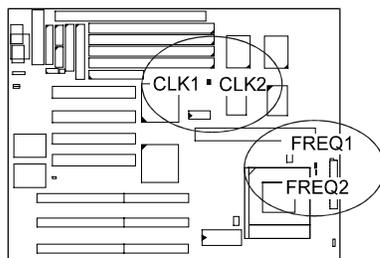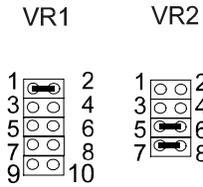
Core : 3.4V-3.6V
IO   : Same
P54C VRE
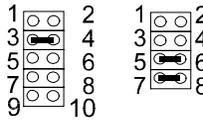
Core : 3.3V
IO   : Same
P54C STD

Core : 2.8V
IO   : 3.3V
P55C
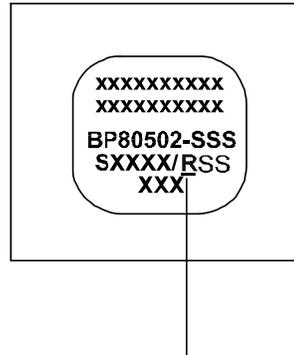
R (Identifier for Voltage Range) :

  V for VRE Voltage Range
    or
  S for Standard Voltage Range

VR2
VR1
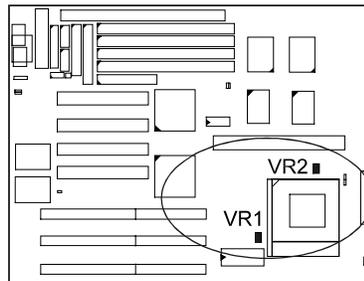
AMD-K5 CPUs

Frequency

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CPU Clock Rate		
					Internal	FREQ1	FREQ2
K5-PR166 *	133 MHz	66 MHz	1	1	2 x Ext.	1	1
K5-PR150 *	120 MHz	60 MHz	1	1	2 x Ext.	1	1
K5-PR133 *	100 MHz	66 MHz	1	1	1.5 x Ext.	1	1
K5-PR120 *	90 MHz	60 MHz	1	1	1.5 x Ext.	1	1
K5-PR100 *	100 MHz	66 MHz	1	1	1.5 x Ext.	1	1
K5-PR90	90 MHz	60 MHz	1	1	1.5 x Ext.	1	1
K5-PR75	75 MHz	50 MHz	1	1	1.5 x Ext.	1	1

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

Voltage

VR1   VR2

AMD-K5 CPU
Top Side Marking

```
1 ▣ 2    1 ▢ 2
3 ▢ 4    3 ▢ 4
5 ▢ 6    5 ▣ 6
7 ▢ 8    7 ▢ 8
9    10
```
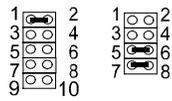
Core : 3.4V-3.6V
IO   : Same
AMD-K5 - B

AMD-K5
AMD-K5-PRXXXA**V**Q

```
1 ▢ 2    1 ▢ 2
3 ▣ 4    3 ▢ 4
5 ▢ 6    5 ▣ 6
7 ▢ 8    7 ▢ 8
9    10
```

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

V (Identifier for Operation Voltage) :

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

```
1 ▢ 2    1 ▢ 2
3 ▢ 4    3 ▣ 4
5 ▣ 6    5 ▢ 6
7 ▢ 8    7 ▢ 8
9    10
```
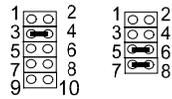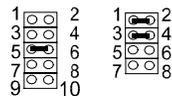
Core : 2.9V
IO   : 3.3V
AMD-K5 - H

```
1 ▢ 2    1 ▣ 2
3 ▢ 4    3 ▢ 4
5 ▢ 6    5 ▢ 6
7 ▣ 8    7 ▢ 8
9    10
```

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

VR2 ▪

VR1

```
1 ▢ 2    1 ▣ 2
3 ▢ 4    3 ▢ 4
5 ▢ 6    5 ▢ 6
7 ▣ 8    7 ▢ 8
9    10
```

Core : 2.5V
IO   : 3.3V
AMD-K5 - K
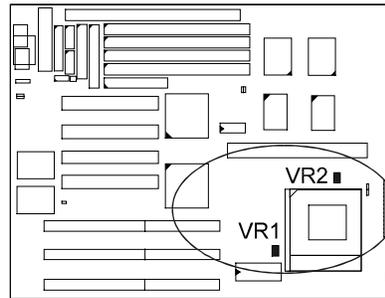
Cyrix 6x86 CPUs

Frequency

Model	CPU Speed (MHz)	External (CPU/CLK) (MHz)	Clock Generator						Internal	CPU Clock Rate		
			IMI 652			ICS 9147				FREQ1	FREQ2	FREQ3
			CLK1	CLK2	CLK3	CLK1	CLK2	CLK3				
M2*	233	66							3.5 x			
M2*	200	66							3 x			
M2*	166	66							2.5 x			
M2*	150	60							2.5 x			
6x86-PR166+ 6x86L-PR166+	133	66							2 x			
6x86-PR150+ 6x86L-PR150+	120	60							2 x			
6x86-PR133+ 6x86L-PR133+	110	55							2 x			

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

Voltage

VR1   VR2

```
1 [■] 2      1 [ ] 2
3 [ ] 4      3 [ ] 4
5 [ ] 6      5 [■] 6
7 [ ] 8      7 [■] 8
9 [ ] 10
```

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

```
1 [ ] 2      1 [ ] 2
3 [■] 4      3 [ ] 4
5 [ ] 6      5 [■] 6
7 [ ] 8      7 [■] 8
9 [ ] 10
```

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

```
1 [ ] 2      1 [■] 2
3 [ ] 4      3 [■] 4
5 [ ] 6      5 [ ] 6
7 [■] 8      7 [ ] 8
9 [ ] 10
```

Core : 2.5V
IO   : 3.3V
Cyrix 6x86L *

.

Cyrix 6x86 CPU
Top Side Marking

6x86-PR166$^+$GP
133 MHz
3.52V **(028)**

VR2 ■
VR1

IBM 6x86 CPUs

Frequency

Model	CPU Speed (MHz)	External (CPU/CLK) (MHz)	Clock Generator IMI 652			ICS 9147			Internal	CPU Clock Rate FREQ1	FREQ2	FREQ3
			CLK1	CLK2	CLK3	CLK1	CLK2	CLK3				
M2*	233	66							3.5 x			
M2*	200	66							3 x			
M2*	166	66							2.5 x			
M2*	150	60							2.5 x			
6x86-PR166+ 6x86L-PR166+	133	66							2 x			
6x86-PR150+ 6x86L-PR150+	120	60							2 x			
6x86-PR133+ 6x86L-PR133+	110	55							2 x			

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

Voltage

VR1   VR2

```
1 [=] 2    1 [o o] 2
3 [o o] 4  3 [o o] 4
5 [o o] 6  5 [=] 6
7 [o o] 8  7 [o o] 8
9 [o o] 10
```

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

```
1 [o o] 2    1 [o o] 2
3 [=] 4      3 [o o] 4
5 [o o] 6    5 [=] 6
7 [o o] 8    7 [=] 8
9 [o o] 10
```

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

```
1 [o o] 2    1 [=] 2
3 [o o] 4    3 [=] 4
5 [o o] 6    5 [o o] 6
7 [o o] 8    7 [o o] 8
9 [=] 10
```

Core : 2.5V
IO   : 3.3V
Cyrix 6x86L *

IBM 6x86 CPU
Top Side Marking

6x86-PR166$^+$GP
133 MHz
3.52V **(028)**

VR2 ■
VR1
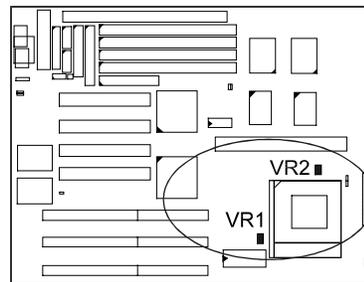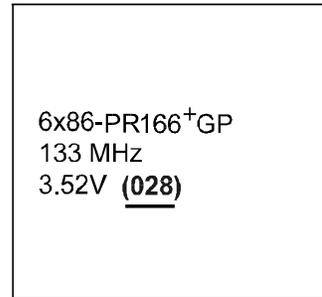
4). Install Expansion Cards
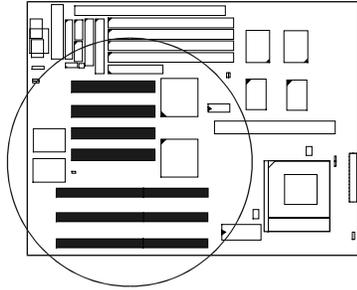
Your PT-2006 features three 16-bit ISA Bus and four 32-bit PCI Bus expansion slots.

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.

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.
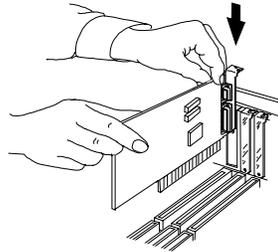
5). Connect Cables and Power Supply

Keyboard Connector: AT_KB

The cable of your 101-key enhanced keyboard or 106-key Windows 95 keyboard is plugged into this connector.
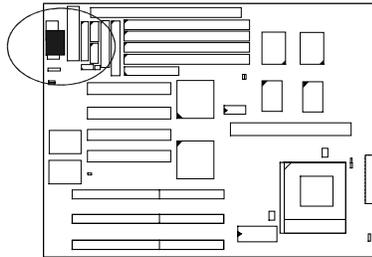

Serial Port Connectors: COM1, COM2

These two connectors allow you to connect with your devices that take serial ports, such as a serial mouse or a modem. Usually, it is recommended to connect your serial mouse to COM1 and your fax/modem to COM2. Because COM2 and IR utilizes the same IRQ, COM2 will not work if an IR device is connected to the IR connector.
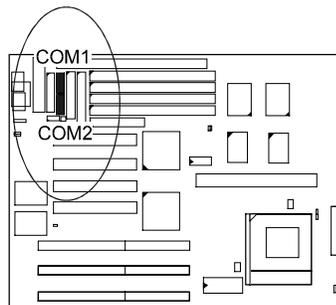
CPU Fan Connector: FAN

This connector is linked to the CPU fan for cooling the processor temperature.
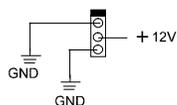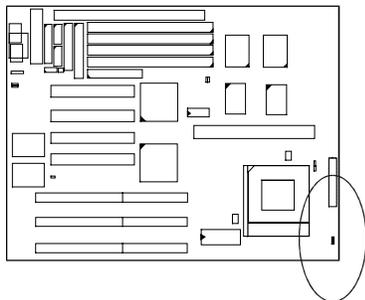
Floppy Diskette Drive Connector: FLOPPY

This connector provides the connection with your floppy disk drive.
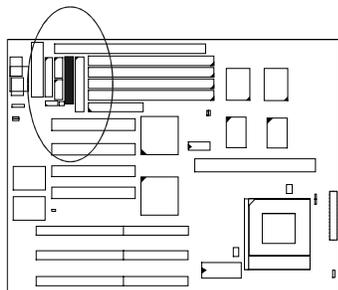
Front Panel Block Connector: F_PNL

This block connector concludes : PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.
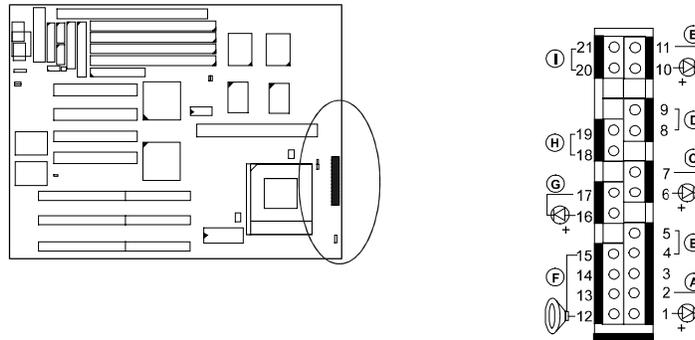
| Item	Connector	Pin Type	Feature
A	PW_LED	2-pin male	indicates the system power status
B	KB_LOCK	2-pin male	allows the keyboard to access the system
C	TB_LED	2-pin male	indicates the system speed is in normal or turbo speed
D	SP_SW	2-pin male	Suspend Mode switch
E	SP_LED	2-pin male	indicates the system 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

Infrared Connector: IR

This connector supports the connection to your IR device. The IR port uses the same IRQ as COM2 port, therefore you need to adjust this BIOS option when an IR device is installed.
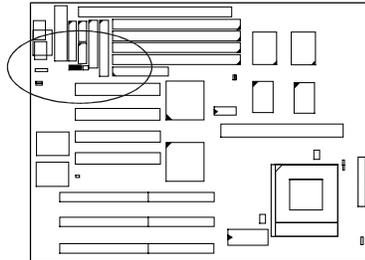
Standard Power Supply Connector: POWER

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.
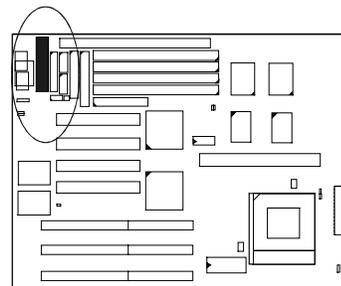
IDE HDD Device Connectors: PRIMARY, SECONDARY

These two 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.
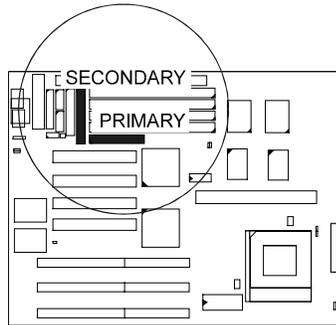

Printer Connector: PRINTER

This connector is featured onboard for the connection with your printer.
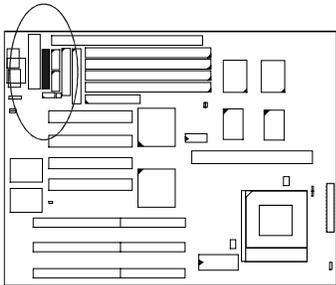
Remote Power Supply Connector: RPW_CON

This 3-pin male connector allows you to enable (or disable) the system power if the RPW_SW is on (or off).
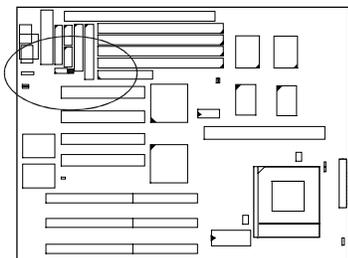
Universal Serial Bus Connectors: USB1, USB2

These two connectors link with USB peripheral devices via an optional USB riser card.
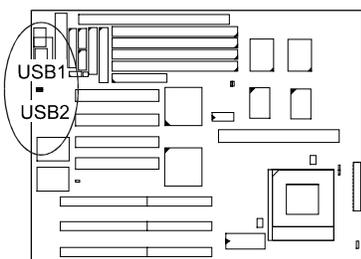
NOTE : If the USB riser card is installed and the USB feature is enabled. The PCI4 Slot will utilitzed by the USB function; in such a case, no add-on card is alloewed at PCI4 Slot, since PCI4 Slot is dedicated to the USB function when the USB function enabled.