

**VA-503**

**MAINBOARD  
MANUAL**

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20

## 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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## Table of Contents

### Chapter 1 Overview

Package Checklist .....	2
The VA-503 Mainboard.....	3
Main Features .....	4
Advanced Features .....	6
PC '97 Compliant .....	7
Infrared Connection .....	7
Universal Serial Bus (USB) Functionality .....	8

### Chapter 2 Installation Procedures

Mainboard Layout .....	10
1). Set System Jumpers .....	11
Jumpers .....	11
Clear Password: CPW .....	11
Flash ROM Type Selection: EP1, EP2.....	12
Power Supply Type Selection: PWR.....	13
CPU to SRAM Data Transacting Mode Selection: SRAM .....	13
2). Install System RAM Modules.....	13
RAM Module Configuration .....	13
Install SIMMs.....	16
Remove SIMMs.....	16
Install DIMMs .....	17
Remove DIMMs .....	17
Cache Memory.....	18
3). Install the CPU.....	19
CPU External Clock (BUS) Frequency: CLK1, CLK2, CLK3..	20
CPU Internal Freq. to Bus Clock Ratio:	
FREQ1, FREQ2, FREQ3 .....	20
Intel Pentium MMX CPUs .....	21
Frequency .....	21
Voltage .....	21
AMD-K6 CPUs .....	22
Frequency .....	22
Voltage .....	23

## VA-503 Mainboard Manual

---

Cyrrix 6x86L/6x86MX CPUs.....	24
Frequency .....	24
Voltage .....	25
IBM 6x86L/6x86MX CPUs .....	26
Frequency .....	26
Voltage .....	27
4). Install Expansion Cards .....	28
5). Connect Cables and Power Supply.....	29
Keyboard Connector: AT_KB .....	29
Serial Port Connectors: COM1, COM2 .....	29
Universal Serial Bus Connectors: JUSB.....	29
CPU Fan Connector: CPU_FAN.....	30
System Case Fan Connector: CHAS_FAN.....	30
Infrared Connector: IR.....	30
Floppy Diskette Drive Connector: FDD.....	31
Remote Power Connector: CN5 .....	31
EICA CPU Fan Connector: EICA .....	31
PS/2 Mouse Connector: MS_CON .....	32
Printer Connector: LPT .....	32
IDE HDD Device Connectors: PRIMARY, SECONDARY.....	32
AT Power Supply Connector: POWER.....	33
ATX Power Supply Connector: ATX_PWR .....	33
Remote Wake-Up Connector: RWU.....	33
Front Panel Block Connector: F_PNL .....	34
<b>Chapter 3   BIOS Setup</b>	
CMOS Setup Utility .....	35
Standard CMOS Setup.....	36
Hard Disk Configurations.....	36
Software Turbo Speed .....	37
BIOS Features Setup.....	38
Chipset Features Setup .....	41
Power Management Setup.....	44
PNP/PCI Configuration Setup .....	48
Load BIOS Defaults.....	50

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Installation Procedures

Load Setup Defaults.....	50
Integrated Peripherals.....	50
Supervisor/User Password.....	54
IDE HDD Auto Detection .....	55
Save and Exit Setup .....	56
Exit without Saving.....	56

**Appendix A Software Utilities**

Bus Master IDE Driver.....	57
VIA INF Update Software.....	57
AGP VxD Support Utility.....	57
Anti-Virus Tool (optional).....	57
Desktop Management Interface (DMI) Software.....	58
BIOS Flash Software .....	58

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## BIOS Setup

The mainboard comes with the Award BIOS chip that contains the ROM Setup information of your system. This chip serves as an interface between the processor and the rest of the mainboard's components. This section explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

### CMOS Setup Utility

ROM PCI/ISA BIOS (2A5LA008) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION SETUP	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑ ↓ ← → : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type...	

A Setup program, built into the system BIOS, is stored in the CMOS RAM. This Setup utility program allows changes to the mainboard configuration settings. It is executed when the user changes system configuration; user changes system backup battery; or the system detects a configuration error and asks the user to run the Setup program. Use the arrow keys to select and press Enter to run the selected program.

## Standard CMOS Setup

ROM PCI/ISA BIOS (2A5LA008)									
STANDARD CMOS SETUP									
AWARD SOFTWARE, INC.									
Date (mm:dd:yy) : Mon, Dec. 15 1997									
Time (hh:mm:ss) : 15:37:56									
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
Primary Master	: Auto	0	0	0	0	0	0	0	Auto
Primary Slave	: Auto	0	0	0	0	0	0	0	Auto
Secondary Master	: Auto	0	0	0	0	0	0	0	Auto
Secondary Slave	: Auto	0	0	0	0	0	0	0	Auto
Drive A : 1.44M, 3.5 in.					Base Memory: 640K				
Drive B : None					Extended Memory: 7168K				
Floppy 3 Mode Support: Disabled					Other Memory: 384K				
Video : EGA/VGA					Total Memory: 8192K				
Halt On : All Errors									
Esc : Quit			↑ ↓ → ← : Select Item			PUP/DN+/- : Modify			
F1 : Help			(Shift)F2 : Change Color						

The Standard CMOS Setup screen is displayed above. Each item may have one or more option settings. The system BIOS automatically detects memory size, thus no changes are necessary. Use the arrow keys to highlight the item and then use the PgUp or PgDn keys to select the value you want in each item.

## Hard Disk Configurations

**TYPE:** Select from 1 to 45 to fill remaining fields with predefined values of disk drives. Select User to fill the remaining fields. Select Auto to detect the HDD type automatically.

**SIZE:** The hard disk size. The unit is Mega Bytes.

**CYLS:** The cylinder number of the hard disk.

**HEAD:** The read/write head number of hard disk.

**PRECOMP:** The cylinder number at which the disk drive changes the write timing.

**LANDZ:** The cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.

**SECTOR:** The sector number of each track defined on the hard disk.

**MODE:** Select Auto to detect the mode type automatically. If your hard disk supports the LBA mode, select LBA or Large. However, if your hard disk cylinder is more than 1024 and does not support the LBA function, set at Large. Select Normal if your hard disk supporting cylinders is below 1024.

#### Floppy 3 Mode Support

This feature allows you to install a 3.5" (1-2MB) NEC 9801™ floppy drive. The options are: Both , Disabled (Default), Drive A, Drive B.

#### Software Turbo Speed

The BIOS supports Software Turbo Speed feature used for adjusting speed in some DOS games. Instead of pressing the Turbo Speed Button on the front panel, simply press the **Alt, Ctrl, and +** keys at the same time to enable the Turbo Speed feature; and press the **Alt, Ctrl, and -** keys at the same time to disable the feature.

## BIOS Features Setup

ROM PC/ISA BIOS (2A5LA006) BIOS FEATURES UTILITY AWARD SOFTWARE, INC.			
Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000 - C8FFF Shadow	: Disabled
External Cache	: Enabled	CC000 - CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000 - D3FFF Shadow	: Disabled
Boot Sequence (LS120/ZIP100)	: A, C, SCSI	D4000 - D7FFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	D8000 - DBFFF Shadow	: Disabled
Boot Up NumLock Status	: On	DC000 - DFFFF Shadow	: Disabled
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled	Esc: Quit	↑↓←→: Select Item
Typematic Rate (Char/Sec)	: 6	F1: Help	PU/PD/+/=: Modify
Typematic Delay (Msec)	: 250	F5: Old Values (Shift)F2: Color	
Security Option	: Setup	F6: Load BIOS Defaults	
OS Select for DRAM > 64MB	: Non-OS2	F7: Load Setup Defaults	

### Virus Warning

When enabled, assigns the BIOS to monitor the master boot sector and the DOS boot sector of the first hard disk drive.

The options are: Enabled, Disabled (Default).

### CPU Internal Cache

When enabled, improves the system performance. Disable this item when testing or trouble-shooting.

The options are: Enabled (Default), Disabled.

### External Cache

When enabled, supports an optional cache SRAM. This feature allows you to disable the cache function when the system performance is unstable to run some software.

The options are: Enabled (Default), Disabled.

### Quick Power On Self Test

When enabled, allows the BIOS to bypass the extensive memory test.

The options are: Enabled (Default), Disabled.

**Boot Sequence (LS120/ZIP100)**

Allows the system BIOS to first try to boot the operating system from the selected disk drive.

The options are: A, C; C, A; C, CDROM, A; CDROM, C, A; C Only; LS/ZIP, C; A, C, SCSI (Default).

**Boot Up Floppy Seek**

When enabled, assigns the BIOS to perform floppy diskette drive tests by issuing the time-consuming seek commands. The options are: Enabled (Default), Disabled.

**Boot Up Numlock Status**

When set to On, allows the BIOS to automatically enable the Num Lock Function when the system boots up. The options are: On (Default), Off.

**Gate A20 Option**

When set at Fast, allows a faster access response under Protected mode. The options are: Fast (Default), Normal.

**Typematic Rate Setting**

The term typematic means that when a keyboard key is held down, the character is repeatedly entered until the key is released. When this item is enabled, you may change the typematic repeat rate. The options are: Disabled (Default), Enabled.

**Typematic Rate (Chars/Sec)**

Sets the rate of a character repeat when the key is held down. The options are: 6 (Default), 8, 10, 12, 15, 20, 24, 30.

**Typematic Delay (Msec)**

Sets the delay time before a character is repeated. The options are: 250 (Default), 500, 750, 1000 millisecond.

**Security Option**

Allows you to set the security level of the system. The options are: Setup (Default), System.

**OS Select For DRAM > 64MB**

If your operating system (OS) is OS2, select the option OS2. Otherwise, stay with the default setting Non-OS2. The options are: Non-OS2 (Default), OS2.

**Video BIOS Shadow**

Allows the BIOS to copy the video ROM code of the add-on video card to the system memory for faster access. The options are: Enabled (Default), Disabled.

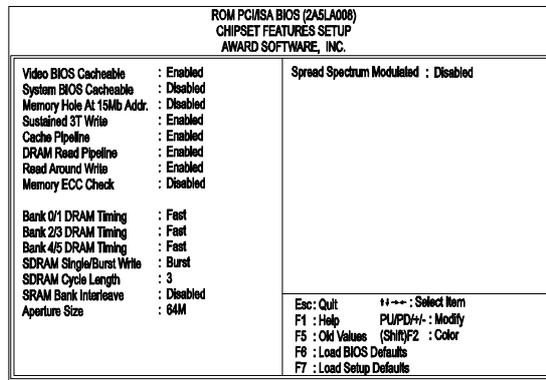
**C8000-CBFFF to DC000-DFFFF Shadow**

Allows the BIOS to copy the BIOS ROM code of the add-on card to system memory for faster access. It may improve the performance of the add-on card.

Some add-on cards will not function properly if its BIOS ROM code is shadowed. To use these options correctly, you need to know the memory address range used by the BIOS ROM of each add-on card.

The options are: Enabled, Disabled (Default).

## Chipset Features Setup



### Video BIOS Cacheable

When enabled, allows the system to use the video BIOS codes from SRAMs, instead of the slower DRAMs or ROMs.

The options are: Enabled (Default), Disabled.

### System BIOS Cacheable

When enabled, allows the ROM area F000H-FFFFH to be cacheable when cache controller is activated.

The options are: Disabled (Default), Enabled.

### Memory Hole At 15M-16M Addr.

When enabled, the memory hole at the 15MB address will be relocated to the 15~16MB address range of the ISA cycle when the processor accesses the 15~16MB address area.

When disabled, the memory hole at the 15MB address will be treated as a DRAM cycle when the processor accesses the 15~16MB address area.

The options are: Enabled, Disabled (Default).

### Sustained 3T Write

When enabled, allows the CPU to complete the memory writes in 3 clocks.

The options are: Enabled (Default), Disabled.

#### Cache Pipeline

When enabled, it makes the read/write speed between the CPU and the cache RAMs faster. The options are: Enabled (Default), Disabled.

#### DRAM Read Pipeline

When enabled, it makes the data read speed from memory modules to cache RAMs faster. The options are: Enabled (Default), Disabled.

#### Read Around Write

This feature speeds up data read performance when it stays Enabled. The options are: Enabled (Default), Disabled.

#### Memory ECC Check

If your DIMMs do not support ECC function, please set at Disabled; otherwise, the mainboard performance will be unpredictable. The options are: Enabled, Disabled (Default).

#### Linear Burst Mode

If a Cyrix or an IBM CPU installed, this feature appears and it allows you to configure the CPU to SRAM data read/write mode. If you use a Cyrix CPU, select Enabled; if you use an Intel CPU or AMD-K5 CPU, please stay with the default value, Disabled. Please refer to SRAM, Page 13, Chapter 2.

#### Bank 0/1 DRAM Timing; Bank 2/3 DRAM Timing; Bank 4/5 DRAM Timing;

This feature allows you to select the DRAM read/write speed. The options are: Fast (Default), Normal, Turbo.

#### SDRAM Single/Burst Write

When set at Burst (write), the data will be written into the SDRAM by the memory controller on the consecutive clock cycles. The options are: Burst (Default), Single.

#### SDRAM Cycle Length

This feature appears only when SDRAM DIMM/s is installed (BIOS auto detection). If the CAS latency of your SDRAM DIMM is 2, set at 2 to enhance the system performance. If the CAS latency of your SDRAM DIMM is 3, stay with the default setting, 3. The options are: 2, 3 (Default).

**SDRAM Bank Interleave**

This feature appears only when SDRAM DIMM/s is installed (BIOS auto detection). When the bank interleave function of the SDRAM is enabled, its the data transacting performance is better than when it is disabled.  
The options are: Enabled (Default), Disabled.

**Aperture Size**

It allows you to select the main memory frame size fo AGP use.  
The options are 4, 8, 16, 32, 64 (Default), 128, 256MB.

**Spread Spectrum Modulated**

This feature is used to set the spread Spectrum to be center spread type or down spread type.  
The options are: Enabled, Disabled (Default).

## Power Management Setup

*When an AT Power Supply Installed:*

ROM PCI/ISA BIOS (2A5LA008) POWER MANAGEMENT UTILITY AWARD SOFTWARE, INC.	
Power Management : Disable	IRQ3 (COM2) : Primary
PM Control by APM : Yes	IRQ4 (COM1) : Primary
Video Off Option : Suspend ->Off	IRQ5 (LPT2) : Primary
Video Off Method : DPMS Support	IRQ7 (LPT1) : Primary
MODEM Use IRQ : NA	IRQ8 (RTC Alarm) : Disabled
** PM Timers **	
HDD Power Down : Disable	IRQ9 (IRQ2 Redir) : Disabled
Doze Mode : Disable	IRQ10 (Reserved) : Disabled
Suspend Mode : Disable	IRQ11 (Reserved) : Disabled
** PM Events **	
VGA I/O & MEMORY : OFF	IRQ12 (PS/2 Mouse) : Primary
LPT & COM I/O : LPT/COM	IRQ14 (Hard Disk) : Primary
HDD & FDD I/O : ON	IRQ15 (Reserved) : Disabled
Esc: Quit      ++--: Select Item	
F1 : Help      PUP/D+/- : Modify	
F5 : Old Values (SHIT)F2 : Color	
F8 : Load BIOS Defaults	
F7 : Load Setup Defaults	

*When an ATX Power Supply Installed:*

ROM PCI/ISA BIOS (2A5LA008) POWER MANAGEMENT UTILITY AWARD SOFTWARE, INC.	
Power Management : Disable	Soft-Off by PWR-BTIN : Delay 4 Sec.
PM Control by APM : Yes	IRQ3 (COM2) : Primary
Video Off Option : Suspend ->Off	IRQ4 (COM1) : Primary
Video Off Method : DPMS Support	IRQ5 (LPT2) : Primary
MODEM Use IRQ : NA	IRQ7 (LPT1) : Primary
** PM Timers **	
HDD Power Down : Disable	IRQ8 (RTC Alarm) : Disabled
Doze Mode : Disable	IRQ9 (IRQ2 Redir) : Disabled
Suspend Mode : Disable	IRQ10 (Reserved) : Disabled
** PM Events **	
VGA I/O & MEMORY : OFF	IRQ11 (Reserved) : Disabled
LPT & COM I/O : LPT/COM	IRQ12 (PS/2 Mouse) : Primary
HDD & FDD I/O : ON	IRQ14 (Hard Disk) : Primary
Resume by Ring & LAN : Disabled	IRQ15 (Reserved) : Disabled
RTC Alarm Resume : Disabled	Esc: Quit      ++--: Select Item
F1 : Help      PUP/D+/- : Modify	
F5 : Old Values (SHIT)F2 : Color	
F8 : Load BIOS Defaults	
F7 : Load Setup Defaults	

#### Power Management

This item allows you to adjust the power management features. Select *Disable* for disabling global power management features. Select *User Defined* for configuring your own power management features. *MIN Saving* initiates all predefined timers in their minimum values. *MAX Saving*, on the other hand, initiates maximum values. The options are: Disable (Default), User Defined, MIN Saving, MAX Saving.

#### PM Control by APM

The option *No* allows the BIOS to ignore the APM (Advanced Power Management) specification. Selecting *Yes* will allow the BIOS wait for APM's prompt before it enters Doze mode, Standby mode, or Suspend mode. If the APM is installed, it will prompt the BIOS to set the system into power saving mode when all tasks are done. The options are: No, Yes (Default).

#### Video Off Option

This feature provides the selections of the video display power saving mode. The option *Suspend - Off* allows the video display to go blank if the system enters Suspend mode. The option *All Modes - Off* allows the video display to go blank if the system enters Doze mode or Suspend mode. The option *Always On* allows the video display to stay in Standby mode even when the system enters Doze or Suspend mode. The options are: Suspend - Off (Default), All Modes - Off, Always On.

#### Video Off Method

The option *V/H SYNC+Blank* allows the BIOS to blank off screen display by turning off the V-Sync and H-Sync signals sent from add-on VGA card. *DPMS Supported* allows the BIOS to blank off screen display by your add-on VGA card which supports DPMS (Display Power Management Signaling function). *Blank Screen* allows the BIOS to blank off screen display by turning off the red-green-blue signals. The options are: V/H SYNC+Blank, DPMS (Default), Blank Screen.

#### MODEM Use IRQ

This feature allows you to select the IRQ# to meet your modem's IRQ#. The options are: NA (Default), 3, 4, 5, 7, 9, 10, 11.

#### HDD Power Down

Selecting *Disable* will turn off the hard disk drive (HDD) motor. Selecting *1 Min..15 Min* allows you define the HDD idle time before the HDD enters the Power Saving Mode. The option *When Suspend* lets the BIOS turn the HDD motor off when system is in Suspend mode. The options *1 Min..15 Min* and *When Suspend* will not work concurrently. When HDD is in the Power Saving Mode, any access to the HDD will wake the HDD up.

The options are: Disable (Default), 1 Min..15 Min, When Suspend.

#### Doze Mode

When disabled, the system will not enter Doze mode. The specified time option defines the idle time the system takes before it enters Doze mode.

The options are: Disabled (Default), 1, 2, 4, 8, 12, 20, 30, 40 Min, 1 Hr.

#### Suspend Mode

When disabled, the system will not enter Suspend mode. The specified time option defines the idle time the system takes before it enters Suspend mode.

The options are: Disabled (Default), 1, 2, 4, 8, 12, 20, 30, 40 Min, 1 Hr.

#### VGA I/O & MEMORY

*ON* enables the power management timers when a no activity events is detected in the VGA. *OFF* disables the PM timer even if a no activity event is detected. The options are: OFF (Default), ON.

#### LPT & COM I/O

*LPT/COM* enables the power management timers when a no activity event is detected in the LPT and COM ports. *LPT (COM)* enables the power management timers when a no activity event is detected in the LPT (COM) ports. *NONE* to disable the PM timer even if a no activity event is detected. The options are: LPT/COM (Default), LPT, COM, NONE.

#### HDD & FDD I/O

*ON* will enable the power management timers when no activity event is detected in the hard drive and floppy drive. *OFF* disables the PM timer even if no activity event is detected. The options are: OFF, ON (Default).

#### Resume on Ring & LAN

If an ATX power supply is installed and this feature is enabled, the system will be turned on from the power-off by a remote phone call via the modem. The options are Disabled or Enabled. The default setting is Disabled.

#### RTC Alarm Resume

If an ATX power supply is installed and this feature is enabled, the BIOS allows you to set the time the system will be turned on from the system power-off status. The options are: Enabled, Disabled (Default).

#### Date (MM:DD) Alarm

This feature allows you to set the day of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled. The options are: 0: 0 (Default). MM (*month*) - 0, 1,..., 12; DD (*day*) - 0, 1..31.

#### Time (hh:mm:ss) Alarm

If an ATX power supply is installed and when RTC Alarm Resume is Enabled, this feature allows you to set the time of the alarm starts when the RTC Alarm Resume From Soft Off is set to be Enabled.

The options are: 0: 0: 0 (Default). hh (*hour*) - 0, 1, 2,..., 23; mm (*minute*) - 0, 1, 2,...,59; ss (*second*) - 0, 1, 2,...,59.

#### Soft-Off by PWR-BTTN

This feature is designed for the case when you use an ATX power supply. The selection Delay 4 Sec. will allow the system shut down after 4 seconds after the power button is pressed. The selection Instant-Off will allow the system shut down immediately once the power button is pressed. The settings are Delay 4 Sec. (Default), or Instant-Off.

#### IRQ# Activity

After the time period which you set at in Suspend Mode Feature, the system advances from Doze mode to Suspend mode in which the CPU clock stops and the screen display is off. At this moment, if the IRQ activity which is defined as *Primary* occurs, the system goes back to Full-on mode directly.

If the IRQ activity which is defined as *Secondary* takes place, the system enters another low power state, Dream mode, in which the system will act as Full-on mode except that the screen display remains off until the corresponding IRQ handler finishes, then back to Suspend mode. For instance, if the system connects to a LAN and receives an interruption from its file server, the system will enter Dream mode to execute the corresponding calling routine.

The options of IRQ 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15 are: Primary, Secondary, Disabled. The options of IRQ 12 are: Primary, Secondary.

The default values of IRQ 8, 9, 10, 11, 15 are: Disabled.

The default value of IRQ 3, 4, 5, 7, 12, 14 are: Primary.

## PNP/PCI Configuration Setup

ROM PCI/ISA BIOS (2A5LA008) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : No	CPU to PCI Write Buffer : Enabled
Resources Controlled By : Auto	PCI Dynamic Bursting : Enabled
Reset Configuration Data : Disabled	PCI Master 0 WS Write : Enabled
IRQ Sequence : 9,10, 11, 5, 7, 4, 3, 12, 15, 14	PCI Delay Transaction : Enabled
	PCI Master Read Prefetch : Enabled
	PCI#2 Master 1 WS Write : Enabled
	PCI#2 Master 1 WS Read : Enabled
	PCI IRQ Activated By : Level
	Assign IRQ For VGA : Disable
Esc: Quit      F4: Select Item	
F1: Help      PU/PD: +/-: Modify	
F5: Old Values      (Shift)F2: Color	
F6: Load BIOS Defaults	
F7: Load Setup Defaults	

### PNP OS Installed

If your operating system is a Plug-and-Play one, such as Windows 95, select Yes. The options are: No (Default), Yes.

### Resources Controlled By

If set at Auto, the BIOS arranges all system resources. If there exists conflict, select Manual. The options are: Auto (default), Manual. The manual options of IRQ- / DMA- assigned to are: Legacy ISA, PCI/ISA PnP.

### Reset Configuration Data

When enabled, allows the system to clear the last BIOS configuration data and reset with the default data. The options are: Enabled, Disabled (default).

### IRQ Sequence

This feature allows you to select the PCI IRQ sequence. The options are: 15, 11, 10, 9, 12, 14, 5, 7, 3, 4; 9, 10, 11, 5, 7, 4, 3, 12, 15, 14 (Default).

### CPU to PCI Write Buffer

When enabled, allows data and address access to the internal buffer of 82C586 so the processor can be released from the waiting state. The options are: Enabled (Default), Disabled.

**PCI Dynamic Bursting**

When enabled, the PCI controller allows Bursting PCI transfer if the consecutive PCI cycles come with the address falling in same 1KB space. This improves the PCI bus throughput.  
The options are: Enabled (Default), Disabled.

**PCI Master 0 WS Write**

When enabled, allows a zero-wait-state-cycle delay when the PCI master drive writes data to DRAM.  
The options are: Enabled (Default), Disabled.

**PCI Delay Transaction**

Enable this feature to abort the current CPI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master.  
The options are: Disabled, Enabled (default).

**PCI Master Read Prefetch**

When set at Enabled, the memory controller will prefetches data DRAM if the PCI bus master reads data from DRAM.  
The options are: Enabled (Default), Disabled.

**PCI#2 Master 1WS Write**

When set at Enabled, it allows a one-wait-state TRDY# response if PCI bus master writes data to target.  
The options are: Enabled (Default), Disabled.

**PCI#2 Master 1WS Read**

When set at Enabled, it allows a one-wait-state TRDY# response if PCI bus master reads data from target.  
The options are: Enabled (Default), Disabled.

**PCI IRQ Activated By**

We suggest that you set this to its default configuration unless you are a qualified technician. The options are: Level (Default), Edge.

**Assign IRQ For VGA**

If your PCI VGA card does not need an IRQ, select Disabled; therefore, an IRQ can be released for the system use.  
The options are: Enabled, Disabled (Default).

## Load BIOS Defaults

BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance. The OEM manufacturer may change the defaults through MODBIN before the binary image is burned into the ROM.

## Load Setup Defaults

Selecting *this field* loads the factory defaults for BIOS and Chipset Features which the system automatically detects. Load BIOS defaults when troubleshooting your mainboard.

## Integrated Peripherals

ROM PCI/ISA BIOS (2A6LA008)			
INTEGRATED PERIPHERALS			
AWARD SOFTWARE, INC.			
IDE HDD Block Mode	: Enabled	Onboard FDD Controller	: Enabled
On-Chip Primary PCI IDE	: Enabled	Onboard UART1	: 3F8/IRQ4
On-Chip Secondary PCI IDE	: Enabled	Onboard UART2	: 2F8/IRQ3
IDE Primary Master PIO	: Auto	Onboard UART2 Mode	: Standard
IDE Primary Slave PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Secondary Master PIO	: Auto	Parallel Port Mode	: SPP
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
HDD S.M.A.R.T. Capability	: Disabled	Esc: Quit	↑↓←→: Select Item
USB Controller	: Disabled	F1: Help	PU/PD/+/=: Modify
		F5: Old Values (Shift)	F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

### IDE HDD Block Mode

When enabled, the system executes read/write requests to hard disk in block mode. The options are: Enabled (Default), Disabled.

### On-Chip Primary PCI IDE

When enabled, allows you to use the onboard primary PCI IDE. If a hard disk controller card is used, set at Disabled. The options are: Enabled (Default), Disabled.

**On-Chip Secondary PCI IDE**

When enabled, allows you to use the onboard secondary PCI IDE. If a hard disk controller card is used, set at Disabled.  
The options are: Enabled (Default), Disabled.

**IDE Primary Master PIO**

Allows an automatic or a manual configuration of the PCI primary IDE hard disk (master) mode.  
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**IDE Primary Slave PIO**

Allows an automatic or a manual configuration of the PCI primary IDE hard disk (slave) mode.  
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**IDE Secondary Master PIO**

Allows an automatic or a manual configuration of the PCI secondary IDE hard disk (master) mode.  
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**IDE Secondary Slave PIO**

Allows an automatic or a manual configuration of the PCI secondary IDE hard disk (slave) mode.  
The options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**IDE Primary Master UDMA**

Allows you to select the first PCI IDE channel of the first master hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). In order to UDMA, in addition to enabling this setting, the OS needs to have installed VIA Bus Master driver downloadable from the FIC Web site.  
The options are: Auto (Default), Disabled.

**IDE Primary Slave UDMA**

Allows you to select the first PCI IDE channel of the first slave hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). The options are: Auto (Default), Disabled.

#### IDE Secondary Master UDMA

Allows you to select the second PCI IDE channel of the secondary master hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). In order to UDMA, in addition to enabling this setting, the OS needs to have installed VIA Bus Master driver downloadable from the FIC Web site.

The options are: Auto (Default), Disabled.

#### IDE Secondary Slave UDMA

Allows you to select the second PCI IDE channel of the secondary slave hard disk mode or to detect it by the BIOS if the hard disk supports UDMA (Ultra DMA, faster than DMA). The options are: Auto (Default), Disabled.

#### HDD S.M.A.R.T. Capability

“S.M.A.R.T” is the abbreviation of “Self-Mointoring, Analysis and Repeating Technology”. To enable it will assist you in preventing some (but not all) system down time due to hard disk drive failure.

The options are: Enabled, Disabled (Default).

#### USB Controller

If you do not use the onboard USB feature, it allows you to disable it.

The options are: Enabled, Disabled (Default).

#### BIOS Support USB Keyboard

If Enabled is selected in the above feature, this feature will appear.

If your USB devices cannot be detect automatically by the system BIOS or some driver diskettes came with your USB devices, please set at DOS for allowing you to install the driver. The options are: Setup (Default), DOS.

#### Onboard FDD Controller

When enabled, the floppy diskette drive (FDD) controller is activated.

The options are: Enabled (Default), Disabled.

#### Onboard Serial Port 1

If the serial port 1 uses the onboard I/O controller, you can modify your serial port parameters. If an I/O card needs to be installed, COM3 and COM4 may be needed.

The options are: 3F8/IRQ4 (Default), 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3, Disabled.

#### Onboard Serial Port 2

If the serial port 2 uses the onboard I/O controller, you can modify your serial port parameters. If an I/O card needs to be installed, COM3 and COM4 may be needed. The options are: 2F8/IRQ3 (Default), 3E8/IRQ4, 2E8/IRQ3, 3F8/IRQ4, Disabled.

#### UART 2 Mode

Allows you to select the IR modes if the serial port 2 is used as an IR port. Set at Standard, if you use COM2 as the serial port as the serial port, instead as an IR port. The options are: HPSIR, ASKIR, Standard (Default).

#### IR Function Duplex

This feature allows you to select the infrared data transaction way. The options are: Half (Default), Full.

#### RxD , TxD Active

The feature allows you to select the active signals of the reception end and the transmission end. This is for technician use only. The options are: Hi, Hi (Default); Hi, Lo; Lo, Hi; Lo, Lo.

#### Onboard Parallel Port

Select from a given set of parameters if the parallel port uses the onboard I/O controller. The options are: Disabled, 278/IRQ5, 3BC/IRQ7, 378/IRQ7 (Default).

#### Onboard Parallel Mode

Allows you to connect with an advanced printer. *SPP* for standard parallel port (SPP) used on IBM PC/XT, PC/AT and bi-directional parallel port found on PS/2 system. Select *EPP/SPP* for both extended parallel port and standard parallel port. Select *ECP* for Microsoft and HP Extended Capabilities Parallel Port. Select *ECP/EPP* for both ECP and EPP ports. The options are: SPP (Default), EPP/SPP, ECP, ECP/EPP.

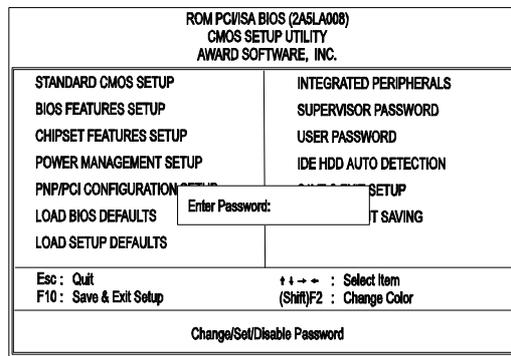
#### ECP Mode Use DMA

If you select ECP or ECP/EPP mode to be the onboard parallel mode, this feature allows you to select Direct Memory Access (DMA) channel. The options are: 3 (Default), 1.

#### Parallel Port EPP Type

If you select EPP/SPP or ECP/EPP mode to be the onboard parallel mode, this feature allows you to select the EPP type version. The options are: EPP1.9 (Default), EPP1.7.

## Supervisor/User Password



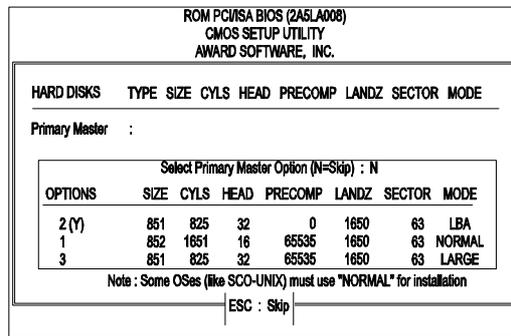
To enable the Supervisor/User passwords, select the item from the Standard CMOS Setup. You will be prompted to create your own password. Type your password up to eight characters and press Enter. You will be asked to confirm the password. Type the password again and press Enter. You may also press Esc to abort the selection and not enter a password. To disable password, press Enter when you are prompted to enter a password. A message appears, confirming the password is disabled.

Under the BIOS Feature Setup, if System is selected under the Security Option field and the Supervisor Password is enabled, you will be prompted for the Supervisor Password every time you try to enter the CMOS Setup Utility. If System is selected and the User Password is enabled, you will be requested to enter the User Password every time you reboot the system. If Setup is selected under the Security Option field and the User Password is enabled, you will be prompted only when you reboot the system.

### Clear Password

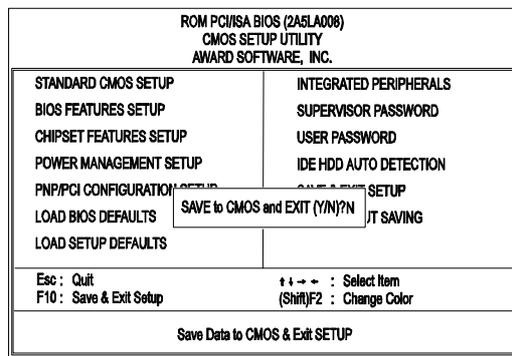
If you forget your password, turn off the system power first and remove the system unit cover. Locate Jumper CPW and cap it. Remove Jumper CPW and reset the system. At this point, you will not be asked for the password to enter Setup.

## IDE HDD Auto Detection



The IDE Hard Disk Drive Auto Detection feature automatically configures your new hard disk. Use it for a quick configuration of new hard drives. This feature allows you to set the parameters of up to four IDE HDDs. The option with (Y) are recommended by the system BIOS. You may also keys in your own parameters instead of setting by the system BIOS. After all settings, press Esc key to return the main menu. For confirmation, enter the Standard CMOS Setup feature.

## Save and Exit Setup



After you have made changes under Setup, press Esc to return to the main menu. Move cursor to Save and Exit Setup or press F10 and then press Y to change the CMOS Setup. If you did not change anything, press Esc again or move cursor to Exit Without Saving and press Y to retain the Setup settings. The following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility:

**SAVE to CMOS and EXIT (Y/N)?**

## Exit without Saving

If you select this feature, the following message will appear at the center of the screen to allow you to exit the setup utility without saving CMOS modifications:

**Quit Without Saving (Y/N)?**

**NOTE :** Default values of the various Setup items on this chapter may not necessarily be the same ones.

## **Installation Procedures**

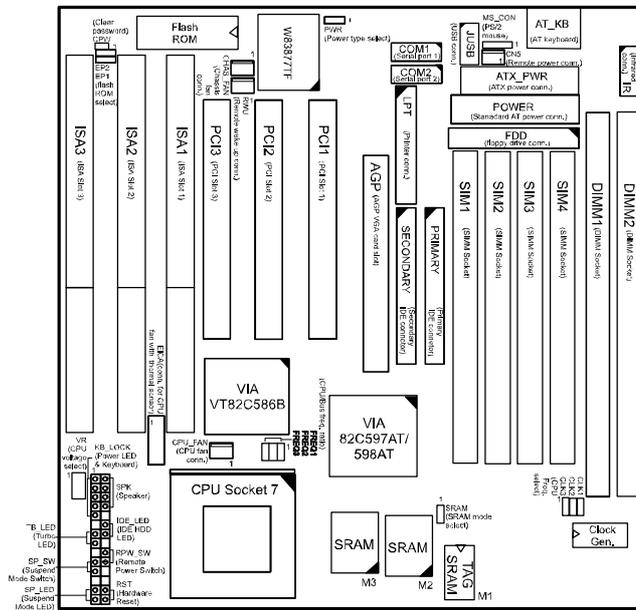
The VA-503 has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

To set up your computer, you should follow these installation steps:

- Step 1 - Set system jumpers
- Step 2 - Install System RAM modules
- Step 3 - Install the CPU
- Step 4 - Install expansion cards
- Step 5 - Connect cables and power supply
- Step 6 -Set up BIOS feature (Please read Chapter Three.)

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

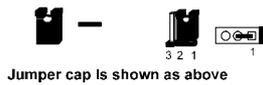
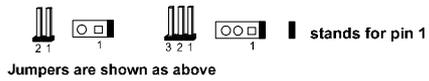
Mainboard Layout



## 1). Set System Jumpers

### Jumpers

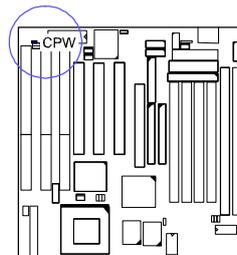
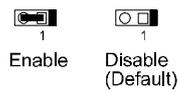
Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. To set a jumper, a black cap containing metal contacts is placed over the jumper pins according to the required configuration. A jumper is said 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:



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

### Clear Password: CPW

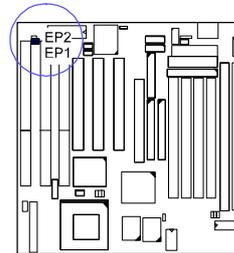
This jumper allows you to set the password configuration to Enabled or Disabled. You may need to enable this jumper if you forget your password.



**Flash ROM Type Selection: EP1, EP2**

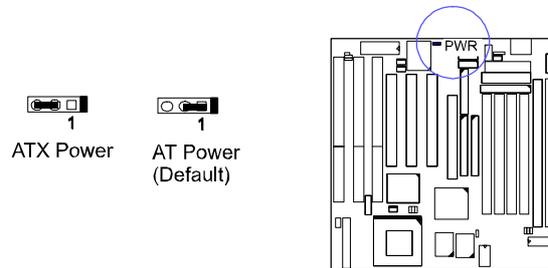
These two jumpers allow you to configure the Flash ROM chip. This jumper setting is correct by factory default. If you want to know the Flash ROM type installed on this mainboard, remove the sticker from the chip to see its type.

Type	EP1	EP2
<b>1MB</b>		
Intel 28F001		
MXIC 28F1000		
SST 29EE010		
ATMEL AT29C010		
<b>2MB</b>		
Winbond 29C020		
SST 29EE020		
ATMEL AT29C020		



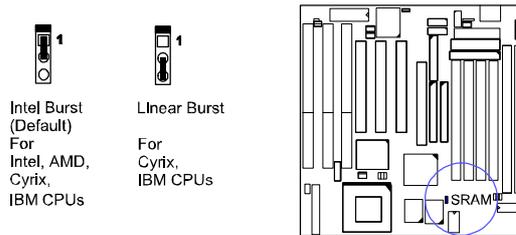
**Power Supply Type Selection: PWR**

This jumper allows you to select your power supply type: an AT power supply or remote power supply. Please read CN5 in page 31 of this chapter when your system uses an ATX power supply.



**CPU to SRAM Data Transacting Mode Selection: SRAM**

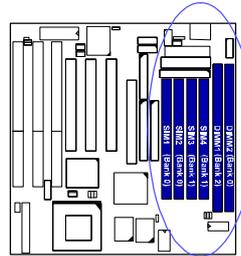
This jumper allows you to select the CPU to SRAM data read/write mode. If you install a Cyrix or IBM processor on this mainboard, please set at 2-3 pin pair. Please also read Linear Burst Mode feature of BIOS Setup, Page 42, Chapter 3 for more information.



## 2). Install System RAM Modules

### RAM Module Configuration

SIMMs and DIMMs in Bank 0 and 1 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	SIM1 & 2 (Bank 0)	SIM3 & 4 (Bank 1)	DIMM1 (Bank 2)	DIMM2 (Bank 0)
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*		
			256*	256*

**NOTE :**

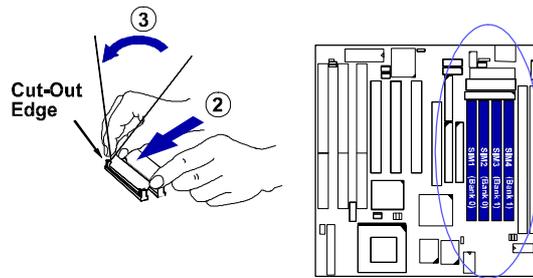
1. \* A RAM module of this size was not available for testing at time of printing.
2. DIM1 and DIM2 only support 3.3V (unbuffered) EDO and SDRAM modules.
3. DIM2 and SIMM1&2 are shared. That is, it is not allowed to install RAM modules on DIM2 and SIMM1&2 at the same time.
4. The different size of DIM1 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.

### 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.

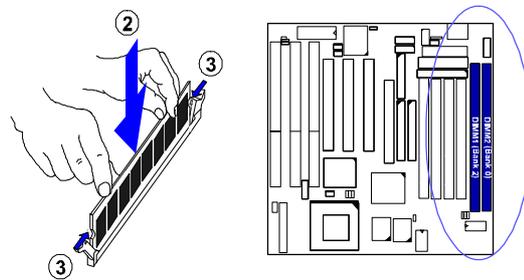
### Remove SIMMs

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.

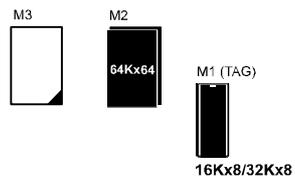
### Cache Memory

The mainboard comes with onboard **512KB (1MB is optional) 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.

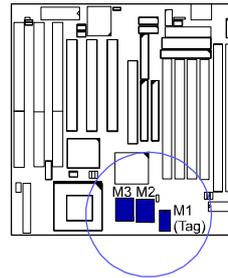
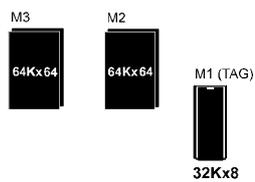
Pentium mainboards may implement various types of L2 cache SRAMs. Pipeline Burst SRAM is one of them, delivering the best price performance ratio. They perform much better than asynchronous SRAMs.

**NOTE:** The cache memory can not be upgraded.

#### 512KB

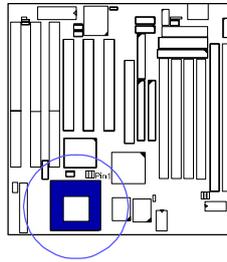


#### 1MB



### 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.

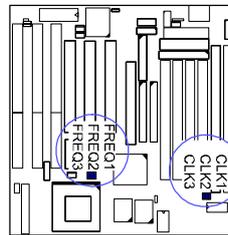
**To install the CPU, do the following:**

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 jumper settings.

**CPU External Clock (BUS) Frequency: CLK1, CLK2, CLK3**

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

CPU Freq.	CLK1	CLK2	CLK3
66 MHz			
60 MHz			
55 MHz			
50 MHz			

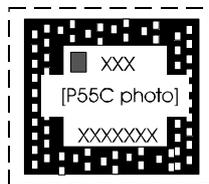


**CPU to Bus Frequency Ratio: FREQ1, FREQ2, FREQ3**

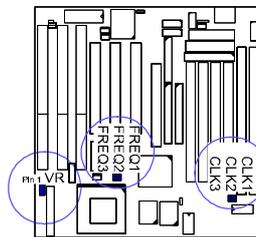
These three jumpers are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.

Ratio		FREQ1	FREQ2	FREQ3
Pentium MMX/ K6/6x86MX	6x86L			
3 x	4 x			
2.5 x	1 x			
2 x	2 x			
3.5 x	3 x			
4 x	----			
4.5 x	----			
5 x	----			
5.5 x	----			

**Intel Pentium MMX CPUs**



**A Pentium MMX Processor**



**Frequency**

CPU Freq. (MHz)	Bus Freq. (MHz)	CLK1	CLK2	CLK3	Ratio	FREQ1	FREQ2	FREQ3
233	66				3.5 x			
200	66				3 x			
166	66				2.5 x			

**NOTE :** Please refer to the marking on the CPU about the actual CPU speed and ratio.

**Voltage**

**VR**



Core : 2.8V  
IO : 3.3V  
Pentium MMX

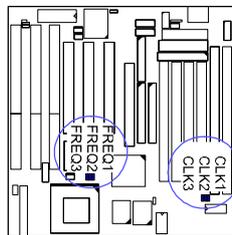
**AMD-K6 CPUs**

*Frequency*

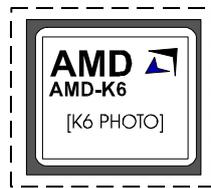
Model	CPU Freq. (MHz)	Bus Freq. (MHz)	CLK1	CLK2	CLK3	Ratio	FREQ1	FREQ2	FREQ3
K6-300 *	300	66				4.5 x			
K6-266 *	266	66				4 x			
K6-233	233	66				3.5 x			
K6-200	200	66				3 x			
K6-166	166	66				2.5 x			

**NOTE :**

1. \* This CPU was not available for testing at time of printing.
2. Please refer to your AMD CPU top marking about the actual CPU speed and ratio.



**Voltage**



**An AMD-K6 Processor**

**VR**



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

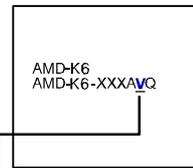


Core : 3.2V    Core : 2.2V  
IO : 3.3V    IO : 3.3V  
AMD-K6  
(233 MHz)

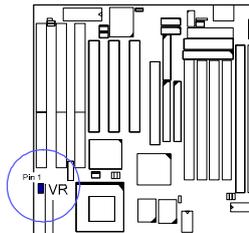


Core : 2.2V  
IO : 3.3V  
AMD-K6  
(266, 300 MHz)

**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



Pin 1 VR

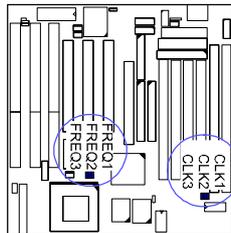
**Cyrix 6x86L/6x86MX CPUs**

*Frequency*

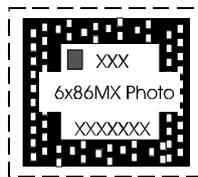
Model	CPU FREQ. (MHz)	Bus FREQ. (MHz)	CLK1	CLK2	CLK3	Ratio	FREQ1	FREQ2	FREQ3
6x86MX-PR266*	233	66				3.5 x			
6x86MX-PR233	200	66				3 x			
6x86MX-PR200	180	60				3 x			
	166	66				2.5 x			
6x86MX-PR166	150	60				2.5 x			
	133	66				2 x			
	150	50				3 x			
6x86L-PR166+	133	66				2 x			
6x86L-PR150+	120	60				2 x			
6x86L-PR133+	110	55				2 x			

**NOTE :**

- \* This CPU was not available for testing at time of printing.
- Please refer to your Cyrix CPU top marking about the actual CPU speed and ratio.



*Voltage*



*A Cyrix 6x86 MMX Processor*

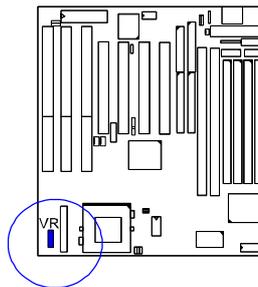
**VR**



Core : 2.8V  
IO : 3.3V  
Cyrix 6x86L



Core : 2.9V  
IO : 3.3V  
Cyrix 6x86MX



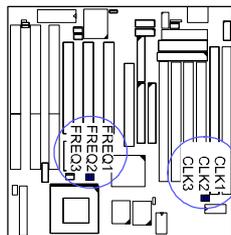
**IBM 6x86L/6x86MX CPUs**

*Frequency*

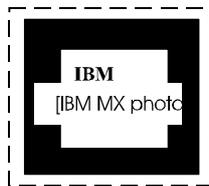
Model	CPU FREQ. (MHz)	Bus FREQ. (MHz)	CLK1	CLK2	CLK3	Ratio	FREQ1	FREQ2	FREQ3
6x86MX-PR266*	233	66				3.5 x			
6x86MX-PR233	200	66				3 x			
6x86MX-PR200	180	60				3 x			
	166	66				2.5 x			
6x86MX-PR166	150	60				2.5 x			
	133	66				2 x			
	150	50				3 x			
6x86L-PR166+	133	66				2 x			
6x86L-PR150+	120	60				2 x			
6x86L-PR133+	110	55				2 x			

**NOTE :**

- \* This CPU was not available for testing at time of printing.
- Please refer to your IBM CPU top marking about the actual CPU speed and ratio.



*Voltage*



*An IBM 6x86MX Processor*

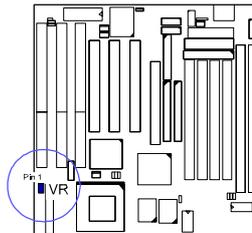
**VR**



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



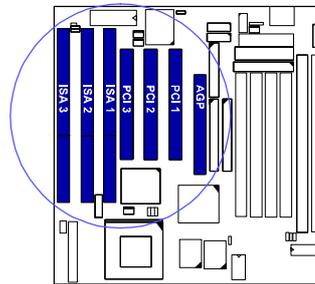
**Core : 2.9V**  
**IO : 3.3V**  
**IBM 6x86MX**



#### 4). Install Expansion Cards

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.

Your VA-503 features **one 32-bit AGP Bus**, **three 16-bit ISA Bus**, and **three 32-bit PCI Bus** expansion slots. All PCI and ISA Bus slots are non-shared. ISA1 slot and PCI3 slot can not accept expansion cards at the same time because there is no room for two cards there.



**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.

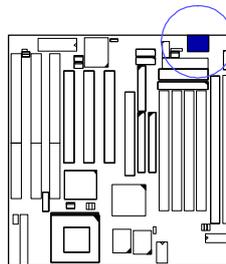
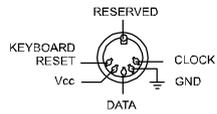
**To install an expansion card, do the following:**

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

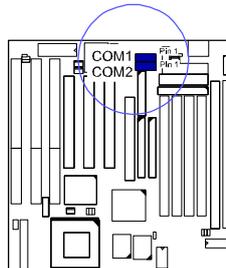
### Keyboard Connector: *AT\_KB*

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



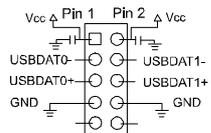
### Serial Port Connectors: *COM1, COM2*

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.



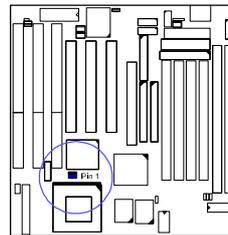
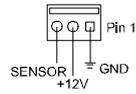
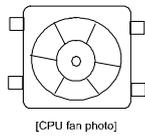
### Universal Serial Bus Connector: *JUSB*

This 2x5 connector links with USB peripheral devices via an optional USB riser card.



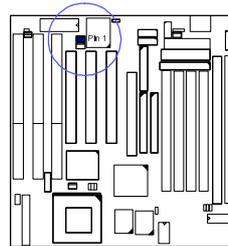
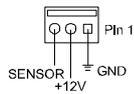
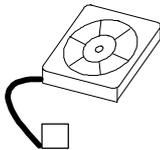
**CPU Fan Connector: CPU\_FAN**

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



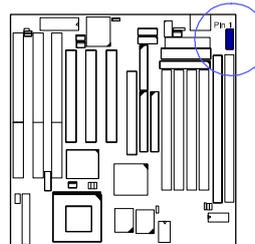
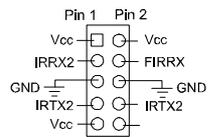
**Chassis Fan Connector: CHAS\_FAN**

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



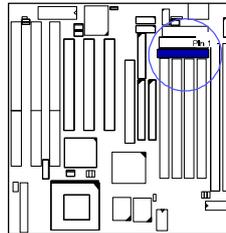
**Infrared Connector: IR**

This connector supports the connection to your IR device.



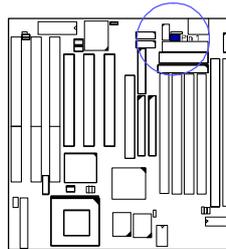
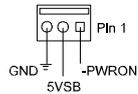
**Floppy Diskette Drive Connector: FDD**

This connector provides the connection with your floppy disk drive, LS-120 drive, or IDE ZIP drive.



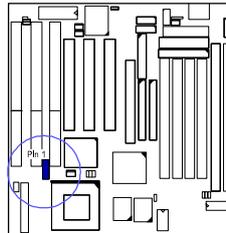
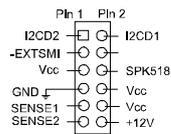
**Remote Power Connector: CNS**

This 3-pin male connector allows you to enable (or disable) the system power if the RPW\_SW is on (or off). Please refer to PWR in page 13 of this manual when your system uses an ATX power supply.



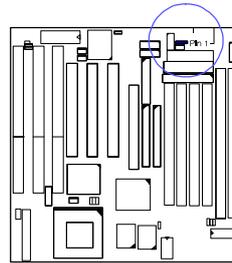
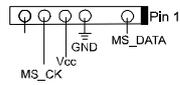
**EICA CPU Fan Connector: EICA**

Your EICA cooling fan is installed on this 2x6 male connector. This type CPU fan is equipped with a thermal sensor for hardware monitoring. The Genesys Logic (Taiwan) offers this product. For more information call 886-2-664-6655.



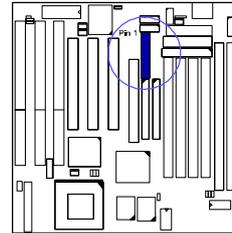
***PS/2 Mouse Connector: MS\_CON***

This connector is connected to the PS/2 mouse.



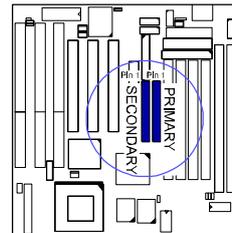
***Printer Connector: LPT***

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



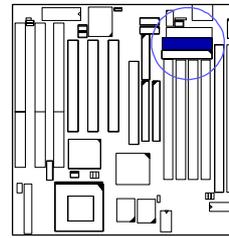
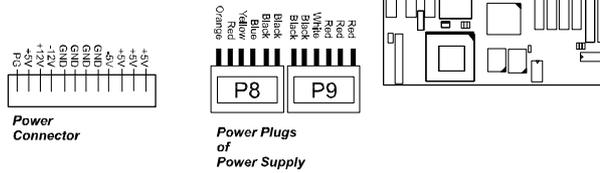
***IDE HDD Device Connectors:  
PRIMARY, SECONDARY***

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.



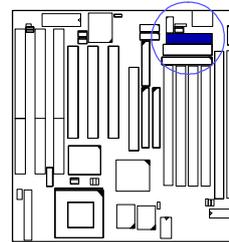
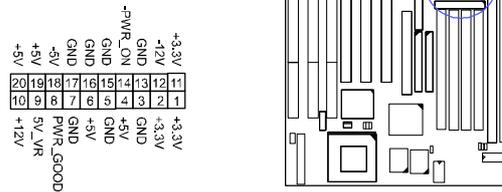
**AT Power Supply Connector: POWER**

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.



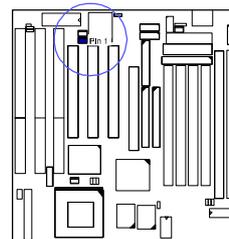
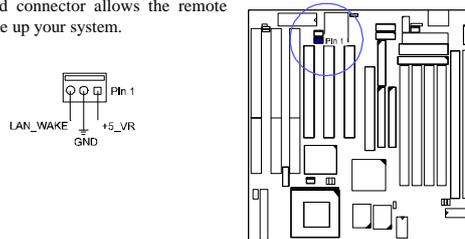
**ATX Power Supply Connector: ATX\_PWR**

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



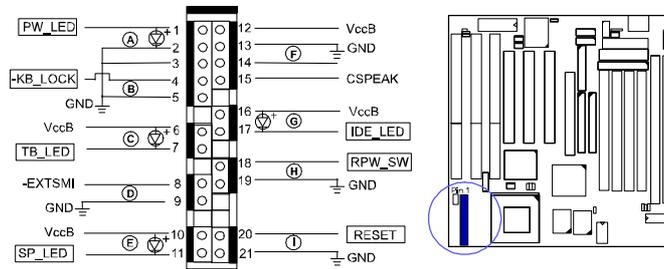
**Remote Wake-Up Connector: RWU**

This 3-pin pinhead connector allows the remote LAN server to wake up your system.



**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

## Overview

Based on the new highly-integrated [VIA APOLLO VP3™](#) Chipset, the VA-503 combines blistering Pentium® processor performance with support for intelligent diagnostic and power management features, such as [Hardware Monitoring](#). The new [Accelerated Graphics Port \(AGP\)](#) interface which provides a dedicated path for memory-intensive graphics applications-delivering faster system performance and arcade-quality 3D graphics. The VA-503 has a versatile Baby AT-size platform for leading-edge PC '97 compliant systems.

With its [switching voltage regulator](#), the VA-503 runs a complete range of [Intel Pentium®](#) processors, including the [Intel Pentium processor with MMX™](#) technology, and is easily upgradable to the [Cyrix/IBM MX™](#) and the [AMD-K6™](#). For added power and performance, the VA-503 takes up to [1MB 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.

Built on the highly concise Baby AT form factor, the VA-503 integrates a full set of I/O features onboard. It supports Universal Serial Bus through the optional USB riser card providing ease-of-use and high-speed Plug & Play connections to USB compliant peripheral devices. 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.

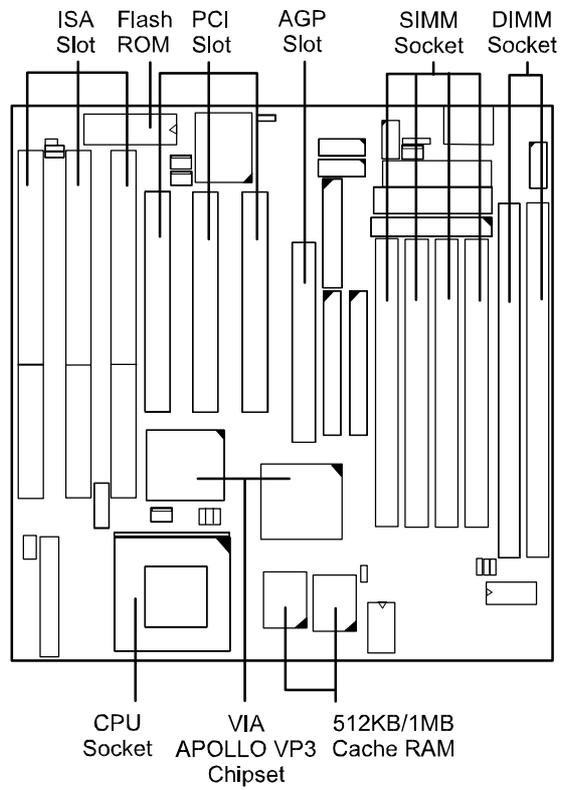
For the most up-to-date information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at [www.fic.com.tw](http://www.fic.com.tw).

## 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 VA-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 CD-ROM
  - Bus Master IDE Driver
  - VIA INF Update Software
  - AGP VxD Support Utility
  - Anti-Virus Tool
  - Desktop Management Interface (DMI) Software
  - BIOS Flash Software

The VA-503 mainboard



## Main Features

- **Easy Installation**  
BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, IDE ZIP drives, MS Windows™ 95.
- **Leading Edge Chipset**  
VIA APOLLO VP3 chipset with integrated DRAM and LII cache controllers as well as support for Intel's new Dynamic Power Management Architecture (DPMA), Concurrent PCI (PCI 2.0 and 2.1), AGP 1.0 compliant, and USB.
- **Flexible Processor Support**  
Onboard 321-pin ZIF socket and switching voltage regulator support complete range of leading-edge processors:  
Intel Pentium® MMX™ 166/200/233 MHz processors.  
AMD-K6™-166 (166 MHz) / K6-200 (200 MHz) / K6-233 (233 MHz) / K6-266 (266 MHz) / K6-300 (300 MHz) processors.  
Cyrix 6x86MX™- PR166 (150 MHz) / PR200 (166 MHz) / PR233 (200 MHz) / PR266 (233 MHz) processors.  
Cyrix 6x86L™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) processors.  
IBM 6x86MX™- PR166 (150 MHz) / PR200 (166 MHz) / PR233 (200 MHz) / PR266 (233 MHz) processors.  
IBM 6x86L™- 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 / 55 / 60 / 66 MHz and the CPU/Bus frequency ratio of 1x / 2x / 2.5x / 3x / 3.5x / 4x / 4.5 x / 5x / 5.5x. (Please read **Install the CPU** in Chapter 2 for more information).
- **Ultra-fast Level II Cache**  
Supports 512KB/1MB onboard Pipeline Burst Level II 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, 128, 256MB with support for EDO DRAM and lightning-fast SDRAM.
- **AGP, ISA, and PCI Expansion Slots**  
One AGP, three 16-bit ISA, and three 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 Winbond 83877F™ Plug and Play multi-I/O chipset features two high-speed 16550 compatible serial ports, 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.
- **Onboard IrDA Connector**  
An IrDA connector for wireless infrared connections is available.

## Advanced Features

### ■ Optimized MMX™ Performance

The mainboard utilizes the advanced features of the VIA APOLLO VP3 chipset to optimize the unrivaled performance of the Intel Pentium® processor with MMX™ technology. To provide you with additional flexibility, the mainboard also supports other leading-edge processors featuring MMX™ technology, including the AMD-K6™, Cyrix 6X86MX™, IBM 6x86MX™ processors.

### ■ Onboard Accelerated Graphics Port (AGP)

The 32-bit AGP bus provides a dedicated 66MHz/133MHz path from the graphics card to the system memory offering much greater bandwidth than the 32-bit PCI bus does which currently operates at a speed of 33MHz. AGP enabled 3D graphics cards can directly access main memory across this fast path instead of using local memory. This mainboard is fully compliant with the AGP 1.0 specification. To make use of the improved AGP performance, the mainboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft's Windows™ 95 and Windows™ NT which implement DirectDraw™ will allow the system to take full use of AGP's benefits without the need to install additional drivers.

### ■ CPU Thermal Monitoring Alert

An optional EICA CPU fan with a heat sensor 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 chassis 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. This feature requires a power supply with a soft-off power controller.

### ■ Lightning-Fast SDRAM Performance

The mainboard supports the new generation of lightning-fast SDRAM (Synchronous Dynamic Random Access Memory) via its onboard 168-pin DIMM sockets. SDRAM delivers an added boost to overall system performance by increasing the CPU-to-memory data transfer rate to 528MB/sec compared to 264MB/sec for conventional EDO DRAM. SDRAM performance on the VA-503 is further boosted by the board's integrated I<sup>2</sup>C controller, which optimizes the memory timing settings.

## PC '97 Compliant

This mainboard is fully compliant with the new PC '97 standard at both the BIOS and hardware levels. 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.

### **Infrared Connection**

This mainboard features support for highly-sophisticated SIR technology that is fully compliant with the IrDA standard, which allows bi-directional and cordless data transactions with other IrDA compliant computers and peripheral devices using infrared as a medium. An IrDA device can be installed via a 9-pin D-SUB connector in the rear panel of the computer.

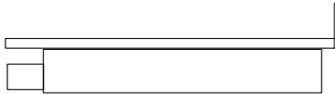
This infrared transmission is carried out in either Full Duplex Mode or Half Duplex Mode. The former allows simultaneous data transmission and reception, while the latter disables the reception when transmission occurs.

### Universal Serial Bus (USB) Functionality

This mainboard features integrated support for state-of-the-art USB technology, which provides high-speed and easy-to-use Plug & Play connections to the future generation of external peripherals, such as keyboards, mouse, monitors, game devices, scanners, printers, and fax/modems.

This mainboard features an optional USB riser card with bracket that can be installed in one of the I/O expansion slots on the rear panel of the system, as shown in the illustration below. It provides fast and convenient Plug and Play peripheral connections outside your computer, allowing you take full advantage of the universal functionality and flexibility of USB technology.

To use your USB device, your operating system, such as Win95 OSR2.1 (Win 95B & USB Supplement), must provide USB environment. The optional USB riser card must be installed on JUSB connector (Page 29, Chapter 2), and set USB Controller feature at Enabled (Integrated Peripherals section, Chapter 3). Also, the USB device driver must be installed.



[USB Riser Card's Photo]

## **Software Utilities**

### **Bus Master IDE Driver**

The mainboard package provides VIA Bus Master IDE Driver in the software utility CD-ROM for two operating systems: Windows™ 95, Windows™ NT. Please read the relating README files first, then execute the corresponding executable SETUP file for improving the system performance. This utility is also downloadable from the FIC Web site. please visit FIC Online at [www.fic.com.tw](http://www.fic.com.tw)

### **VIA INF Update Software**

The mainboard package provides USB Support Software in the software utility CD-ROM. Before you run the SETUP file, please read the relating README file first. This software is necessary for the operating system to recognize VIA Apollo VP3 chipset implemented on this mainboard.

### **AGP VxD Support Utility**

The mainboard package provides AGP VxD Support Utility in the software CD-ROM. Before you run the SETUP file, please read the relating README file first. This software is necessary if you install an AGP VGA card.

### **Anti-Virus Tool (optional)**

The mainboard package provides virus scan tool software in the software utility CD-ROM. This tool allows you to perform virus scan and cure when it is necessary. Please read the relating README file first before installing the corresponding executable file.

### **Desktop Management Interface (DMI) Software**

DMI (Desktop Management Interface) is a standard for organizing system configuration information. Using DMI, computer configuration can be made much simpler, quicker, and easier. Computer system configuration information can be read and modified from remote locations, permitting remote configuration and boot up.

The mainboard package provides Desktop Management Interface (DMI) software in the software utility CD-ROM. Before you run the SETUP.EXE file, please read the relating DMICFG.DOC file first.

### **BIOS Flash Software**

The mainboard package provides BIOS flash software in the software utility CD-ROM. This software feature offers a software tool for upgrading BIOS use when it is necessary. Please print the Readme.doc file under Microsoft Word to read before you run the corresponding executable SETUP file for improving the system performance. For the most up-to-date information about your mainboard and the latest BIOS updates, please visit FIC Online at [www.fic.com.tw](http://www.fic.com.tw).