

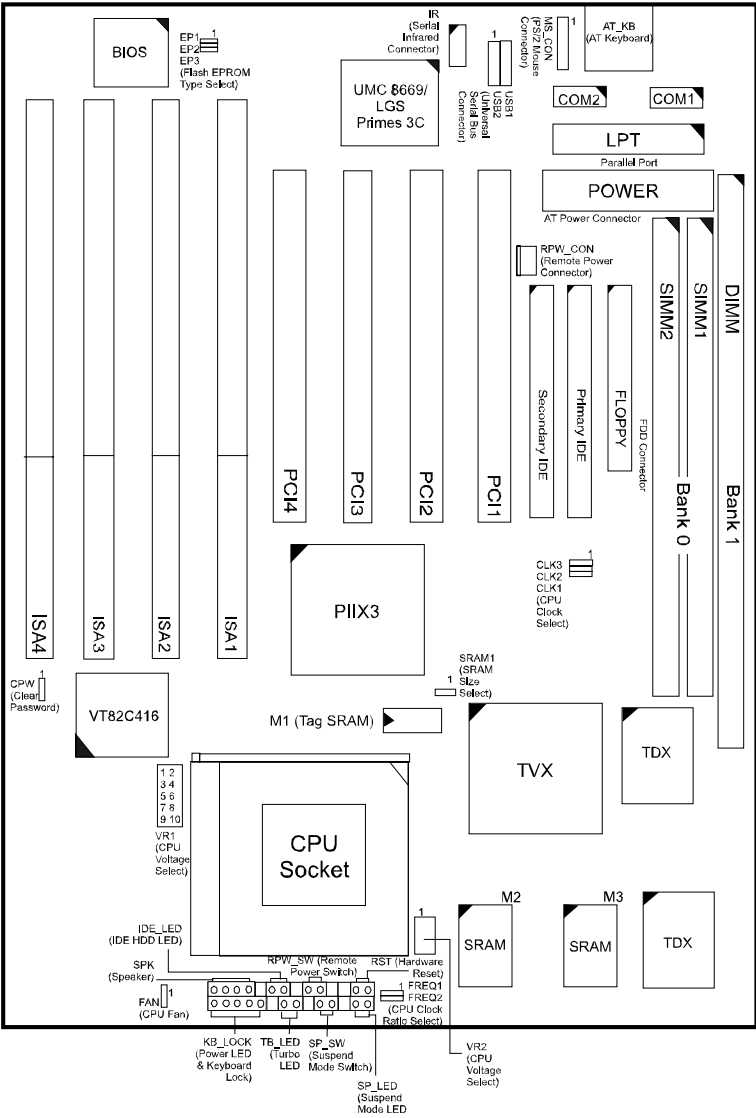
## Installation Procedures

The VT-501 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 DRAM and SDRAM 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.)

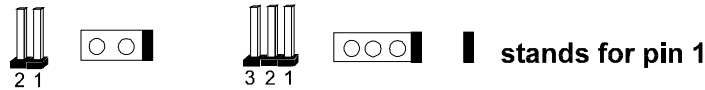
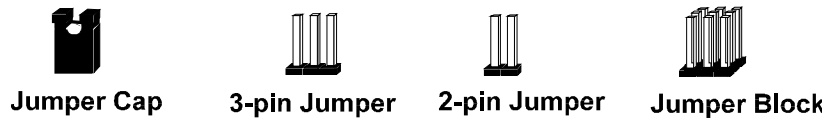
Mainboard Layout



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



Jumpers are shown as above



Jumper cap is shown as above

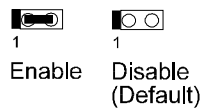
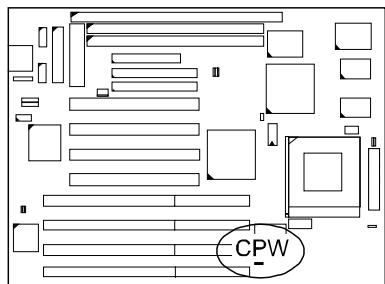


Jumpers in a Block

**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.



***Flash EPROM Type: EP1, EP2 and EP3***

These three jumpers allows you to configure the mainboard when using the MXIC 28F1000, Intel 28F001, SST 29EE010 (default), ATMEL 29C010A, MXIC 28F2000, SST 29EE0202 Flash EPROM chip.



	EP1	EP2	EP3
MXIC 28F1000			
Intel 28F001			
SST 29EE010			
ATMEL 29C010A			
MXIC 28F2000			
SST 29EE020			

## 2). Install System Memory

### 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 VT-501's RAM is comprised of two industry standard 72-pin Single In-line Memory Modules (SIMMs) and one 168-pin Dual In-line Memory Module (DIMM). The SIMM socket is able to support from 8 to 128MB FPM (Fast Page Mode) and EDO (Extended Data Out) DRAM. Its DIMM socket is able to support 64MB SRAM (Synchronous DRAM).

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 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 up unpredictable results.

## DRAM and SDRAM Configuration

TOTAL MEMORY	SIMM BANK0 (72-PIN X 2)	DIMM BANK1 (168-PIN X 1)
8MB	4MB & 4MB	
		8MB
16MB	8MB & 8MB	
	4MB & 4MB	8MB
24 MB	8MB & 8MB	8MB
32 MB	8MB & 8MB	16MB
	16MB & 16MB	
40MB	16MB & 16MB	8MB
48MB	16MB & 16MB	16MB
64MB	16MB & 16MB	32MB*
	32MB & 32MB	
72MB	32MB & 32MB	8MB
80MB	32MB & 32MB	16MB
96MB	32MB & 32MB	32MB*
128MB	32MB & 32MB	64MB*

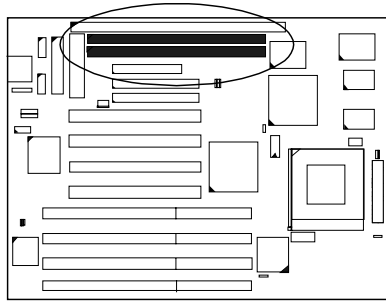
**Note :** \* A DIMM of this size was not available for testing when this book was printed.

## Install SIMMs

Complete the following procedures to install SIMMs:

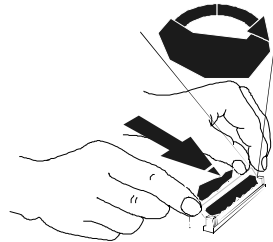
**CAUTION :** Always turn the system power off before installing or removing any device; and see “Handling Precautions” at the start of this manual.

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



**NOTE :** BANK 0 and BANK 1 can use different type SIMMs - but you must populate each memory bank with the same type of SIMM. The BIOS will automatically configure the memory size.

2. Carefully fit a SIMM at a 45 degree angle into each empty sockets 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.



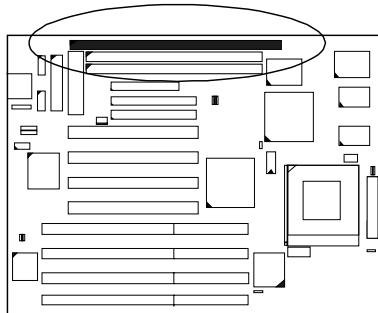
## Remove SIMMs

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

## Install DIMM

Complete the following procedures to install DIMMs:

1. Locate the DIMM slot 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 DIMM

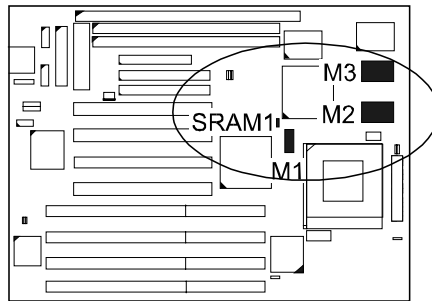
Press the clips on the ends of the slot simultaneously. The DIMM will spring out easily.



## Cache Memory

The VT-501 comes with onboard 256KB/512KB synchronous 3V Pipeline Burst SRAM.

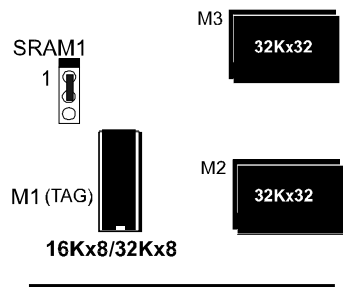
Please note that for 256KB secondary cache, M2 and M3 should be mounted with 32Kx32 Pipeline Burst SRAM. (Please refer to your dealer for the 512KB cache upgrade and the appropriate SRAM type.)



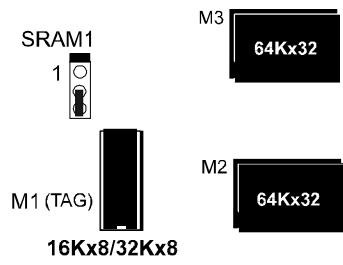
**256/512KB Cache SRAM**

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

**256KB**

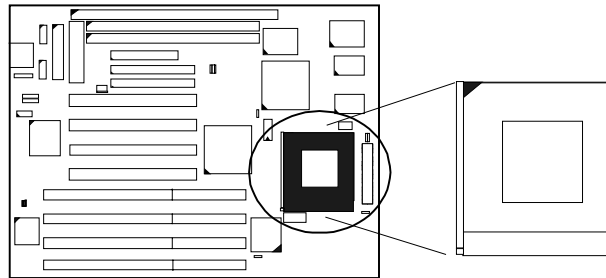


**512KB**



### 3). Install the CPU

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



**CAUTION :**

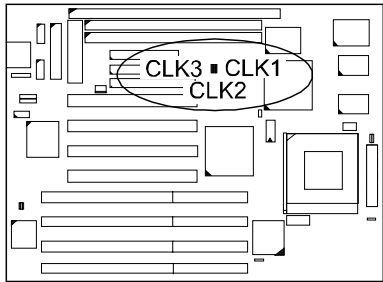
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.  
See "Handling Precautions" at the start of this manual.
3. Inserting the CPU chip incorrectly may damage the chip.

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 locates around the triangular blank 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**

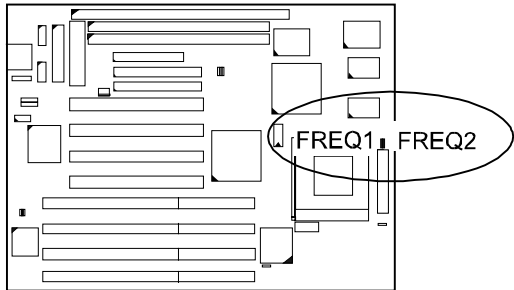
The table below shows the jumper settings for the different CPU speed configurations.



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.

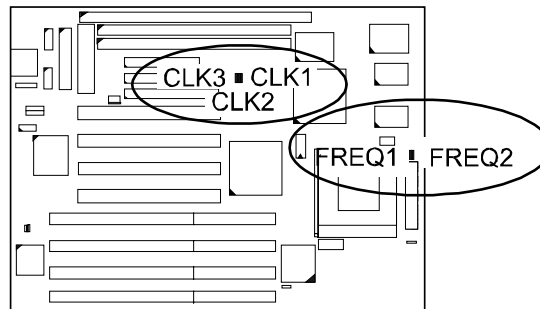


	FREQ1	FREQ2
3 x		
2.5 x		
2 x		
1.5 x		

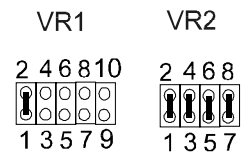
## Intel Pentium CPUs

### *Frequency*

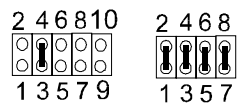
CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
					Internal	FREQ1	FREQ2
200 MHz	66 MHz				3 x		
166 MHz	66 MHz				2.5 x		
150 MHz	60 MHz				2.5 x		
133 MHz	66 MHz				2 x		
120 MHz	60 MHz				2 x		
100 MHz	66 MHz				1.5 x		
90 MHz	60 MHz				1.5 x		
75 MHz	50 MHz				1.5 x		



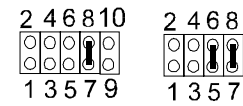
Voltage



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

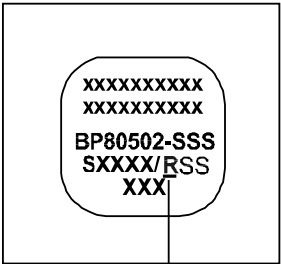


Core : 3.3V  
IO : Same  
P54C STD



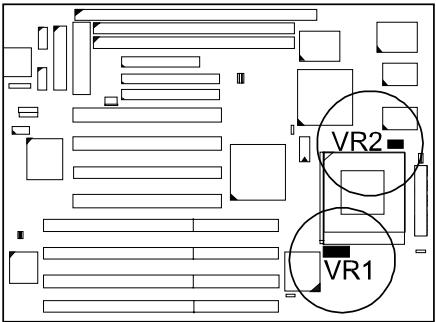
Core : 2.8V  
IO : 3.3V  
P55C

Intel Pentium CPU  
Bottom Side Marking



R (Identifier for Voltage Range) :

V for VRE Voltage Range  
or  
S for Standard Voltage Range

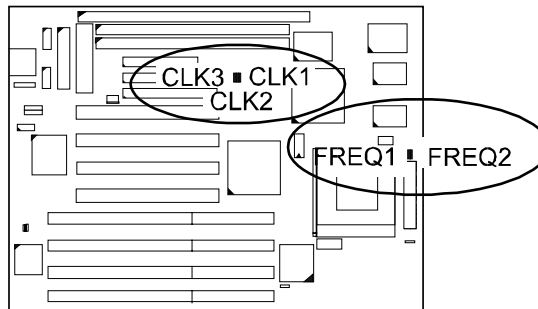


## AMD-K5 CPUs

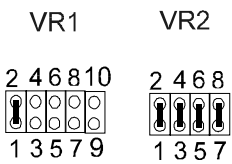
### *Frequency*

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
K5-PR166 *	133 MHz	66 MHz	1	1	1	2 x	1	1
K5-PR150 *	120 MHz	60 MHz	1	1	1	2 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

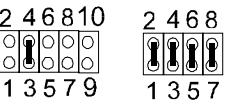
**Note :** \* This CPU had not been tested when this manual was printed.



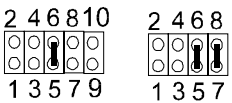
Voltage



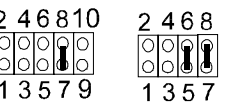
Core : 3.4V-3.6V  
IO : Same  
AMD-K5 - B



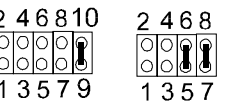
Core : 3.3V  
IO : Same  
AMD-K5 - C, F



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

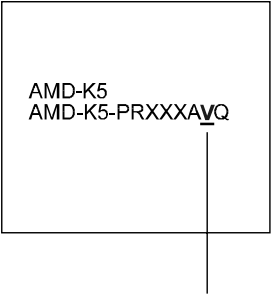


Core : 2.8V  
IO : 3.3V  
AMD-K5 - J



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

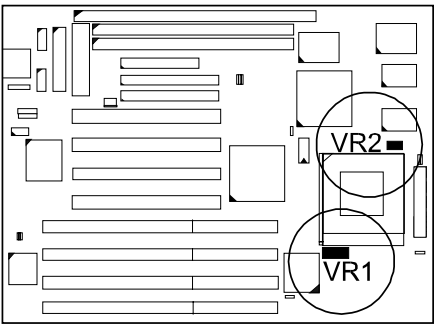
AMD-K5 CPU  
Top Side Marking



V (Identifier for Operation Voltage) :

B  
C  
F  
H  
J  
K

Please refer to  
the left-hand-side table



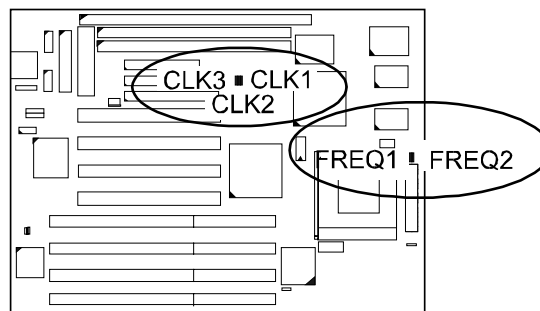


## Cyrix 6x86 CPUs

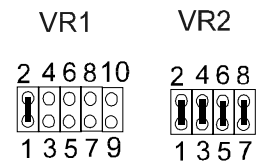
### Frequency

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
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

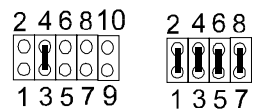
**Note :** \* This CPU had not been tested when this manual was printed.



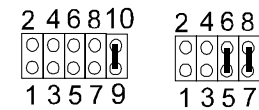
*Voltage*



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

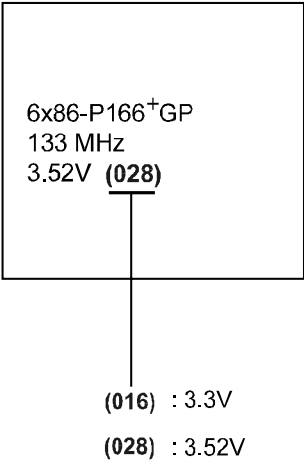


Core : 3.3V  
IO : Same  
Cryix 6x86-016

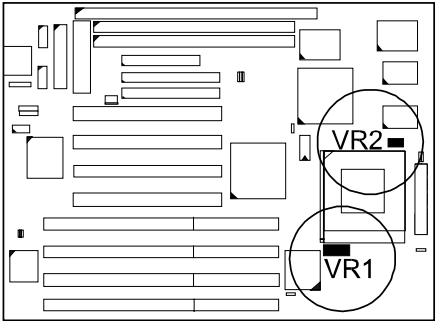


Core : 2.5V  
IO : 3.3V  
Cryix 6x86L \*

**Cyrix 6x86 CPU  
Top Side Marking**



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

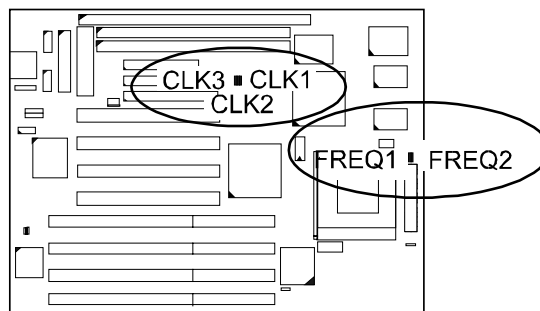


## IBM 6x86 CPUs

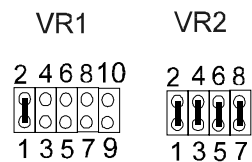
### *Frequency*

Model Name	CPU Speed	External (CPU/CLK)	CLK1	CLK2	CLK3	CPU Clock Rate		
						Internal	FREQ1	FREQ2
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

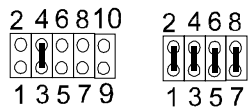
**Note :** \* This CPU had not been tested when this manual was printed.



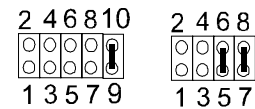
*Voltage*



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

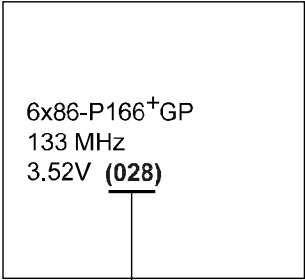


**Core : 3.3V**  
**IO : Same**  
**IBM 6x86-016**



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

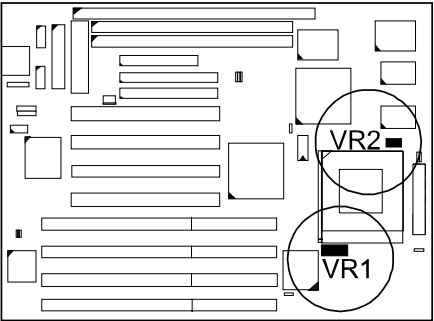
**IBM 6x86 CPU  
Top Side Marking**



(016) : 3.3V

(028) : 3.52V

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



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

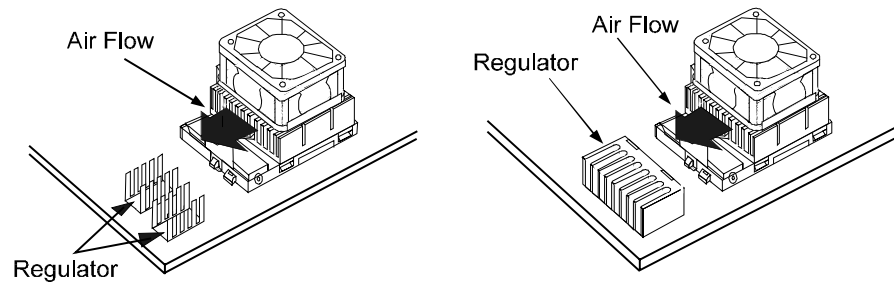
**CAUTION :** When you install a Cyrix (or IBM) 6x86 CPU fan, please pay attention to the direction of the air flow. Make sure the air flow is in the direction of the regulator; otherwise, the system may overheat.

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

- 1). Supplier : BIRCHTECK, Taiwan (Phone : 886-2-7935677).  
Model Number - BEC6x86B1.
- 2). Supplier : Thermalloy, USA (Phone : 214-243-4321).  
Model Number : 20832 (customer should request NMB-B50 Fan).

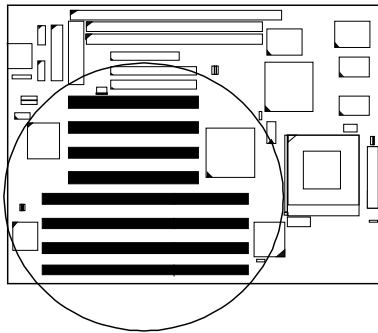
This is a 90-degree rotated fan and is recommended for installation on the mainboard.

For further information, please contact your local dealer. For stable system performance, make sure that the air flow blows directly, two options as shown below, toward the regulator so as to lower the temperature of the regulator.



## 4). Install Expansion Cards

Your VT-501 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.

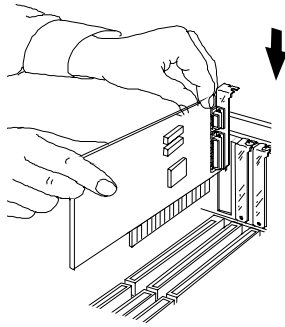
### **CAUTION :**

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.)

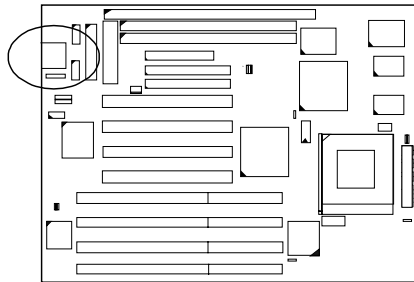


4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this “rocking” motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely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

## 5). Connect Cables and Power Supply

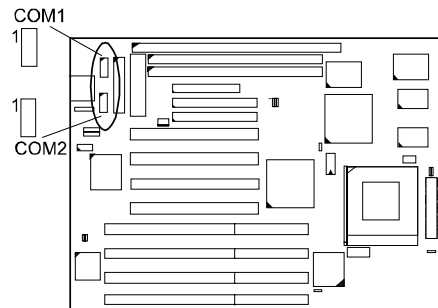
### ***Keyboard Connector: AT\_KB***

This 5-pin female connector is connected to your keyboard.



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

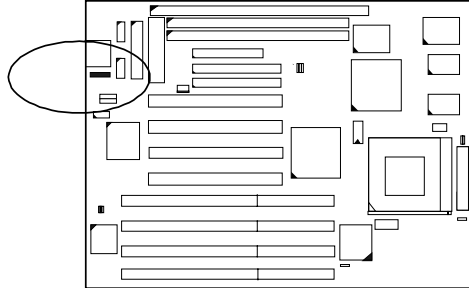
These two 10-pin male connectors allow you to connect with your devices that take serial ports, such as a serial mouse or a modem. The COM2 Port on the mainboard can also be used as another IR Port. Usually, your serial mouse is attached to COM1. Your modem is linked to COM2. When you do not use the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





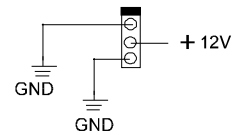
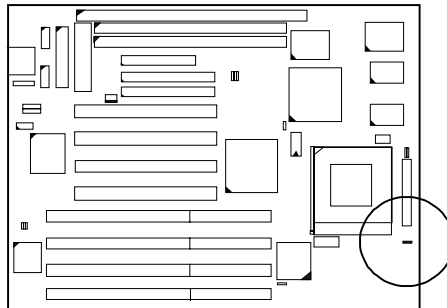
***PS/2 Mouse Connector: MS\_CON***

This connector is connected to your PS/2 mouse.



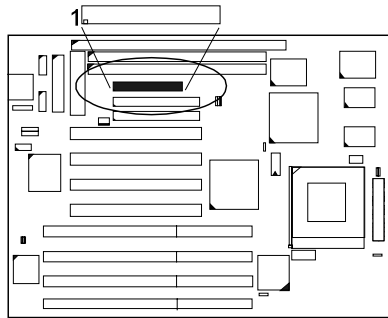
***CPU Fan Connector: FAN***

This connector is linked to the CPU fan.



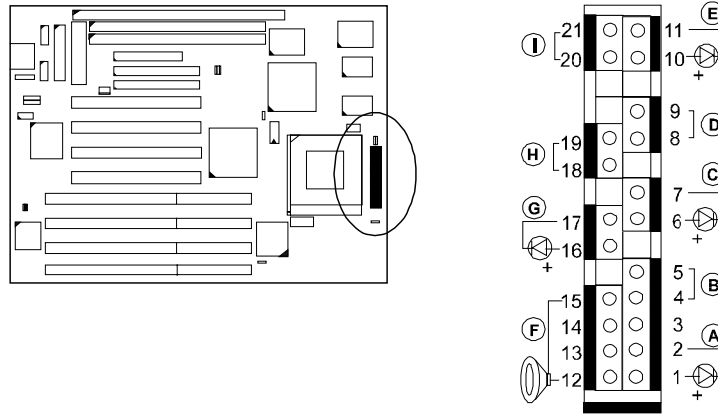
***Floppy Diskette Drive Connector: FLOPPY***

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



### Block Connector

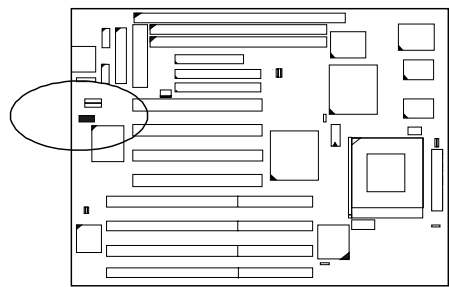
This block connector concludes : PW\_LED, KB\_LOCK, TB\_LED, SP\_SW, SPK, SP\_LED, IDE\_LED, RPW\_SW, and RST connectors.



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

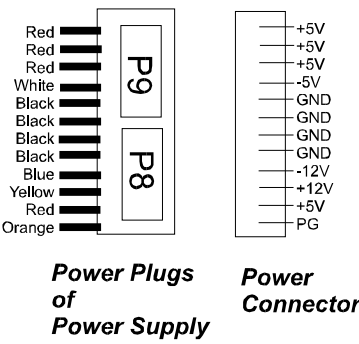
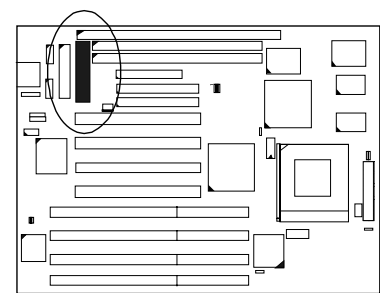
***Infrared Connector: IR***

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



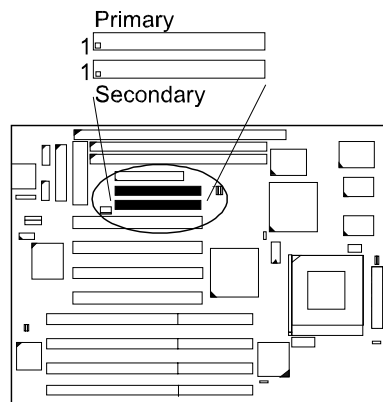
***Power Block Connector: POWER***

This 12-pin block connector is used for connecting to your 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.



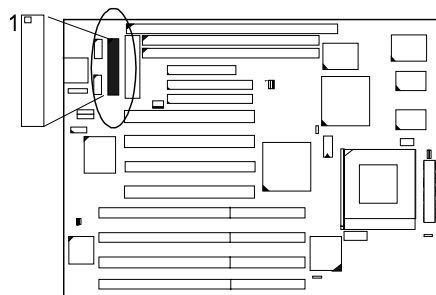
***IDE HDD Device Connector: PRIMARY and SECONDARY***

This 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.



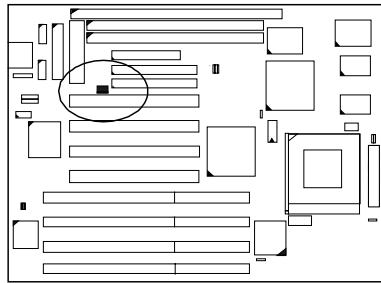
***Printer Block Connector: PRINTER***

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.



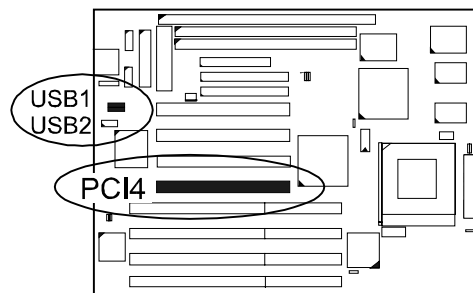
***Remote Power Connector: RPW\_CON***

This 3-pin male connector allows you to enable or disable the system power if the RPW\_SW is on or off. (This allows you to adapt the remote power switch feature. Please contact your dealer for further information.)



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

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.



**Note :** If the USB riser card is installed and the USB feature is enabled, the PCI4 Slot will be utilized by the USB function; in such a case, no add-on card is allowed at PCI4 Slot, since PCI4 Slot is dedicated to the USB function.

