VT-503

MAINBOARD MANUAL

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Part No. : 25-10843-01

Handling Precautions

Warning :
1. Static electricity may cause damage to the integrated circuits on the mainboard.
   Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge in your body**.**
2. There is a danger of explosion if the battery is incorrectly replaced.
   Replace only with the same or an equivalent type recommended by the manufacturer.
3. Discard used batteries according to the manufacturer's instructions.

Observe the following basic precautions when handling the mainboard or other computer components:

- Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.
- Touch a grounded or anti-static surface or a metal fixture such as a water pipe.
- Avoid contacting the components on add-on cards, boards and modules and with the "gold finger" connectors plugged into the expansion slot. It is best to handle system components by their mounting bracket.

The above methods prevent static build-up and cause it to be discharged properly.

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Chapter 1

Overview

Based on the new highly-integrated Intel 430TX PCIset, the VT-503 combines blistering Pentium® processor performance with support for intelligent diagnostic and power management features like Hardware Monitoring, DMI (Desktop Management Interface) and ACPI (Advanced Configuration and Power Interface), to provide a powerful and versatile Baby AT-size platform for leading-edge PC '97 compliant systems.

With its switching voltage regulator, the VT-503 runs a complete range of Intel Pentium® processors, including the Intel Pentium processor with MMX™ technology, as well as the AMD-K5™ and Cyrix/IBM 6x86™, and is easily upgradable to the Cyrix/IBM MX™ and the AMD-K6™. For added power and performance, the VT-503 takes up to 512KB Pipeline Burst Level II cache and up to 512MB DRAM via four-72 SIMM sockets and two 168-pin DIMM sockets which accept high-speed EDO, and lightning-fast SDRAM memory types.

The VT-503 comes with a full set of I/O features including two USB connectors. The board also has an integrated PCI Bus Master Enhanced IDE controller with support for the new Ultra DMA/33 protocol, which doubles ATA-2 Hard Disk Drive data transfer rates to 33MB/s while maintaining full backwards compatibility with existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices.

Fully compliant with the Microsoft PC'97 standard at both the hardware and BIOS levels, the VT-503 comes with support for intelligent Hardware Monitoring and DMI features which continuously check the thermal status of your system and reduce the cost of ownership through improved manageability.

Chapter 1 of this manual gives you a brief overview of the VT-503 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard, while Chapter 3 provides detailed information about the board's BIOS settings. For the most up-to-date information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at **www.fic.com.tw**.

Package Checklist

Please check that your package contains all the items listed below. If you discover any item is damaged or missing, please contact your vendor.

- The VT-503 mainboard
- This user manual
- One IDE HDD cable
- One floppy disk drive cable
- One printer and COM1 cable
- One COM2 cable
- One USB riser card (optional)
- One PS/2 mouse cable (optional)
- Software utility (optional)
  - Desktop Management Interface (DMI) software
  - Bus master IDE driver

Main Features

The VT-503 mainboard comes with the following high-performance features:

- Easy Installation
  BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, MS Windows™ 95, Windows™ NT, and OS2™.

- Leading Edge Chipset
  Intel 82430TX PCIset, a two-chip BGA solution with integrated DRAM and L2 cache controllers as well as support for Intel's new Dynamic Power Management Architecture (DPMA), Concurrent PCI (PCI 2.0 and 2.1), and USB.

- Flexible Processor Support
  Onboard 321-pin ZIF socket and switching voltage regulator support complete range of leading-edge processors:
  Intel Pentium® P55C with MMX™ technology 166/200/233 MHz processors.
  Intel Pentium® P54C/P54CS 90/100/120/133/150/166/200 MHz processors.
  AMD-K6™-166 (166 MHz) / K6-200 (200 MHz) / K6-233 (233 MHz) / K6-266 (266 MHz) / K6-300 (300 MHz) processors.
  AMD-K5™- PR90 (90 MHz) / K5-PR100 (100 MHz) / K5-PR120 (90 MHz) / K5-PR133 (100 MHz) / K5-PR150 (105 MHz) / K5-PR166 (116 MHz) / K5-PR200 (133 MHz) processors.
  Cyrix 6x86MX™- PR166 (150 MHz) / 6x86MX-PR200 (166 MHz) / 6x86-MX-PR233 (200 MHz) / 6x86MX-PR266 (233 MHz) processors.
  Cyrix 6x86™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) processors.
  IBM 6x86MX™- PR166 (150 MHz) / 6x86MX-PR200 (166 MHz) / 6x86-MX-PR233 (200 MHz) / 6x86MX-PR266 (233 MHz) processors.
  IBM 6x86™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) processors.

- Various External Bus and CPU/Bus Frequency Ratio Support
  The mainboard supports the Bus frequency of 50 / 60 / 66.8 MHz and the CPU/Bus frequency ratio of 1x / 1.5x / 1.75x / 2x / 2.5x / 3x / 3.5x / 4x / 4.5x / 5x / 5.5x.

(Please refer to Sec. **Install the CPU** in Chapter 2 for more information).

- Ultra-fast Level II Cache
  Supports 512KB onboard Pipeline Burst Level II direct-mapped write-back cache.

- Versatile Main Memory Support
  Accepts up to 512MB RAM using four SIMMs of 8, 16, 32, 64, 128MB with support for FPM and EDO DRAM and two DIMMs of 8, 16, 32, 64, 128MB with support for EDO DRAM and lightning-fast SDRAM.

- ISA & PCI Expansion Slots
  Three 16-bit ISA and four 32-bit PCI expansion slots provide all the room you need to install a full range of add-on cards.

- Enhanced PCI Bus Master IDE Controller with Ultra DMA/33 Support
  Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives supporting the new Ultra DMA/33 protocol which doubles data transfer rates to 33MB/sec. Standard PIO Mode 3, PIO Mode 4, and DMA Mode 2 devices are also supported.

- Super Multi I/O
  Integrated ITE IT8679 Plug and Play multi-I/O chipset features two high-speed 16550A compatible serial ports, one IR port, one EPP/ECP capable parallel port, and one FDD connector.

- USB Support
  Two USB ports on an optional riser card allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.

- Optional IrDA Connector
  An optional IrDA connector for wireless infrared connections is available.

Advanced Features

- CPU Thermal Monitoring Alert (optional)
  A special heat sensor located under the CPU monitors the CPU temperature to make sure that the system is operating at a safe heat level. If the temperature is too high, the sensor automatically generates an SMI (System Management Interrupt) to turn on the system fan and slow down the CPU clock frequency. At the same time, the system warns you that the CPU is overheating. CPU utilization is restored to normal levels when the temperature returns to a safe level.

- Switching Voltage Regulator
  This mainboard features a switching voltage regulator, which significantly reduces the temperature of the CPU and regulator itself. The switching voltage regulator also ensures full upgradability to the next generation of Socket 7 processors, which will require more electrical current and generate more heat both in the processor and the system.

PC '97 Compliant

This mainboard is fully compliant with the new PC '97 standard at both the BIOS and hardware levels. PC '97 is a set of hardware, bus and device design requirements set by Microsoft in conjunction with other industry leaders aimed at making PCs easier to use by maximizing cooperation between the operating system and hardware. The system design requirements under PC '97 support a synergy among PC hardware, Microsoft Windows® Operating Systems, and Windows®-based software. Key elements include support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for both Windows® 95 and Windows® NT.

ACPI Ready (optional)

When you install a remote power supply, this mainboard fully implements the new ACPI (Advanced Configuration Power Interface) standard. ACPI enables PCs to come on instantly when accessed by a user and remain available to perform certain tasks even after the PC is turned off. Additional benefits of ACPI include improved thermal management, reduced energy consumption, and OS directed Plug and Play capabilities.

- Soft-Off Support
  The mainboard's Soft-Off feature allows you to turn off your computer using the Operating System (Windows® 95). The feature requires a power supply with a soft-off power controller.

- Remote Ring-On
  The Remote Ring-On function allows your computer to be turned on remotely via a modem while it is in Sleep Mode. The Remote Ring-On function requires a power supply with a soft-off power controller.

- RTC Alarm
  The RTC alarm feature allows you to implement a number of useful functions, such as automatically sending out a fax late at night.

DMI (Desktop Management Interface)

Enhanced system manageability is becoming an increasingly important factor in reducing the total cost of ownership of systems, particularly in a corporate environment. To provide this capability, this mainboard supports DMI at the BIOS level and includes a DMI Configuration Utility to maintain the Management Information Format Database.

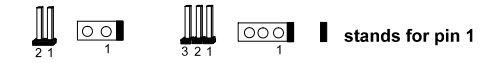
Installation Procedures

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:

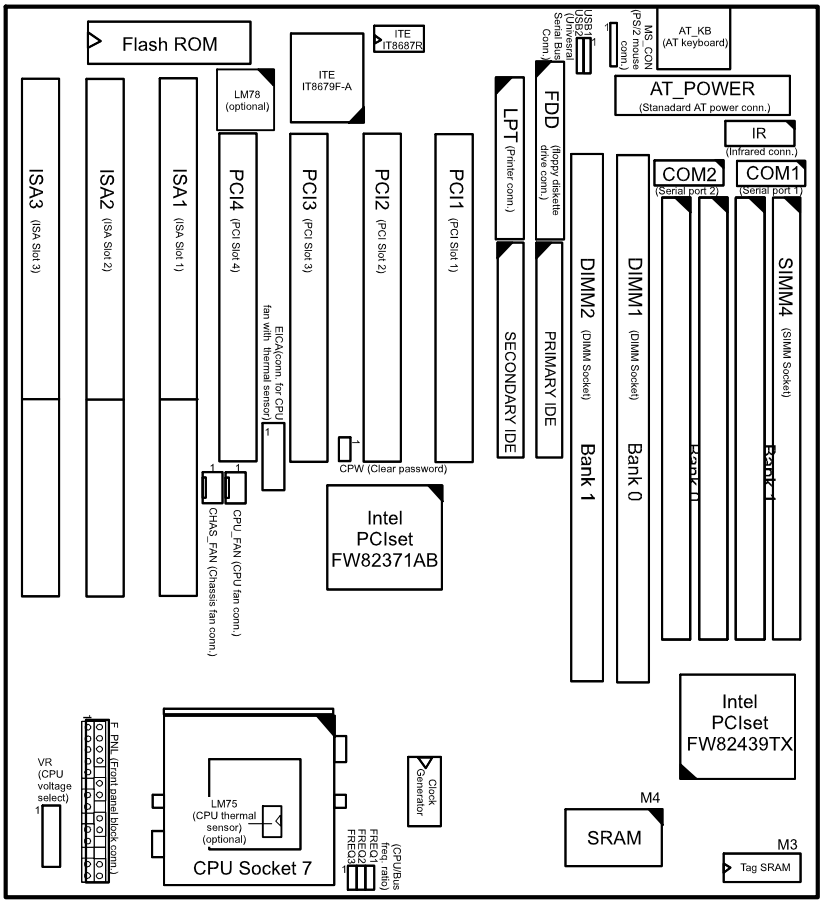


Jumpers are shown as above

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.

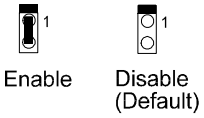
Mainboard Layout

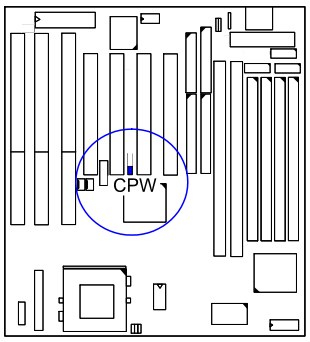


1). Set System Jumpers

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.

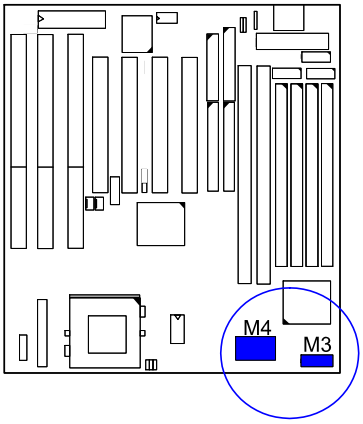
(Unit : MB)

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



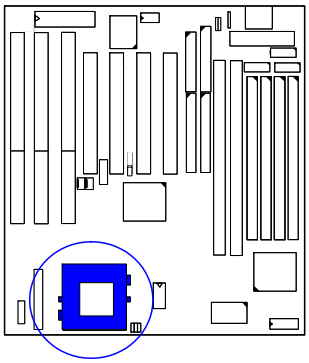
The mainboard comes with onboard 512KB synchronous 3V Pipeline Burst SRAMs. Cache memory access is very fast compared to main memory access. The cache holds data for imminent use. Since cache memory is from five to more than ten times faster than main memory, the CPU's access time is reduced, giving 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.

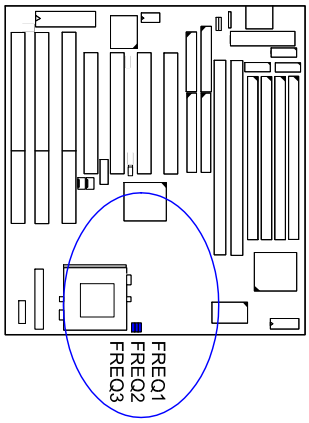
To install the CPU, do the following:

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	------	------			



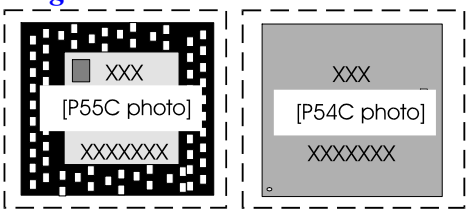
Intel Pentium/Pentium MMX CPUs

Frequency

Type	*CPU Speed* (MHz)	*Bus Clock* (MHz)	*Ratio*	FREQ3	FREQ2	FREQ1
Pentium MMX	233	66	3.5 x			
	200	66	3 x			
	166	66	2.5 x			
Pentium	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.

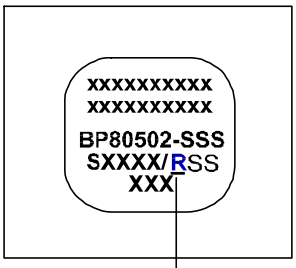
Voltage



A Pentium MMX Processor

A Pentium Processor

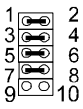
Intel Pentium CPU Bottom Side Marking



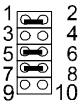
R (Identifier for Voltage Range) :

V for VRE Voltage Range
or
S for Standard Voltage Range

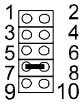
VR



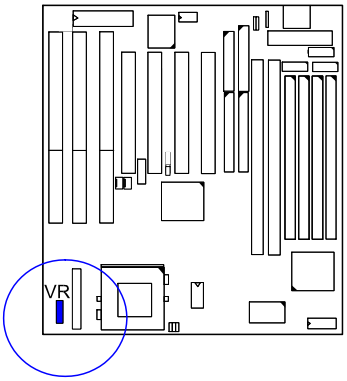
Core : 3.5V
IO : Same
Pentium VRE



Core : 3.3V
IO : Same
Pentium STD



Core : 2.8V
IO : 3.3V
Pentium MMX



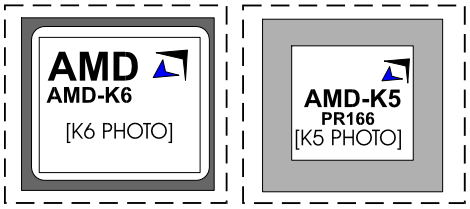
AMD-K5/K6 CPUs

Frequency

Type	*Model*	*CPU Speed (MHz)*	*Bus Clock (MHz)*	*Ratio*	FREQ3	FREQ2	FREQ1
K6 Series	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			
K5 Series	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.

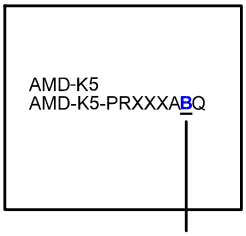
Voltage



An AMD-K6 Processor

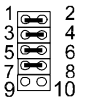
An AMD-K5 Processor

AMD-K5 CPU Top Side Marking

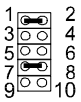


V (Identifier for Operation Voltage)

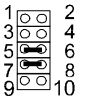
VR



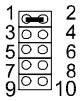
Core : 3.5V
IO : Same
AMD-K5 - B



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

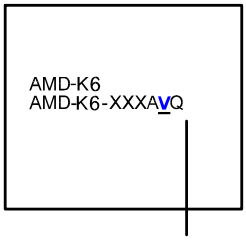


Core : 3.2V
IO : 3.3V
AMD-K6
(233 MHz)



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

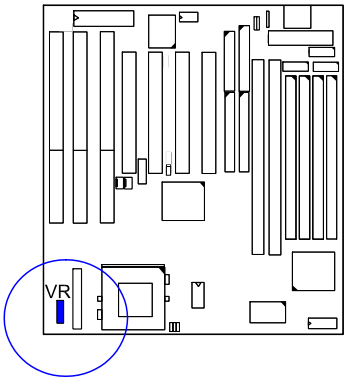
AMD-K6 CPU Top Side Marking



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

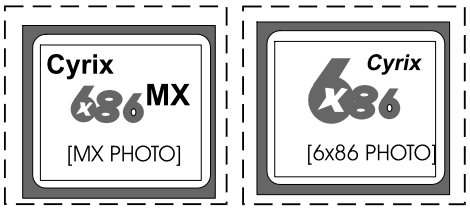
Frequency

Type	*Model*	*CPU Speed (MHz)*	*Bus Clock (MHz)*	*Ratio*	FREQ3	FREQ2	FREQ1
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 Cyrix CPU top marking about the actual CPU speed and ratio.

Voltage



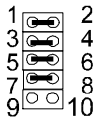
A Cyrix 6x86MX Processor

A Cyrix 6x86 Processor

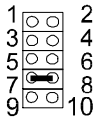
Cyrix 6x86 CPU Top Side Marking

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

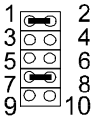
VR



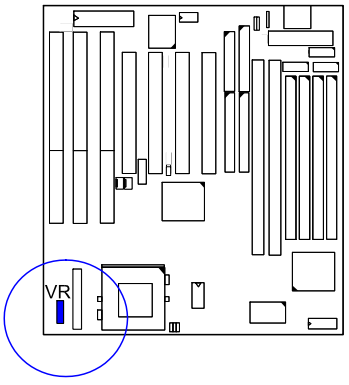
Core : 3.5V
IO : Same
Cryix 6x86-028



Core : 2.8V
IO : 3.3V
Cyrix 6x86L



Core : 2.9V
IO : 3.3V
Cyrix 6x86MX



IBM 6x86/6x86MX CPUs

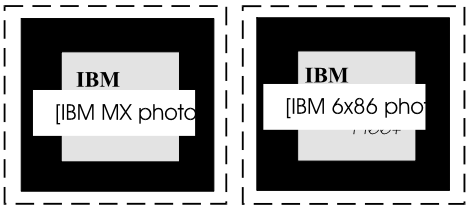
Frequency

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



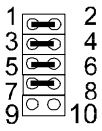
An IBM 6x86MX Processor

An IBM 6x86 Processor

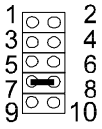
IBM 6x86 CPU Top Side Marking

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

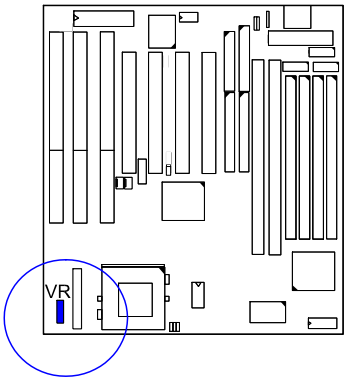
VR

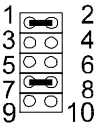


Core : 3.5V
IO : Same
IBM 6x86-028



Core : 2.8V
IO : 3.3V
IBM 6x86L

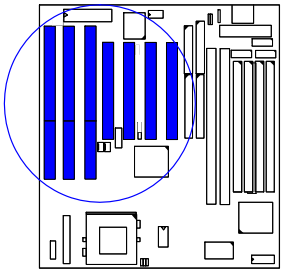




Core : 2.9V
IO : 3.3V
IBM 6x86MX

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.

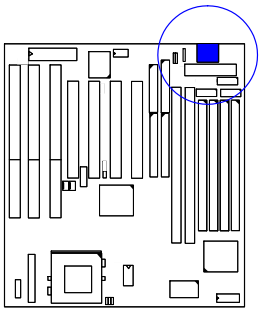
5). Connect Cables and Power Supply

Keyboard Connector: AT_KB

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

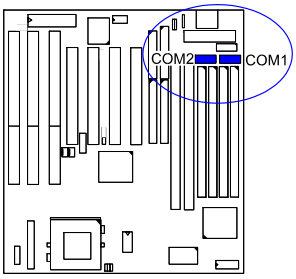
Keyboard Connector

Plug of Keyboard



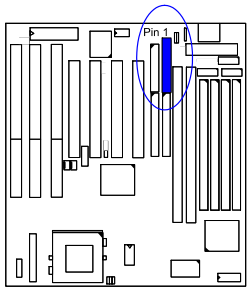
Serial Port Connectors: COM1, COM2

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.



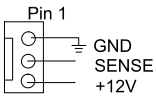
Floppy Diskette Drive Connector: FDD

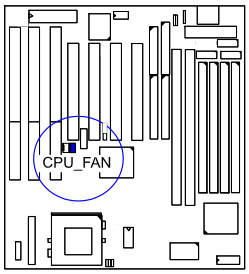
This connector provides the connection with your floppy disk drive.



CPU Fan Connector: CPU_FAN

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

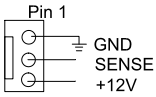


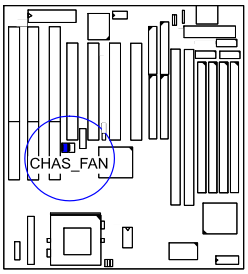


NOTE : EISCA fan, a product of PENTALPHA International Inc., is recommended. The company's phone no.: 011-886-2-866-53248. Fax No.: 011-886-2-866-53249.

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.





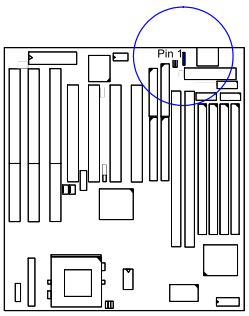
NOTE : EISCA fan, a product of PENTALPHA International Inc., is recommended. The company's phone no.: 011-886-2-866-53248. Fax No.: 011-886-2-866-53249.

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.

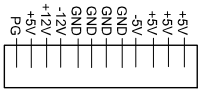
PS/2 Mouse Connector: MS_CON

This connector is connected to the PS/2 mouse.



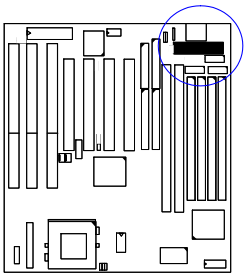
Standard Power Supply Connector: AT_POWER

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.



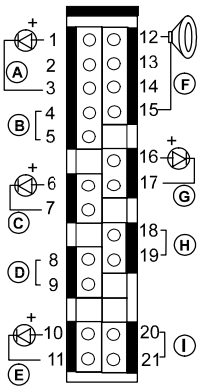
Power Connector

Power Plugs of Power Supply



Front Panel Block Connector: F_PNL

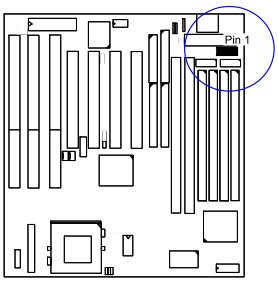
This block connector concludes : PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.



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

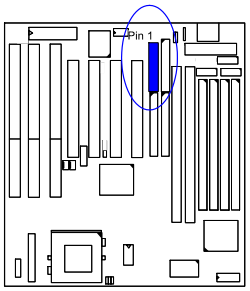
Infrared Connector: IR

This connector supports the connection to your IR device.



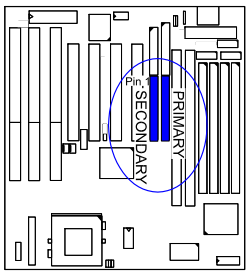
Printer Connector: LPT

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.