

VA-503+



MOTHERBOARD MANUAL

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Overview

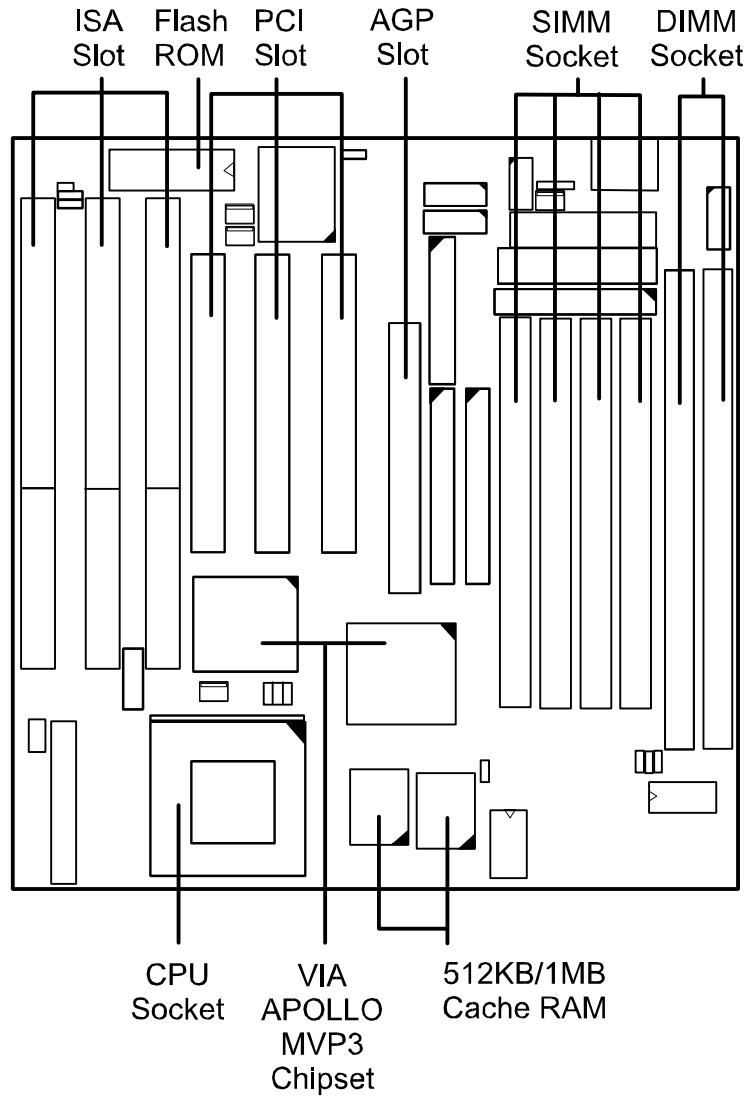
Based on the new highly-integrated **VIA APOLLO MVP3™ Chipset** the VA-503+ combines blistering Pentium® processor performance with support for switching voltage regulator which allows the voltage from 2.0V to 3.2V intelligent diagnostic, and power management features. The new **Accelerated Graphics Port (AGP)** interface provides a dedicated path for memory-intensive graphics applications-delivering faster system performance and arcade-quality 2x mode 3D graphics. The VA-503+ has a versatile **Baby AT-size** platform for leading-edge PC '97 compliant systems. For the most up-to-date information and the latest FAQs and BIOS updates, visit FIC Online at <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+ motherboard
- 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 Utilities

The VA-503+ Motherboard



Main Features

■ Easy Installation

BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, IDE ZIP drives, Windows 95, Windows 98, Windows NT, and OS/2.

■ Leading Edge Chipset

VIA APOLLO MVP3 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 / 200 / 233 / 266 / 300 and

K6-2-300 / 333 / 350 / 366 / 400 processors.

Cyrix M II-300 / 333 / 350 processors and

Cyrix 6x86MX- PR166 / 200 / 233 / 266 / 300 / 333 / 350 processors.

Cyrix 6x86L- PR200+ / PR166+ processors.

IBM 6x86MX- PR166 / 200 / 233 / 266 / 300 / 333 / 350 processors.

IBM 6x86L- PR200+ / PR166+ processors.

■ Various External Bus and CPU/Bus Frequency Ratio Support

The board supports the Bus frequency of 66 / 75 / 83 / 95 / 100 / 112 / 124MHz and the CPU/Bus frequency ratio of 2x / 2.5x / 3x / 3.5x / 4x / 4.5x / 5x / 5.5x by a switching voltage regulator which accepts 2.1V to 3.2V. (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 (66/100MHz).

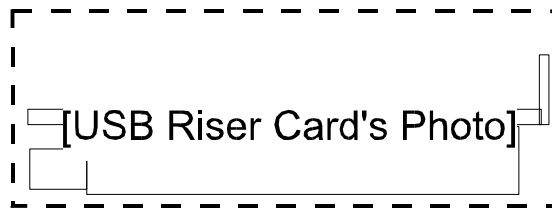
- **AGP, ISA, and PCI Expansion Slots**
One 32-bit AGP Bus, three 16-bit ISA Bus, and three 32-bit PCI Bus expansion slots provide the room to install a full range of add-on cards.

- **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 83877TF™ Plug and Play multi-I/O chipset features two high-speed UART 16550 compatible serial ports, one EPP/ECP capable parallel port, and one FDD connector.

- **Onboard IrDA Connector**
An IrDA connector for wireless infrared connections is available.

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



Intelligent Properties

■ **Optimized MMX Performance**

The motherboard utilizes the advanced features of the VIA APOLLO MVP3 chipset to optimize the unrivaled performance of the Intel Pentium processor with MMX technology. To provide you with additional flexibility, the motherboard also supports other leading-edge processors featuring MMX technology, including the AMD-K6, Cyrix 6X86MX, IBM 6x86MX processors.

■ **Onboard Accelerated Graphics Port (AGP)**

The motherboard is installed one 32-bit AGP bus with a dedicated 66MHz/133MHz path from the graphics card to the system memory (by 1x/2x mode) offering much greater bandwidth than the 32-bit PCI bus does which currently operates at a speed of 33MHz and is fully compliant with the AGP 1.0 specification. AGP enabled 3D graphics cards can directly access main memory across this fast path instead of using local memory. To make use of the improved AGP performance, the motherboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft Windows 98 and Windows NT 5.0 which implement DirectDraw will allow the system to take full use of AGP benefits without the need to install additional drivers.

■ **CPU Thermal Monitoring Alert**

An optional EISCA CPU fan with a heat sensor monitors the CPU temperature to make sure that the system is operating at a safe heat level. When the temperature is overheat, 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 motherboard supports general 66MHz and the new generation of lightning-fast 100MHz SDRAM 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. SDRAM performance on the VA-503+ is further boosted by the board integrated I²C controller, which optimizes the memory timing settings.

ACPI Ready

This motherboard fully implements the new ACPI (Advanced Configuration and Power Interface) 1.0 Hardware and BIOS requirement. If you install ACPI aware operating system, such as Windows 98, you fully utilized the power saving under ACPI.

It is compatible with all other none ACPI operating systems. If you want to setup ACPI feature under Windows 98, please follow the description below:

Run Windows 98 setup by using **setup/p j** on the command line for installing Windows 98 with the ACPI control feature.

If you type **setup** without the parameter **/p j**, Windows 98 will be installed as APM, PnP mode, no ACPI will be used.

For more detail information, please visit the web site of Microsoft. Its address is: www.microsoft.com/hwtest/.

The following lists a few examples about the advantages of ACPI-

- **Soft-Off Support**

The motherboard Soft-Off feature allows you to turn off your computer using the operating system. This 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. This feature is particularly usefully when you are expecting a fax late night and leave only your modem on to minimize power consumption. As soon as possible the phone rings, the modem automatically turn on the system, which answers the phone and downloads the fax. Then the computer shuts off again, thereby minimizing its consumption of power. The Remote Ring-On function requires a power supply with a soft-off power controller.

- **RTC Alarm**

The RTC alarm feature allows you to preset the computer to wake-up at a certain time allowing you to implement a number of useful functions, such as automatically sending out a fax late at night.

Installation Procedures

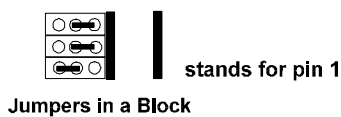
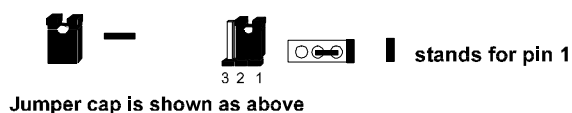
The motherboard has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. To set up your computer, you should follow these installation steps: 1). set system jumpers; 2). install RAM modules; 3). install the CPU; 4). install expansion cards; 5). connect cables and power supply; 6). set up BIOS feature. 7). set up supporting software tools.

CAUTION : If you use an electric drill to install this motherboard 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.

1). Set System Jumpers

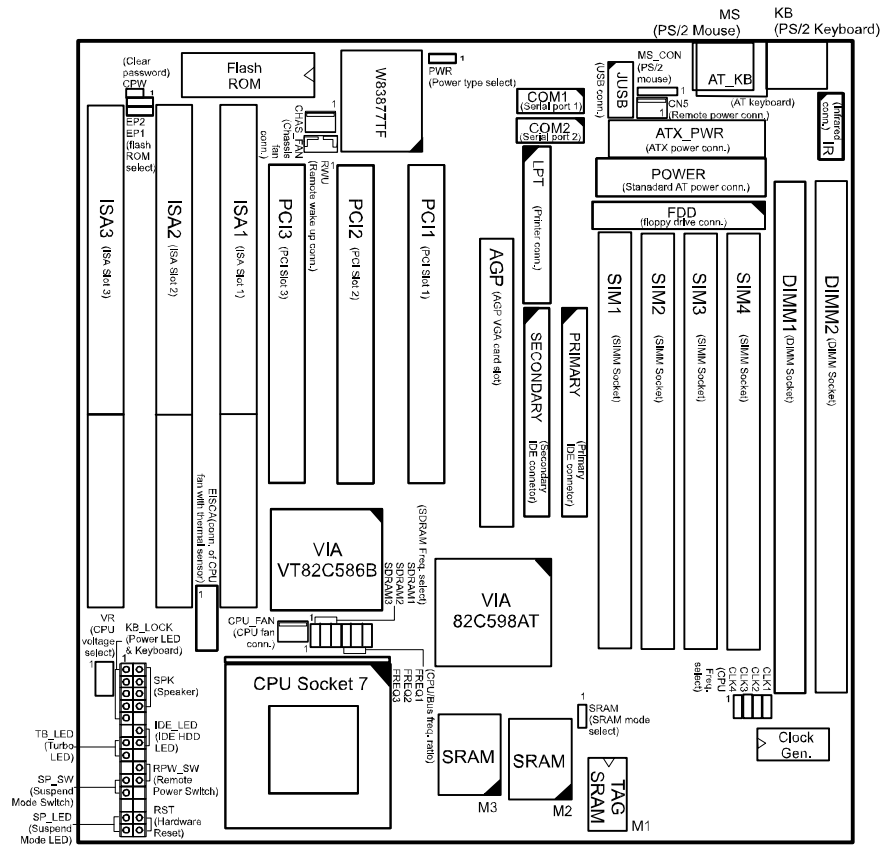
Jumpers

Jumpers are used to select the operation modes for your system. 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.

Motherboard Layout



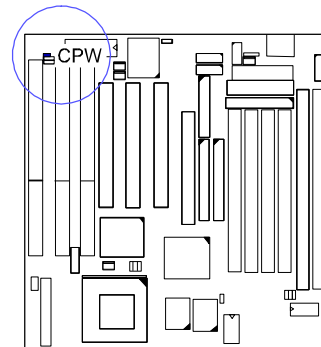
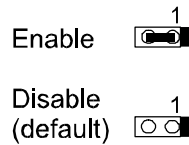
Installation Procedures

Onboard Mark	Meaning	Page
CPW	Clear Password	10
EP1, 2	Flash ROM Type Selection	10
PWR	Power Supply Type Selection	11
SRAM	CPU to SRAM Data Transacting Mode Selection	11
SDRAM1, 2, 3; CLK4	DIMM Frequency Selection	15
CLK1, 2, 3	CPU External (Bus) Frequency Selection	18
FREQ1, 2, 3	CPU to Bus Frequency Ratio Selection	18
VR	CPU Voltage Selection	20
DIMM1, 2; SIMM 1, 2, 3, 4	Memory Module Socket	12
CPU ZIF Socket 7	ZIF Socket7 for Processor	17
AGP	Accelerated Graphic Port Slot	21
PCI1, 2, 3	PCI Bus Expansion Slot (32-bit)	21
ISA1, 2, 3	ISA Bus Expansion Slot (16-bit)	21
AT_KB	AT Keyboard Connector	22
COM1, 2	Serial Port	22
JUSB	Universal Serial Bus Connector	22
LPT	Parallel Port	23
EICA	EISCA CPU Fan Connector	23
CPU_FAN	CPU Fan Connector	23
FDD	Floppy Diskette Drive Connector	24
CN5	Remote Power Connector for AT power supply with remote feature (It allows soft power off in Win 95)	24
PRIMARY, SECONDRAY	IDE Device Connector	24
MS_CON	PS/2 Mouse Connector	25
IR	Infrared Connector	25
CHAS_FAN	System Case (Chassis) Fan Connector	25
F_PNL*	Connectors for LEDs & Switches on Front Panel	26
KB	PS/2 Keyboard Connector (manufacturing optional)	27
MS	PS/2 Mouse Connector (manufacturing optional)	27
POWER	AT Power Connector	28
ATX_PWR	ATX Power Connector	28
RWU	Remote Wake Up Connector	28

** includes PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors. (Please read Page 26 for detail information.)*

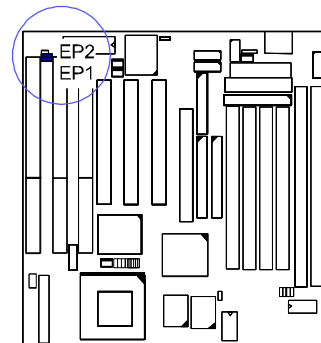
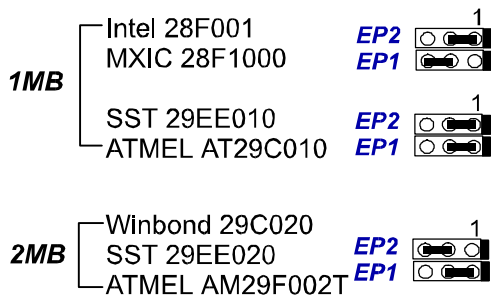
Clear Password: CPW

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





Flash ROM Type Selection: EP1, EP2

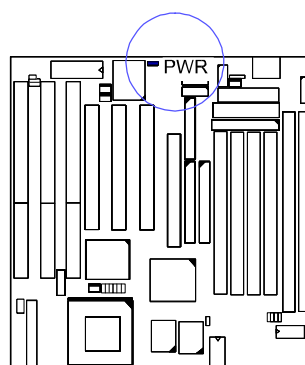
These two jumpers allow you to configure the type of flash ROM chip. This jumper setting is correct by manufactory default. If you want to know the flash ROM type installed on this motherboard, remove the sticker from the chip to see its type.



Power Supply Type Selection: PWR



This jumper allows you to select the power supply type that you use: an AT or ATX power supply while both power supply connectors onboard. If only one type of power supply connector onboard, this jumper will be wired by the manufacturer.

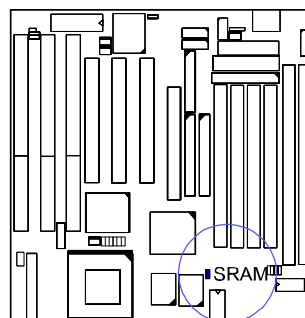
- 
ATX Power Supply
AT Power Supply with Remote Feature
- 
AT Power Supply without Remote Feature
(default)



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 motherboard, please set at 2-3 pin pair. Please also read Linear Burst feature of BIOS Setup, Page 36, Chapter 3 for more information.

- 
Intel Burst
(default)
For
Intel, AMD,
Cyrix,
IBM CPUs
- 
Linear Burst
For
Cyrix,
IBM CPUs

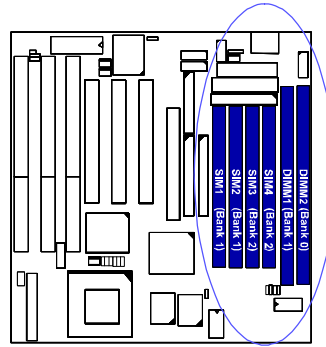


2). Install System RAM Modules

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	SIMM1 & 2 (Bank 1)	SIMM3 & 4 (Bank2)	DIMM1 (Bank 1)	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		

Installation Procedures

			256*	256*
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NOTE :

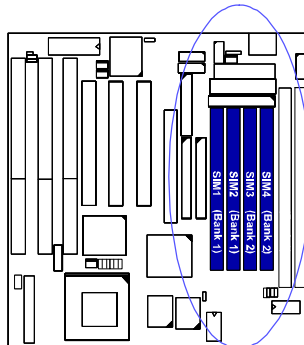
1. * A RAM module of this size was not available for testing at time of printing.
2. DIMM1 and 2 only support 3.3V (unbuffered) EDO/SDRAM modules.
3. DIMM1 and SIMM1&2 are shared. That is, it is not allowed to install RAM modules on DIMM1 and SIMM1&2 at the same time.
4. The different size of DIMM1 and DIMM2 is allowed. For example, 16MB is installed on DIMM1 socket, 32MB is installed on DIMM2 socket.
5. It is recommended that SIMMs and DIMMs are not installed at the same time on this motherboard to avoid unexpected failure.
6. This motherboard supports DIMMs with data access speeds of 10ns and 12ns; or faster.
7. This board supports SIMMs with access speeds of 70ns and 60ns.
8. If DIMM runs at 100MHz, it must meet the PC100 Specification.

Install and Remove 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 motherboard. (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.

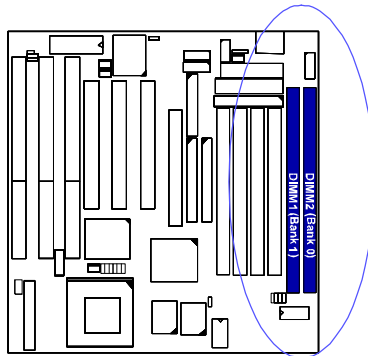
To remove the SIMMs, pull the retaining latch on both ends of the socket and reverse the procedure above.

Install and Remove DIMMs

This motherboard supports 100 MHz SDRAM DIMMs; that is, the system frequency of this motherboard runs in a higher speed rather than the speed of 66 MHz.

Complete the following procedures to install DIMMs:

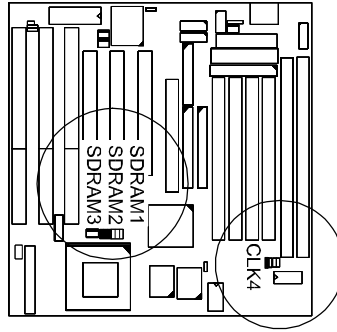
1. Locate the DIMM slots on the motherboard. (See figure below.)



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 bottom.

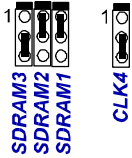
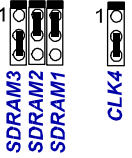
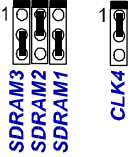
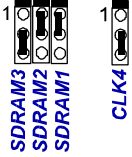
Press the clips with both hands to remove the DIMM.

**DIMM Frequency: CLK4,
SDRAM1 &
System Frequency: SDRAM2,
SDRAM3**



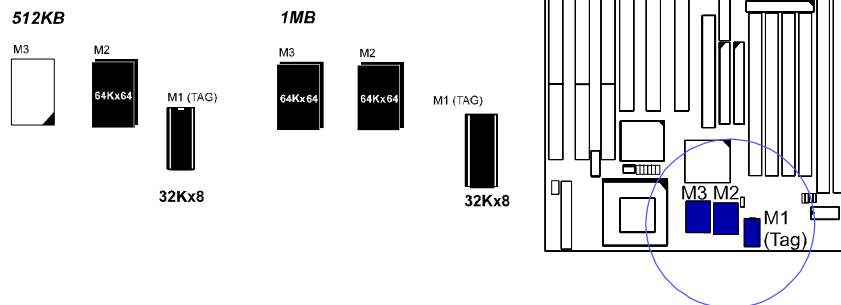
DIMM Freq. CPU External Freq.	PC-100 -6ns, -7ns, -8ns		Non PC-100 -8ns, -10ns, -12ns, above	
	100MHz			
83MHz				
75MHz				
66MHz				

* set for stable performance;
**set for high performance, but some SDRAM may make the system unstable.

CPU External Freq. \ DIMM Freq.	PC-100 -6ns, -7ns, -8ns	Non PC-100 -8ns, -10ns, -12ns, above
124MHz	N/A	
112MHz	N/A	
95MHz		

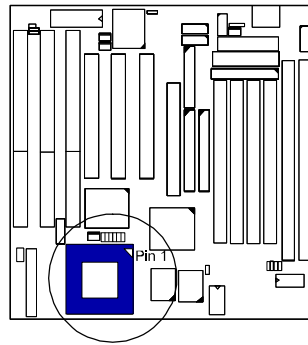
Cache Memory

The VA-503+ comes with onboard 512KB (1MB is optional) synchronous 3.3V Pipeline Burst SRAMs. Cache memory access is very fast compared to main memory access. Since cache memory is from five to more than ten times faster than main memory, the system performance is better.



3). Install the CPU

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

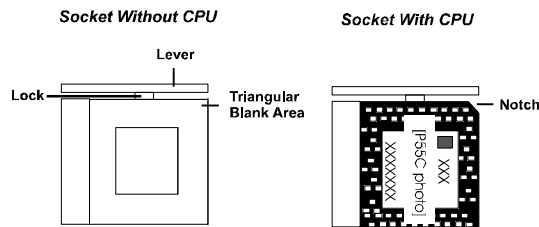


CAUTION :

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.

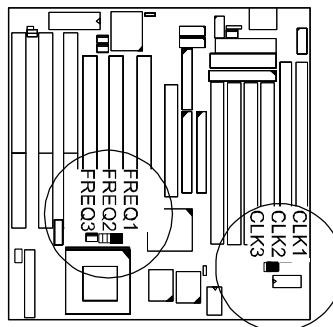
To install the CPU, do the following:

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 locate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. See the following sections for information on the CPU jumpers settings.



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

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



<p>124MHz*</p> <p>CLK3 CLK2 CLK1</p>	<p>112MHz*</p> <p>CLK3 CLK2 CLK1</p>	<p>100 MHz</p> <p>CLK3 CLK2 CLK1</p>	<p>75 MHz</p> <p>CLK3 CLK2 CLK1</p>
	<p>95MHz</p> <p>CLK3 CLK2 CLK1</p>	<p>83 MHz</p> <p>CLK3 CLK2 CLK1</p>	<p>66 MHz</p> <p>CLK3 CLK2 CLK1</p>

* : When it selected, the system performance will not be guaranteed.

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.

<p>2 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>3 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>4 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>5 x</p> <p>FREQ3 FREQ2 FREQ1</p>
<p>2.5 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>3.5 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>4.5 x</p> <p>FREQ3 FREQ2 FREQ1</p>	<p>5.5 x</p> <p>FREQ3 FREQ2 FREQ1</p>

Set CPU Frequency

Intel Pentium MMX

Type	Freq.	Bus Freq.	Ratio
Pentium MMX	233	66	3.5 x
	200	66	3 x
	166	66	2.5 x

AMD-K6 (Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
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

AMD-K6-2-300/333/350/366/400 (Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
K6-2-400	400	100	4 x**
K6-2-366	366	66	5.5 x**
K6-2-350	350	100	3.5 x**
K6-2-333	333	95	3.5 x
K6-2-300	300	66	4.5 x
		100	3 x

IBM/Cyrix 6x86L/6x86MX (Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
6x86MX-PR266	233	83	2.5 x
6x86MX-PR233	200	83	2 x
		75	2.5 x
6x86MX-PR200	166	66	2.5 x
		75	2 x
6x86MX-PR166	150	66	2 x
6x86L-PR200+	150	75	2 x
6x86L-PR166+	133	66	2 x

Cyrix M II-300/333/350, IBM 6x86MX-PR300/333/350
(Unit of Freq. and Bus Freq. : MHz)

Type	Freq.	Bus Freq.	Ratio
Cyrix M II-300	233	66	3.5 x
		75	3 x
IBM 6x86MX-PR300	233	66	3.5 x
Cyrix M II-333 IBM 6x86MX-PR333	250	83	3 x
Cyrix M II-350	300	100	3 x**
IBM 6x86MX-PR350	291	83	3.5 x**
	300	75	4 x**

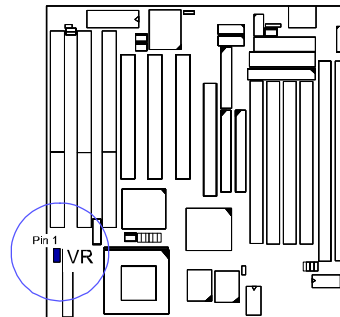
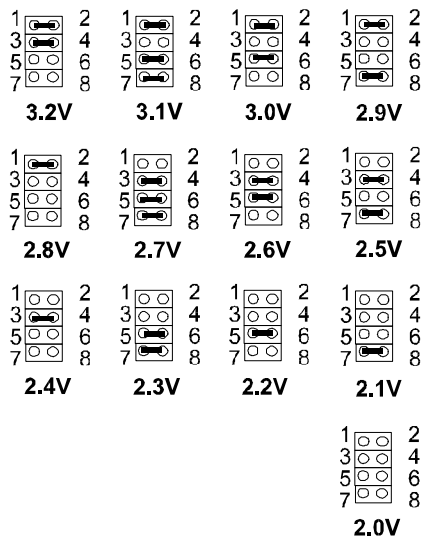
** this type of CPU was not available for testing at time of printing.

NOTE : Please refer to your CPU top marking about the actual CPU speed and ratio.

Set CPU Voltage

This section lists all possible CPU voltages that this motherboard supports. There are three rows of CPU voltage (core voltage) jumper setting in the diagram below.

NOTE : Please refer to your CPU top marking about the actual CPU voltage.



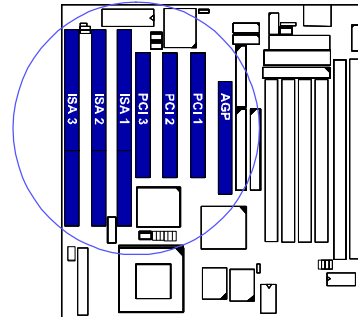
4). Install Expansion Cards

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 motherboard, 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.

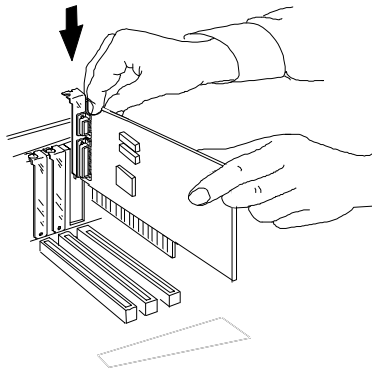
CAUTION :

1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See "Handling Precautions" at the beginning of this manual.



To install an expansion card, do the following:

1. Remove the chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the chassis.
Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the chassis. Keep the slot cover mounting screw nearby.
3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot. (See figure below.)

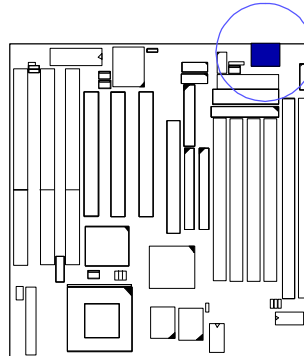
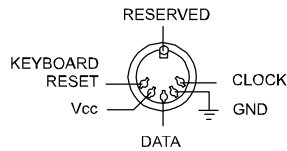


4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this "locking" motion until the add-in card is firmly seated inside the slot.
5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely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

5). Connect Cables and Power Supply

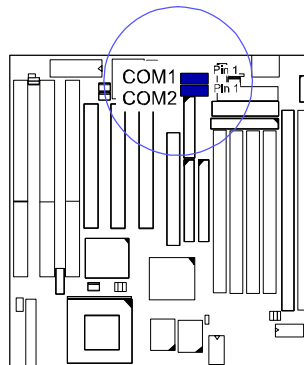
Keyboard Connector: AT_KB

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



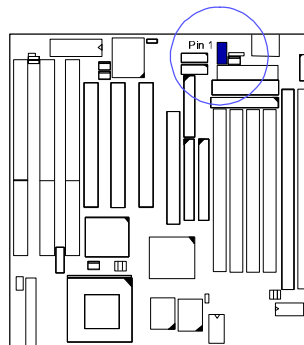
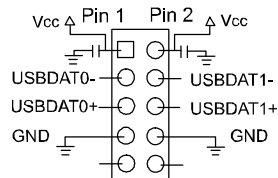
Serial Port Connectors: COM1, COM2

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.



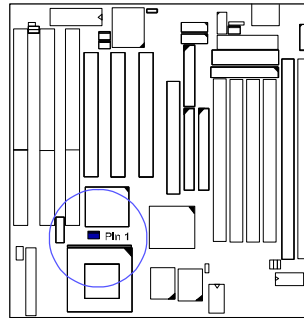
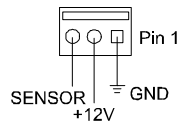
Universal Serial Bus Connector: JUSB

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



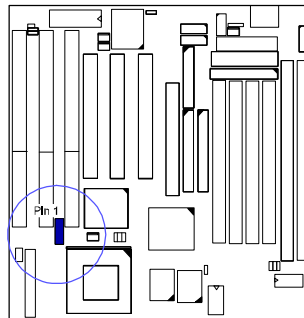
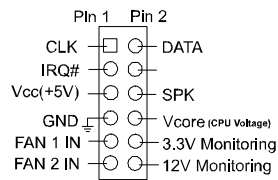
CPU Fan Connector: CPU_FAN

This connector is linked to the standard CPU fan for cooling the CPU temperature. The EISCA CPU fans are also supported.



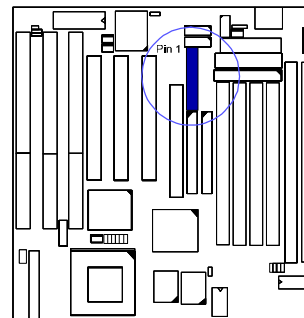
EISCA CPU Fan Connector: EICA

This 2x6 pinhead is for the EISCA CPU fan use. This type CPU fan is equipped with a thermal sensor for hardware monitoring. EISCA fan, a product of PENTALPHA International Inc., is recommended. The company phone: 011-886-2-86653248. Fax: 011-886-2-86653249. The web site is www.pentalpha.com/pen.



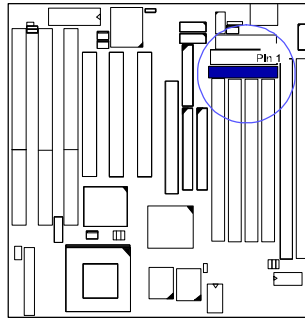
Printer Connector: LPT

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



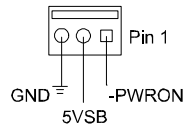
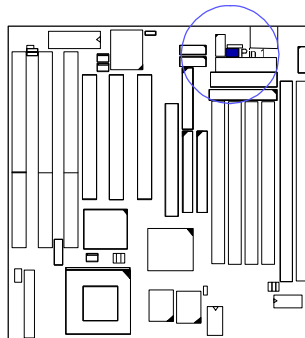
Floppy Diskette Drive Connector: FDD

This connector provides the connection with your floppy disk drive.



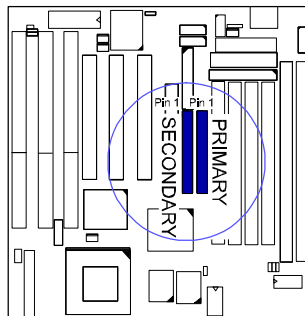
Remote Power Connector: CN5

This 3-pin connector allows you to enable (or disable) the system power if the RPW_SW is on (or off) when an AT power supply is installed. Some of AT power supply come with a 3-pin plug, plug it on this connector. If you use an ATX power supply, ignore this connector. It allows soft power off in Windows 95.



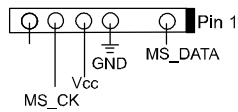
**IDE HDD Device Connectors:
PRIMARY, SECONDARY**

These two connectors are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives.



PS/2 Mouse Connector: MS_CON

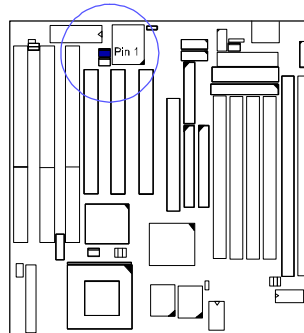
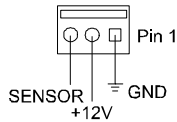
This connector is connected to the PS/2 mouse.



Chassis Fan Connector: CHAS_FAN

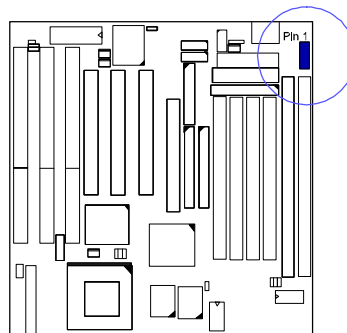
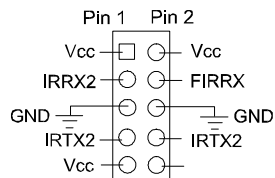
This connector is for linking to your cooling fan on the system case to lower the temperature of the system. This connector also supports the fans with speed detection sensors.

Please read the chassis fan installation guide before connection.



Infrared Connector: IR

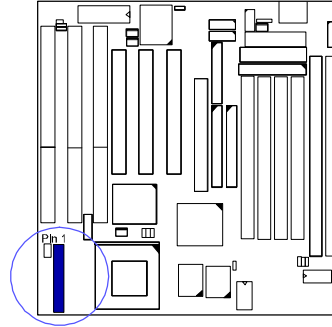
This connector supports the connection to your IR device.

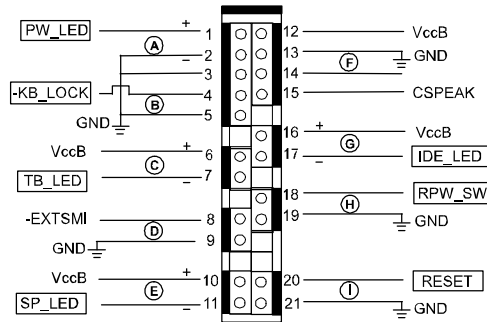


Front Panel Block Connector: F_PNL

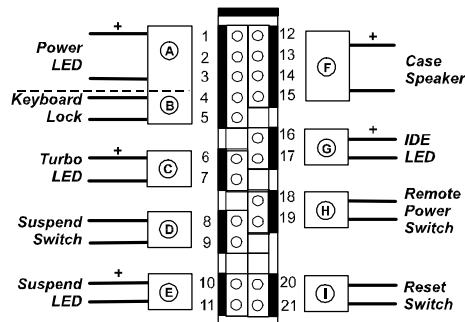
This block connector concludes: PW_LED, KB_LOCK, TB_LED, SP_SW, SPK, SP_LED, IDE_LED, RPW_SW, and RST connectors.

Usually, the plugs with wires for above LEDs (indicators), speaker and switches come with the system case. Please identify polarities of plug wires for the case speaker and LEDs; that is, which wires are positive (+). Please ask vendor about this information when you buy them and install the system by yourself. The switches are called *Miniature Push Switches*. The plug wires' polarities of this switches will not affect the function.





Pinout Assignment



Connection Diagram

PW_LED (A) & KB_LOCK (B)

PW_LED is connected with the system power indicator to indicate whether the system is on/off and the case-mounted keyboard lock to lock keyboard. KB_LOCK prevents keyboard access to the system (this feature is used in combination with the case-mounted keylock).

TB_LED (C) is connected with turbo indicator. It always lights.

SP_SW (D) is connected with suspend mode switch.

SP_LED (E) is connected with suspend mode indicator.

SPK (F) is connected with the case speaker.

IDE_LED (G) is connected IDE device indicator. This LED will blink when the hard disk drives are activated.

RPW_SW (H) is connected with remote power switch.

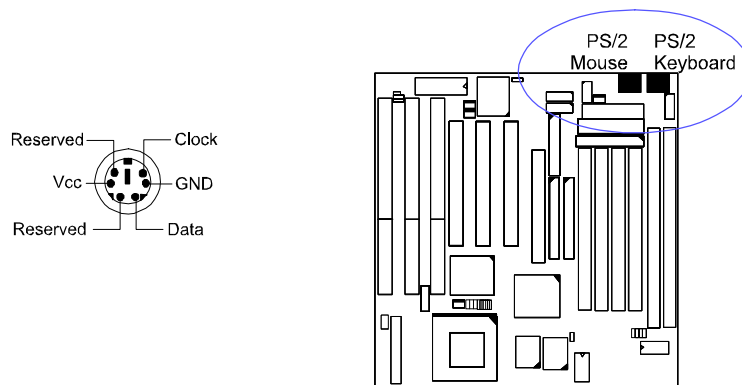
If an ATX power supply is installed, push this switch will turn on or off the system instead of turning the power switch on the power supply.

If an AT power supply is installed, the CN5 (Page 24) must be connected with this AT power supply to have the remote power on/off function by pushing this switch instead of turning the power switch on the power supply.

RST (I) is connected to the reset switch. Push this switch to reboot the system instead of turning power switch on and off.

PS/2 Keyboard and Mouse Connector: KB, MS (manufacturing option)

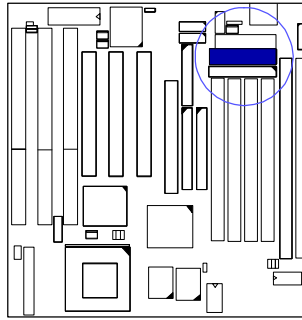
These two 6-pin female connectors are equipped for your PS/2 keyboard and PS/2 mouse.



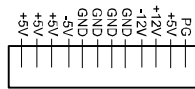
NOTE: If the PS/2 keyboard and PS/2 mouse connector were installed on the board. The AT_KB connector in Page 22 and MS_CON connector in Page 25 will not be equipped on this board.

AT Power Supply Connector: POWER

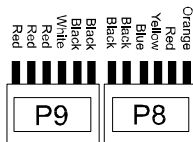
This 12-pin block connector is used for connecting to the standard 5V power supply. There are two marks '8' and '9' on the surface of the connector. You have to insert the '8' plug into the '8' section, and so forth for '9'. Please read



PWR jumper in Page 11 if an AT power supply is used.



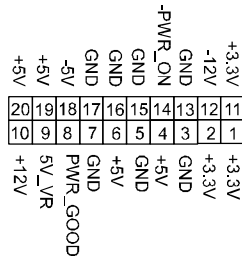
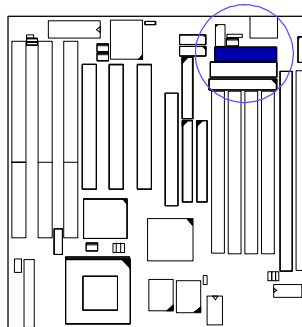
Power Connector



Power Plugs of Power Supply

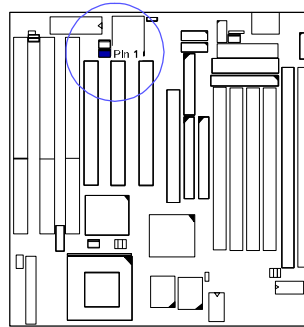
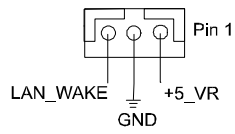
ATX Power Supply Connector: ATX_PWR (manufacturing option)

This 20-pin male block connector is connected to the ATX power supply. Please read PWR jumper in Page 11 if an ATX power supply is used.



Remote Wake-Up Connector: RWU

This 3-pin connector allows LAN servers to manage the system that installed this board via network adapters support WOL. Please read the network card guide for details and Page 40 **Resume by Ring & LAN**.



BIOS Setup

The motherboard 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 motherboard'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 (2A5LEF09) 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	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 motherboard 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 (2A5LEF09)								
STANDARD CMOS SETUP								
AWARD SOFTWARE, INC.								
Date (mm:dd:yy) : Tue, Feb. 3 1998								
Time (hh:mm:ss) : 15:37:55								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	Auto
Primary Slave	: Auto	0	0	0	0	0	0	Auto
Secondary Master	: Auto	0	0	0	0	0	0	Auto
Secondary Slave	: Auto	0	0	0	0	0	0	Auto
Drive A : 1.44M, 3.5 in.				Base Memroy: 640K				
Drive B : None				Extended Meory: 7168K				
Floppy 3 Mode Suuport: Disabled				Other Memory: 384K				
Video : EGA/VGA				Total Memory: 8192K				
Halt On : All Errors								
Esc : Quit			↑ ↓ → ← : Select Item			PU/PD/+/- : 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 uses more than 1024 cylinders 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 PCI/ISA BIOS (2A5LEF09) BIOS FEATURES UTILITY AWARD SOFTWARE, INC.	
Detect Boot Virus By Trend : Enabled	Video BIOS Shadow : Enabled
CPU Internal Cache : Enabled	
External Cache : Enabled	
Quick Power On Self Test : Enabled	
Boot From LAN First : Enabled	
Boot Sequence(LS120/ZIP100): A, C, SCSI	
Boot Up Flopy Seek : Enabled	
Boot Up NumLock Status : On	
Gate A20 Option : Fast	
Typematic Rate Setting : Disabled	
Typematic Rate (Char/Sec) : 6	
Typematic Delay (Msec) : 250	
Security Option : Setup	
OS Select for DRAM > 64MB : Non-OS2	
	Esc: Quit ++-- : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Detect Boot Virus By Trend

This feature starts the virus scan tool to detect if boot virus in boot sector of the first hard disk drive when booting up.

The options are: Enabled (Default), Disabled.

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 From LAN First

This feature makes the system bootable by the remote server via LAN.
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, SCSI (Default); C, A, SCSI; C, CDROM, A; CDROM, C, A; D, A, SCSI; E, A, SCSI; F, A, SCSI; SCSI, A, C; SCSI, C, A; C Only; LS/ZIP, C.

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 OS/2, select the option OS/2. Otherwise, stay with the default setting Non-OS/2.

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.

Chipset Features Setup

ROM PCI/ISA BIOS (2A5LEF09) CMOS SETUP UTILITY CHIPSET FEATURES SETUP	
Video BIOS Cacheable : Enabled	Spread Spectrum Modulated : Enabled
System BIOS Cacheable : Disabled	
Memory Hole At 15M Addr. : Disabled	
DRAM Page-Mode : Enabled	
Sustained 3T Write : Enabled	
Write Cache Pipeline : Disabled	
DRAM Read Pipeline : Enabled	
Read Around Write : Disabled	
Memory ECC Check : Disabled	
Bank 0/1 DRAM Timing : Fast	
Bank 2/3 DRAM Timing : Fast	
Bank 4/5 DRAM Timing : Fast	
SDRAM Cycle Length : 3	
SDRAM Bank Interleave : Disabled	
SDRAM MD-to-HD Pop + 1T : Enabled	Esc: Quit ↑↓←→: Select Item
SDRAM Sustain 4T Cycle : Disabled	F1: Help PU/PD/+/-: Modify
Aperture Size : 64M	F5: Old Values (Shift)F2 : Color
AGP-2X Mode Support : Enabled	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

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 Addr.

When you install a Legacy ISA card, this features allows you to select the memory hole address range of the ISA cycle when the processor accesses the selected address area. Please read your card manual for detail information. When disabled, the memory hole at the 14MB (or 15MB) address will be treated as a DRAM cycle when the processor accesses the 14~16MB (or 15~16MB) address area.

The options are: 15M-16M, 14M-16M, Disabled (Default).

DRAM Page-Mode

It saves the time to resend CAS if DRAM access in the same page (RAS); therefore, increases the system performance.

The options are: Enabled (Default), Disabled.

Sustained 3T Write

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

The options are: Enabled (Default), Disabled.

Write Cache Pipeline

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

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, Disabled (Default).

Memory ECC Check

Set at Enabled, if the RAM modules support ECC function.

The options are: Enabled, Disabled (Default).

Linear Burst

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-K6 CPU, please stay with the default value, Disabled. Please refer to SRAM, Page 11, 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 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). It allows you to select 2 or 4 banks when the DIMM supported to achieve a better data transaction performance. The DIMM manual or manufacturer will provide the specification how many banks the DIMM supported. The options are: Disabled (Default), 2 Bank, 4 Bank.

SDRAM MD-to-HD Pop + 1T

When set at Enabled, the required time period of DATA from SDRAM to CPU will be added 1T for the system stability and compatibility.
The options are: Enabled (Default), Disabled.

SDRAM Sustain 4T Cycle

This feature allows user to decide the SDRAM write cycle timing.
The options are: Disabled (Default), Enabled.

Aperture Size

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

AGP-2X Mode Support

This feature allows user to select the AGP mode be to 1x or 2x when an AGP add-in card installed. However, when set at Enabled and the AGP card only support 1x mode, the system will fall back 1x mode automatically.
The options are: Enabled (Default), Disabled.

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 (Default), Disabled.

Power Management Setup

When an AT Power Supply Installed:

ROM PCI/ISA BIOS (2A5LEF09) POWER MANAGEMENT SETUP 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 PU/PD+/- : Modify	
F5 : Old Values (Shift)F2 : Color	
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

When an ATX Power Supply Installed:

ROM PCI/ISA BIOS (2A5LEF09) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
Power Management : Disable	Soft-Off by PWR-BTTN : 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
Resuem by Ring & LAN : Enabled	IRQ15 (Reserved) : Disabled
RTC Alarm Resuem : Disabled	Esc : Quit ++-- : Select Item
F1 : Help PU/PD+/- : Modify	
F5 : Old Values (Shift)F2 : Color	
F6 : 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 Support* 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 Support (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 by Ring & LAN

If an ATX power supply or AT power supply with remote function 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 Enabled.

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

ROM PCI/ISA BIOS (2A5LEF09) 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 : Disabled
	PC#2 Master 1 WS Write : Enabled
	PC#2 Master 1 WS Read : Disabled
	PCI IRQ Activated By : Level
	Init Primary Display : PCI
	Assign IRQ For VGA : Enabled
	Esc: Quit +←→ : 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 PCI 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 prefetch data DRAM if the PCI bus master reads data from DRAM.

The options are: Enabled, Disabled (Default).

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, Disabled (Default).

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.

Init Display First

When you install an AGP VGA card and/or a PCI VGA card on the board, this feature allows you to select the initiation of the monitor display from which card. The options are: PCI Slot (Default), AGP.

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 (Default), Disabled.

Used MEM Base Addr.

This feature appears when **Resources Controlled By** is set at *Manual* and **IRQ-/ DMA-** is set at *PCI/ISA PnP*. It allows you to select the memory base address of the add-on card.

The options are: C800 (Default), CC00, D000, D800, DC00, N/A.

Used MEM Length

This feature appears when **Resources Controlled By** is set at *Manual* and **IRQ-/ DMA-** is set at *PCI/ISA PnP*. It allows you to assign the memory block size of the add-on card.

The options are: 8K (Default), 16K, 32K, 64K.

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 motherboard.

Integrated Peripherals

ROM PCI/ISA BIOS (2A5LEF09) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.			
IDE HDD Block Mode	: Enabled	Onboard FDD Controller	: Enabled
On-Chip Primary PCI IDE	: Enabled	Onboard Serial Port 1	: 3F8/IRQ4
On-Chip Secondary PCI IDE	: Enabled	Onboard Serial Port 2	: 2F8/IRQ3
IDE Primary Master PIO	: Auto	UART 2 Mode	: Stanadard
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Secondary Slave PIO	: Auto	Onboard Parallel Mode	: SPP
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 take advantage of UDMA, it is necessary to install the bus master driver which contained in the software utilities or download the driver from 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 take advantage of UDMA, it is necessary to install the bus master driver which contained in the software utilities or download the driver from 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-Monitoring, Analysis and Reporting Technology”. If your hard disk is S.M.A.R.T.-compatible, it can notify network server of its problems before they occur, thereby preventing loss of data. 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 detected 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.

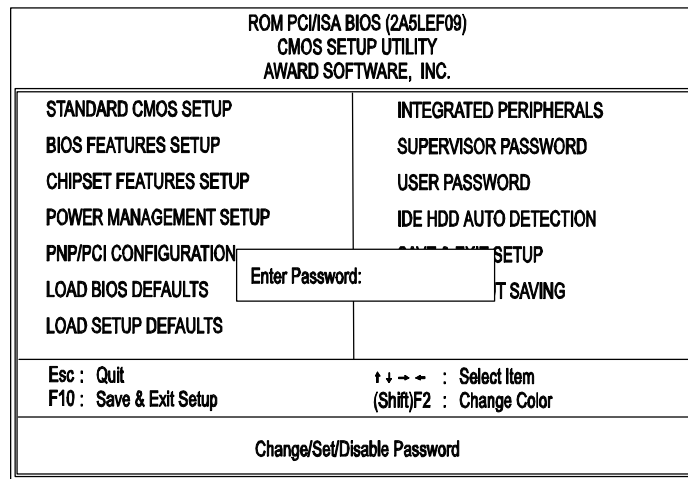
ECP Mode Use DMA

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 CMOS SETUP UTILITY. 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. 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 (Page 10) 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

ROM PCI/ISA BIOS (2A5LEF09)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE

Primary Master :

Select Primary Master Option (N=Skip) : N

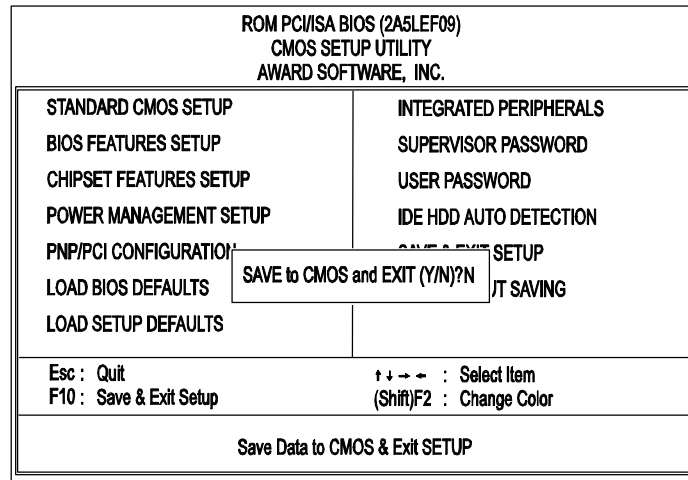
OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2 (Y)	851	825	32	0	1650	63	LBA
1	852	1651	16	65535	1650	63	NORMAL
3	851	825	32	65535	1650	63	LARGE

Note : Some OSes (like SCO-UNIX) must use "NORMAL" for installation

ESC : Skip

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.

Software Utilities

The motherboard comes with helpful supporting software utilities and information to promote your system performance. This chapter introduces each of them with the detail installation procedures.

Starting Installation

To run each feature, simply click on the wanted software item in the main menu.

Desktop Management Interface (DMI)

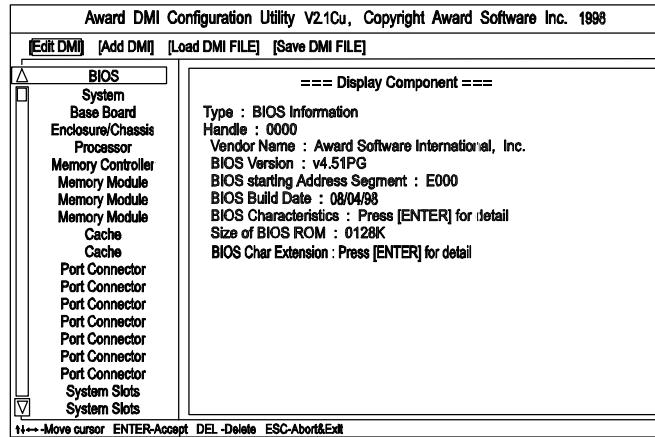
DMI (Desktop Management Interface) is a standard for organizing system configuration information. Using DMI, computer configuration can be made much simpler, quicker, and easier. Computer system configuration information can be read and modified from remote locations, permitting remote configuration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

Starting DMI

1. Format a bootable MS DOS system disk, copy the DMICFG.EXE from the CD-ROM to the diskette.
2. Reboot the system by using this bootable system diskette to enter real mode.
3. After the DOS prompt, type *DMICFG* and press *Enter* key. The display below will appear on the monitor screen.

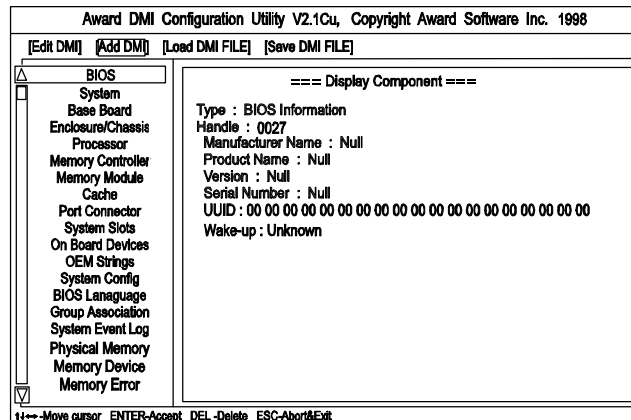
NOTE: Do not run this utility from Windows, it might cause the BIOS damage.

Editing DMI



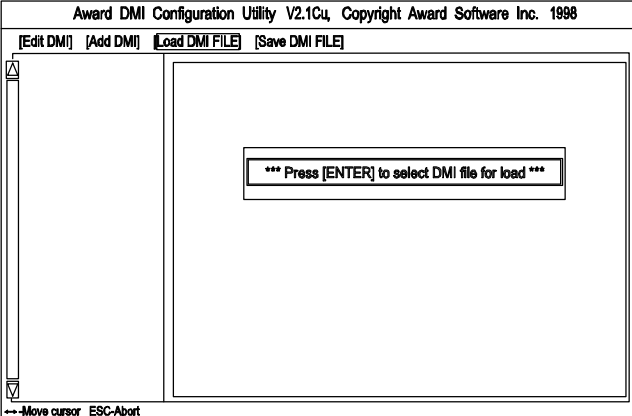
It provides record data about your computer system. The feature allows you to select editable DMI items by pressing arrow keys. The button *Press [ENTER] for detail* will pop up a sub menu. Use “+,-“ keys to change configurations. Press *Esc* key to abort the configuration and exit. Press *Enter* key to save and exit. The screen field under *Show Only Component* means that the items are automatically detected by BIOS. The screen menu leading by *Edit Component* indicates the items under it are allowed to be changed by users.

Adding DMI



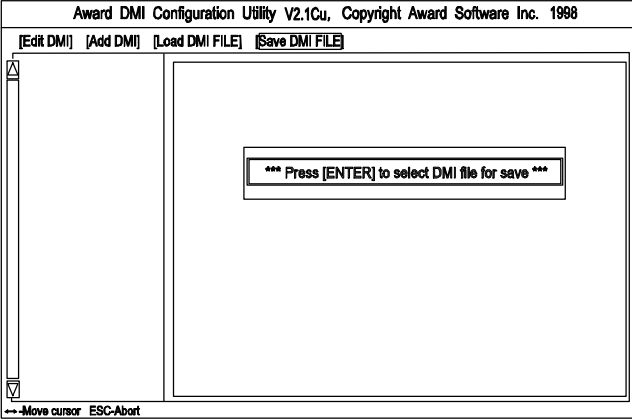
This menu allows users to add new information such as Manufacturer Name, Product Name.

Loading DMI



If users need the old DMI information, use this feature to load the DMI information.

Saving DMI



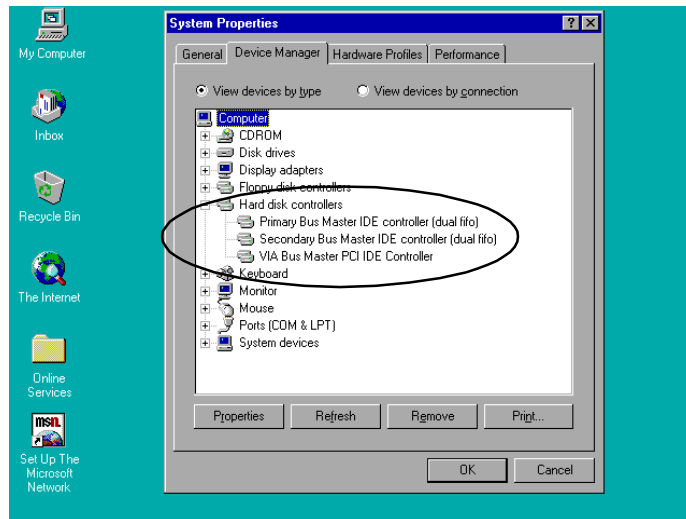
If users need to keep the DMI information that just changed, use this feature to save the DMI information.

If you exit DMI installation but cannot boot up (this case rarely occur), please ask local dealer to help you. (It might need another BIOS flash ROM chip.)

Bus Master IDE Driver

The motherboard package provides VIA Bus Master IDE driver in the software utilities for Windows 95 and Windows NT to improve the system performance. Please read the relating README files first before install it.

This motherboard supports Ultra DMA/33, but Windows 95 does not recognize it. When the operating system detects the board and the Bus Master IDE driver not installed, information in the circle like the display below indicates the system will treat it as a standard dual PCI IDE controller. It cannot take advantage of the Ultra DMA. (The attached peripheral devices must support UDMA.)

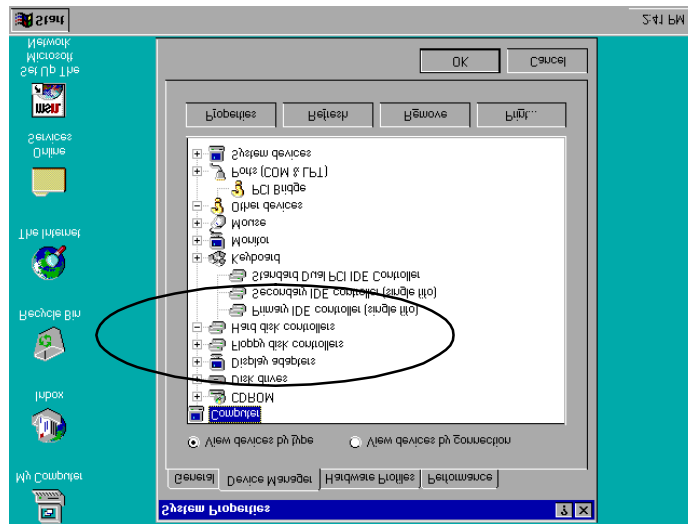


Installation

The installation is straight forward by clicking on *IDE Bus Master* item of the main menu. There is no option to be selected while the installation procedure goes. After the installation, the system should be rebooted.

Patch for Chipset

The motherboard package provides INF update file in the software utilities. 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 MVP3 chipset implemented on this motherboard; otherwise, the question marks in the circle will appear in your Window 95 environment.



Installation

The installation is straight forward by clicking on *Patch for Chipset* item of the main menu. There is no option to be selected while the installation procedure goes. After the installation, the system should be rebooted.

AGP VxD Support Utility

The motherboard package provides AGP VxD support utility for VIA chipset-based motherboard. Before you start to install it, please read the relating README file first. **This software is necessary if you install an AGP VGA card.**

System Requirements

The VIA VxD driver is **only supported by Windows 95 OSR 2.1 (4.00.950 B) or later version.**

For Windows 95 users -

1. Run USBSUPP.EXE from Microsoft, which includes the USB supplement and a new memory manager (VMM32.VxD) needed for the AGP DIME (Direct Memory Execute) feature.
2. Run DirectX 5.0 from Microsoft.
3. Run AGP Master (i.e., AGP VGA) Driver from VGA Supplier.
4. Run the VGA card driver, VIAGART.VxD, a virtual device manager which usually will be installed in the following installation procedure of the Windows 95 card driver.
5. Exit the system.
6. Reboot the system.

For Windows NT users -

VIA VxD will be supported when Windows NT 5.0 is released.

Installation

Click on AGP VxD utility on the main menu and it will install the VIA VxD driver automatically onto your Windows 95 system.

BIOS Flash Software

The board package provides BIOS flash software tool in the software utilities. This software feature is provided for upgrading BIOS use. To start the program, click on *Browse CD* in the main menu, select *Flash*, then choose the BIOS vendor that provided the BIOS this board came with. Please print the relating README file and read it first. For more information about, please visit FIC Web Site [http:// www.fic.com.tw/](http://www.fic.com.tw/).

Downloading BIOS File

Format a bootable system diskette by inserting an empty floppy disk into floppy disk drive and by typing **format a: /s**, visit the FIC Web Site <http://www.fic.com.tw/>. Please visit *BIOS Update* page in FIC Technical Support section, then select the BIOS file you need. Download it to your bootable diskette.

Upgrading BIOS File

Place the bootable diskette containing the BIOS file in the diskette drive (Assume the diskette drive is A.), and reboot the system by A drive. At the A: > prompt, execute the BIOS upgrading procedure by entering the Flash BIOS utility and the BIOS file with its extension. Backup the old BIOS file.

Command: {flash tool file}{space}{downloaded BIOS file} / cc <Enter>

Parameter **CC** stands for **Clear CMOS**. It is most frequently used. The other parameters are listed in AWDFlash.txt file or Type {flash tool file}/?, please read it if need.

After press *Enter* key, a FLASH MEMORY WRITER menu will appear. Enter the new BIOS file name with its extension file name into the text box after **File Name to Program** . If you want to save your old BIOS (this is recommend), select **Y** to **Do You Want To Save Bios**, then type the old BIOS name and the extension after **FILE NAME TO SAVE:**. Select **N** to **Do You Want To Save Bios**, if you do not want to save your old BIOS.

After the decision on saving the old BIOS or not (saving the old BIOS file is strongly recommended), select **Y** to **Are you sure to program** when the next menu appears; wait until a message shows **Message: Power Off or Reset the system**.

WARNING : Do not turn off or reset the computer during the flash process.

Loading New BIOS Defaults

Once the BIOS has been flashed successfully,

1. remove the diskette and reboot the system.
2. Press *Delete* key to enter **CMOS SETUP UTILITY** menu while system booting-up.
3. Select **LOAD SETUP DEFAULTS** and load the new BIOS default values.

Finally execute **SAVE AND EXIT SETUP** to complete the whole process.

Anti-Virus Tool

The motherboard package provides a virus scan tool, PC-cillin '95 Virus Scanner, for the Windows 95 environment. 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.

Hardware Requirements

PC-cillin '95 Virus Scanner is fully compliant with Windows 95. The requirements to use PC-cillin '95 Virus Scanner is as follows:

Hardware requirements:

Minimum: Intel P55C CPU (166MHz or above) with 8MB (or above) RAM.

The total disk space requirement to install PC-cillin '95 Virus Scanner is approximately 4.0 MB.

Technical Notes

PC-cillin '95 Virus Scanner will be installed to the program group "PC-cillin '95 Virus Scanner" by default. The PCCWIN95.EXE command will be added to the Startup group, and the AUTOEXEC.BAT will be modified to add PCSCAN commands to fully protect your system from computer viruses at system boot up.