

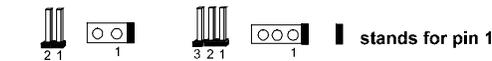
## Installation Procedures

The VT-503 has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. To set up your computer, you should follow these installation steps: 1). set system jumpers; 2). install RAM modules; 3). install the CPU; 4). install expansion cards; 5). connect cables and power supply; 6). set up BIOS feature.

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

### *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. The types of jumpers used in this manual are shown below:



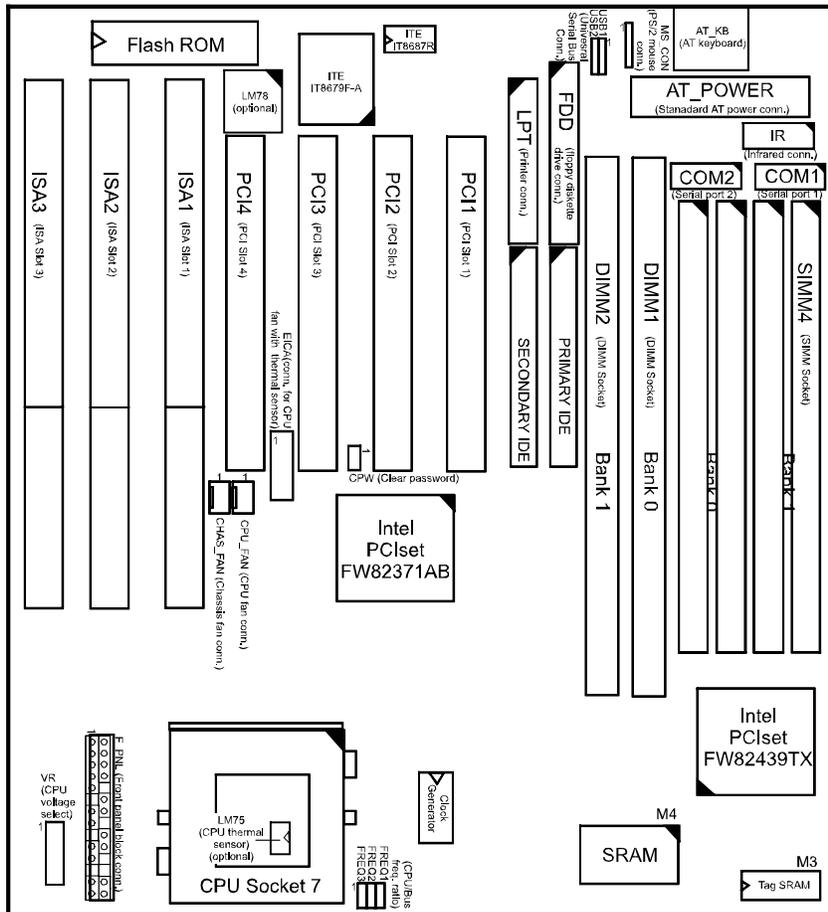
Jumpers are shown as above



Jumper cap is shown as above

**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.

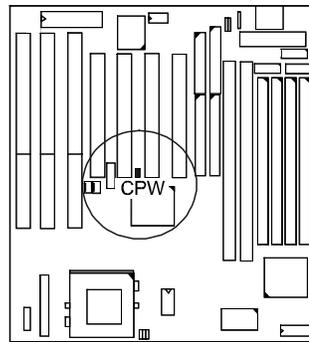
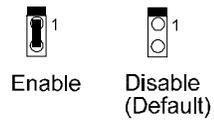
## Mainboard Layout



## 1). Set System Jumpers

### *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.



## 2). Install System RAM Modules

### RAM Module Configuration

SIMMs and DIMMs in Bank 0, 1 and 2 can be installed in many combinations. Some of them are listed in the following table. Please note that SIMMs and DIMMs should not be installed at the same time.

(Unit : MB)

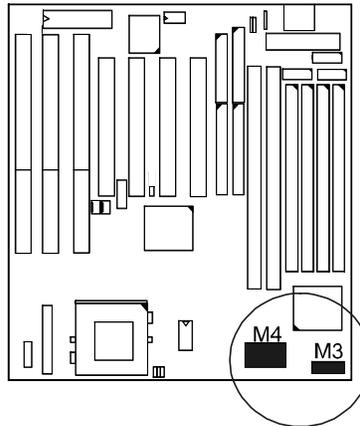
TOTAL MEMORY	SIMM 1 & 2 (Bank 1)	SIMM 3 & 4 (Bank 2)	DIM1 (Bank 0)	DIM2 (Bank 1)
8	4 & 4			
			8	
16	8 & 8			
	4 & 4	4 & 4		
			16	
			8	8
32	16 & 16			
			32	
	8 & 8	8 & 8		
			16	16
64	32 & 32			
	16 & 16	16 & 16		
			64	
			32	32
128	64 & 64			
			64	64
256	128* & 128*			
			128*	128*
512	128* & 128*	128* & 128*		

**NOTE :**

1. \* A RAM module of this size was not available for testing at press time.
2. DIM1 and DIM2 only support 3.3V (unbuffered) EDO and SDRAM modules.
3. DIM1 and SIMM1&2 are shared, so are DIM2 and SIMM2. That is, it is not allowed to install RAM modules on DIM1 and SIMM1&2 at the same time.
4. The different size of DIM1 and DIM2 is allowed. For example, 16MB is installed on DIM1 socket, 32MB is installed on DIM2 socket.
5. It is recommended that SIMMs and DIMMs are not installed at the same time on this mainboard to avoid unexpected failure.
6. This mainboard supports DIMMs with latency times of 10ns and 12ns. ECC memory and parity check are not supported.
7. This mainboard supports SIMMs with latency times of 70ns and 60ns. ECC memory and parity check are not supported.

**Cache Memory**

The mainboard comes with onboard 512KB synchronous 3V Pipeline Burst SRAMs. 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.

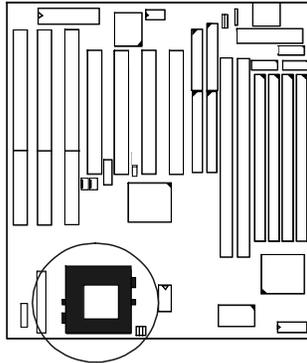


Pentium mainboards may implement various types of L2 cache SRAMs. Pipeline Burst SRAM is one of them, delivering the best price performance ratio. They perform much better than asynchronous SRAMs.

**NOTE:** The cache memory can not be upgraded by end users.

### 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.

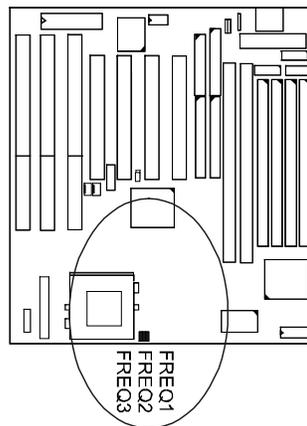
To install the CPU, do the following:

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 to Bus Frequency Ratio:  $FREQ1$ ,  $FREQ2$ ,  $FREQ3$***

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

RATIO				$FREQ3$	$FREQ2$	$FREQ1$
Pentium	Pentium MMX K6 / M2	K5	M1			
3 x	3 x	2 x	4 x			
2.5 x	2.5 x	1.75 x	1 x			
2 x	2 x	-----	2 x			
1.5 x	3.5 x	1.5 x	3 x			
-----	4 x	-----	-----			
-----	4.5 x	-----	-----			
-----	5 x	-----	-----			
-----	5.5 x	-----	-----			



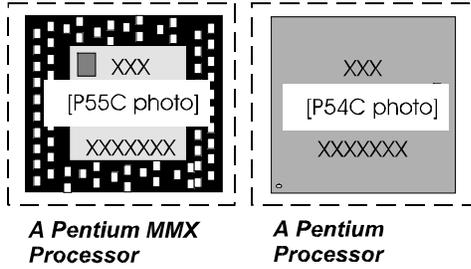
## Intel Pentium/Pentium MMX CPUs

### *Frequency*

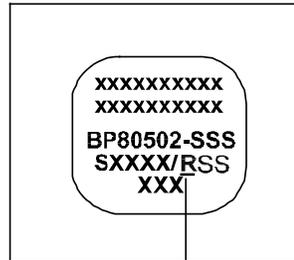
Type	CPU Speed (MHz)	Bus Clock (MHz)	Ratio	FREQ3	FREQ2	FREQ1
<i>Pentium MMX</i>	233	66	3.5 x			
	200	66	3 x			
	166	66	2.5 x			
<i>Pentium</i>	200	66	3 x			
	166	66	2.5 x			
	150	60	2.5 x			
	133	66	2 x			
	120	60	2 x			
	100	66	1.5 x			
	90	60	1.5 x			

**NOTE** : The jumper settings can be set by BIOS features. The default settings is 66MHz.

**Voltage**



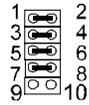
**Intel Pentium CPU Bottom Side Marking**



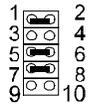
**R (Identifier for Voltage Range) :**

V for VRE Voltage Range  
 or  
 S for Standard Voltage Range

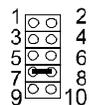
VR



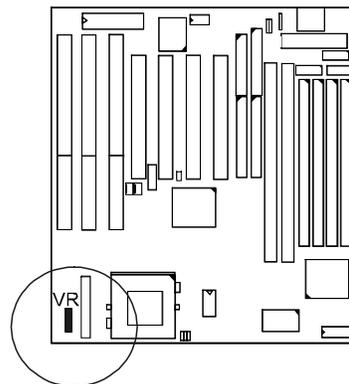
Core : 3.5V  
 IO : Same  
 Pentium VRE



Core : 3.3V  
 IO : Same  
 Pentium STD



Core : 2.8V  
 IO : 3.3V  
 Pentium MMX



## AMD-K5/K6 CPUs

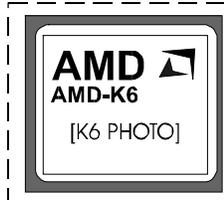
### Frequency

Type	Model	CPU Speed (MHz)	Bus Clock (MHz)	Ratio	FREQ3	FREQ2	FREQ1
<b>K6 Series</b>	K6-300 *	300	66	4.5 x			
	K6-266 *	266	66	4 x			
	K6-233	233	66	3.5 x			
	K6-200	200	66	3 x			
	K6-166	166	66	2.5 x			
<b>K5 Series</b>	K5-PR200	133	66	2 x			
	K5-PR166	116	66	1.75 x			
	K5-PR150	105	60	1.75 x			
	K5-PR133	100	66	1.5 x			
	K5-PR120	90	60	1.5 x			
	K5-PR100	100	66	1.5 x			
	K5-PR90	90	60	1.5 x			

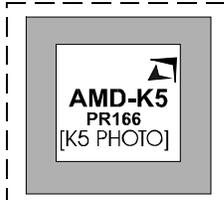
**NOTE :**

1. \* This CPU had not been tested when this manual was printed.
2. The jumper settings can be set by BIOS features. The default settings is 66MHz.

*Voltage*

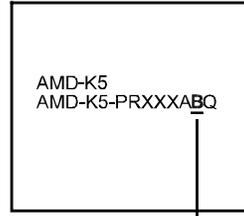


An AMD-K6 Processor



An AMD-K5 Processor

**AMD-K5 CPU  
Top Side Marking**



V (Identifier for Operation Voltage)

VR



Core : 3.5V  
IO : Same  
AMD-K5 - B



Core : 2.9V  
IO : 3.3V  
AMD-K6  
(166, 200 MHz)

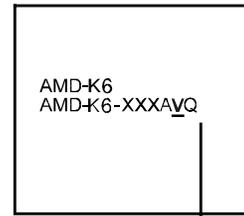


Core : 3.2V  
IO : 3.3V  
AMD-K6  
(233 MHz)



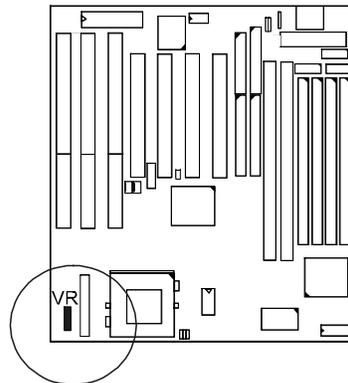
Core : 2.1V  
IO : 3.3V  
AMD-K6  
(266, 300 MHz)

**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 6x86/6x86MX CPUs

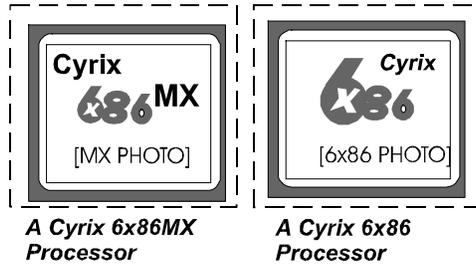
### Frequency

Type	Model	CPU Speed (MHz)	Bus Clock (MHz)	Ratio	FREQ3	FREQ2	FREQ1
<b>6x86MX Series</b>	6x86MX-PR266*	233	66	3.5 x			
	6x86MX-PR233*	200	66	3 x			
	6x86MX-PR200	180	60	3 x			
		166	66	2.5 x			
		165	55	3 x			
	6x86MX-PR166	150	60	2.5 x			
		138	55	2.5 x			
		133	66	2 x			
		150	50	3 x			
	<b>6x86 Series</b>	6x86-PR166+ 6x86L-PR166+	133	66	2 x		
6x86-PR150+ 6x86L-PR150+		120	60	2 x			
6x86-PR133+ 6x86L-PR133+		110	55	2 x			

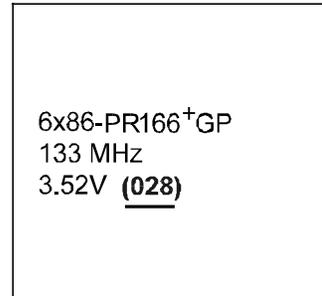
**NOTE :**

1. \* This CPU had not been tested when this manual was printed.
2. The jumper settings can be set by BIOS features. The default settings is 66MHz.
3. Please refer to your Cyrix CPU top marking about the actual CPU speed and ratio.

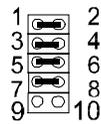
*Voltage*



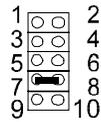
**Cyrix 6x86 CPU  
Top Side Marking**



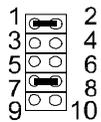
VR



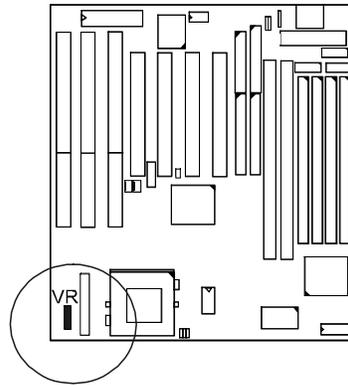
Core : 3.5V  
IO : Same  
Cyrix 6x86-028



Core : 2.8V  
IO : 3.3V  
Cyrix 6x86L



Core : 2.9V  
IO : 3.3V  
Cyrix 6x86MX



## IBM 6x86/6x86MX CPUs

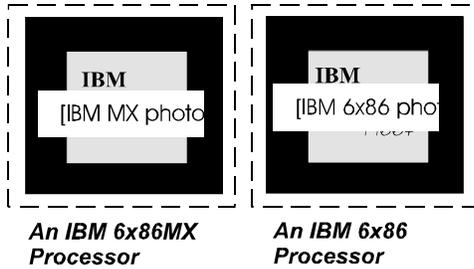
### Frequency

Type	Model	CPU Speed (MHz)	Bus Clock (MHz)	Ratio	FREQ3	FREQ2	FREQ1
6x86MX Series	6x86MX-PR266*	233	66	3.5 x			
	6x86MX-PR233*	200	66	3 x			
	6x86MX-PR200	180	60	3 x			
		166	66	2.5 x			
		165	55	3 x			
	6x86MX-PR166	150	60	2.5 x			
		138	55	2.5 x			
		133	66	2 x			
		150	50	3 x			
6x86 Series	6x86-PR166+ 6x86L-PR166+	133	66	2 x			
	6x86-PR150+ 6x86L-PR150+	120	60	2 x			
	6x86-PR133+ 6x86L-PR133+	110	55	2 x			

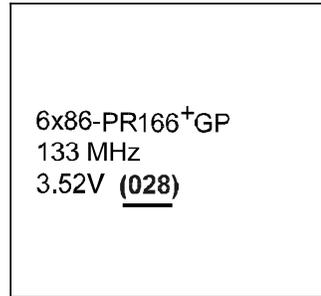
**NOTE :**

1. \* This CPU had not been tested when this manual was printed.
2. The jumper settings can be set by BIOS features. The default settings is 66MHz.
3. Please refer to your IBM CPU top marking about the actual CPU speed and ratio.

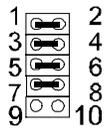
*Voltage*



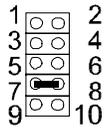
**IBM 6x86 CPU  
Top Side Marking**



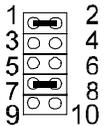
VR



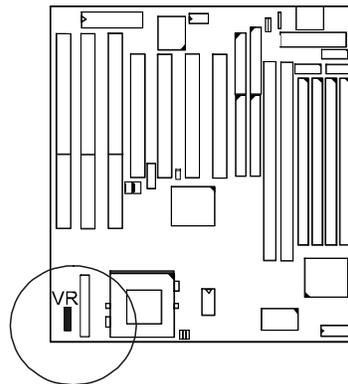
**Core : 3.5V  
IO : Same  
IBM 6x86-028**



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

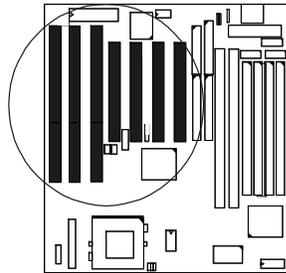


**Core : 2.9V  
IO : 3.3V  
IBM 6x86MX**



## 4). Install Expansion Cards

Your VT-503 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***

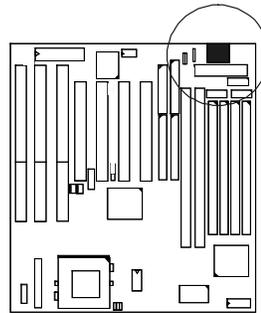
The cable of your 101-key enhanced keyboard or 106-key Windows 95 keyboard is plugged into this connector.



**Keyboard Connector**

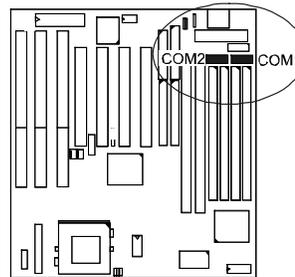


**Plug of Keyboard**



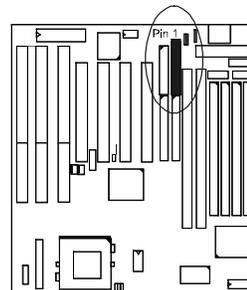
### ***Serial Port Connectors: COM1, COM2***

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.



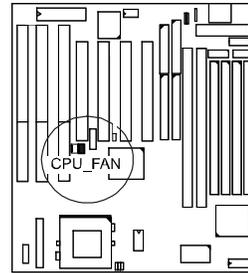
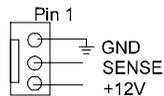
### ***Floppy Diskette Drive Connector: FDD***

This connector provides the connection with your floppy disk drive.



***CPU Fan Connector: CPU\_FAN***

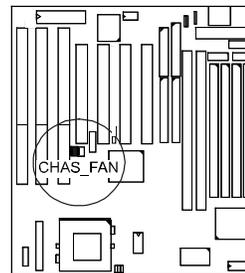
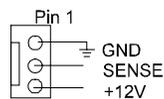
This connector is linked to the CPU fan for cooling the processor temperature.



**NOTE** : EISCA fan, a product of PENTALPHA International Inc., is recommended. The company's phone no.: 011-886-2-866-53248. Fax No.: 011-886-2-866-53249.

***System Case Fan Connector: CHAS\_FAN***

This connector is for linking to your cooling fan on the system case to lower the temperature of the system case.



**NOTE** : EISCA fan, a product of PENTALPHA International Inc., is recommended. The company's phone no.: 011-886-2-866-53248. Fax No.: 011-886-2-866-53249.

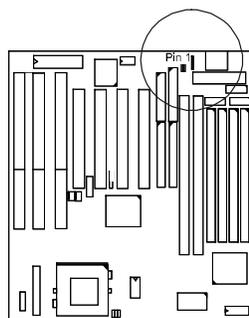
***EISCA CPU Fan Connector: EISCA***

This 2x6 pinhead is installed for your EISCA cooling fan use.

This type CPU fan is equipped with a thermal sensor. The PENTALPHA International Inc. offers this product. The company's phone no.: 011-886-2-866-53248. Fax No.: 011-886-2-866-53249.

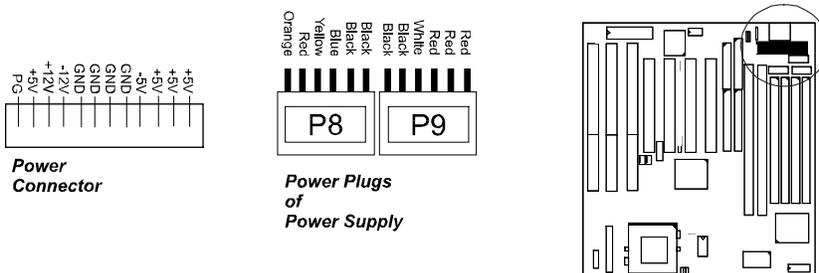
***PS/2 Mouse Connector: MS\_CON***

This connector is connected to the PS/2 mouse.



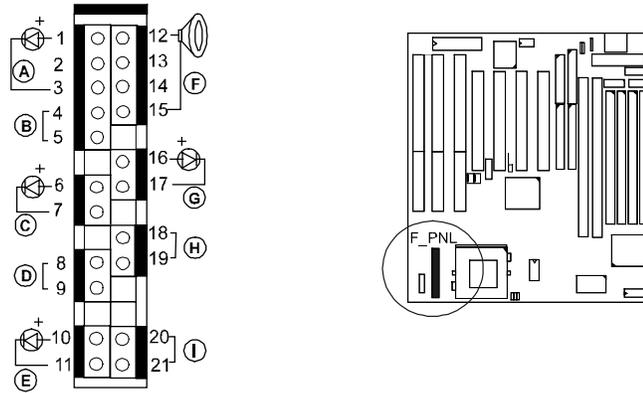
***Standard Power Supply Connector: AT\_POWER***

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.



**Front Panel Block Connector: F\_PNL**

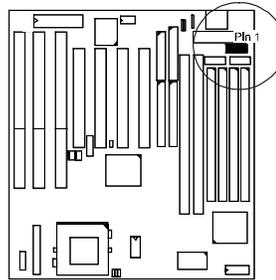
This block connector concludes : PW\_LED, KB\_LOCK, TB\_LED, SP\_SW, SPK, SP\_LED, IDE\_LED, RPW\_SW, and RST connectors.



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

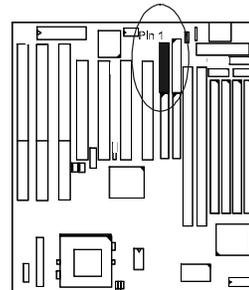
***Infrared Connector: IR***

This connector supports the connection to your IR device.



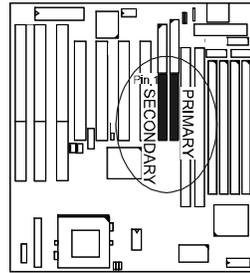
***Printer Connector: LPT***

This connector is featured onboard for the connection with your printer.



***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.



***Universal Serial Bus Connectors:  
USB1, USB2***

These two connectors link with USB peripheral devices via an optional USB riser card.

