

VA-502

MAINBOARD MANUAL

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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:

- v Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.
- v Touch a grounded or anti-static surface or a metal fixture such as a water pipe.
- v 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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Overview

Based on the new highly-integrated [VIA 580VPX](#), the mainboard combines blistering Pentium® processor performance with support for intelligent diagnostic and power management features to provide a powerful and versatile platform.

With its [switching voltage regulator](#), the VA-502 runs a complete range of [Intel Pentium® processors](#), including the [Intel Pentium processor with MMX™ technology](#), as well as the [AMD-K5™](#) and [Cyrrix/IBM 6x86™](#), and is easily upgradable to the [Cyrrix/IBM MX™](#) and the [AMD-K6™](#). For added power and performance, the VA-502 takes up to [512KB Pipeline Burst Level II cache](#) and up to [512MB DRAM](#) via [four 72-pin SIMM sockets](#) and [two 168-pin DIMM sockets](#) which accept high-speed EDO, and [lightning-fast SDRAM](#) memory types.

The VA-502 comes with a full set of I/O features conveniently integrated on the rear I/O panel, including [two USB connectors](#). The board also has an integrated [PCI Bus Master Enhanced IDE controller](#) with support for the new [Ultra DMA/33 protocol](#), which doubles ATA-2 Hard Disk Drive data transfer rates to [33MB/s](#) while maintaining full backwards compatibility with existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices.

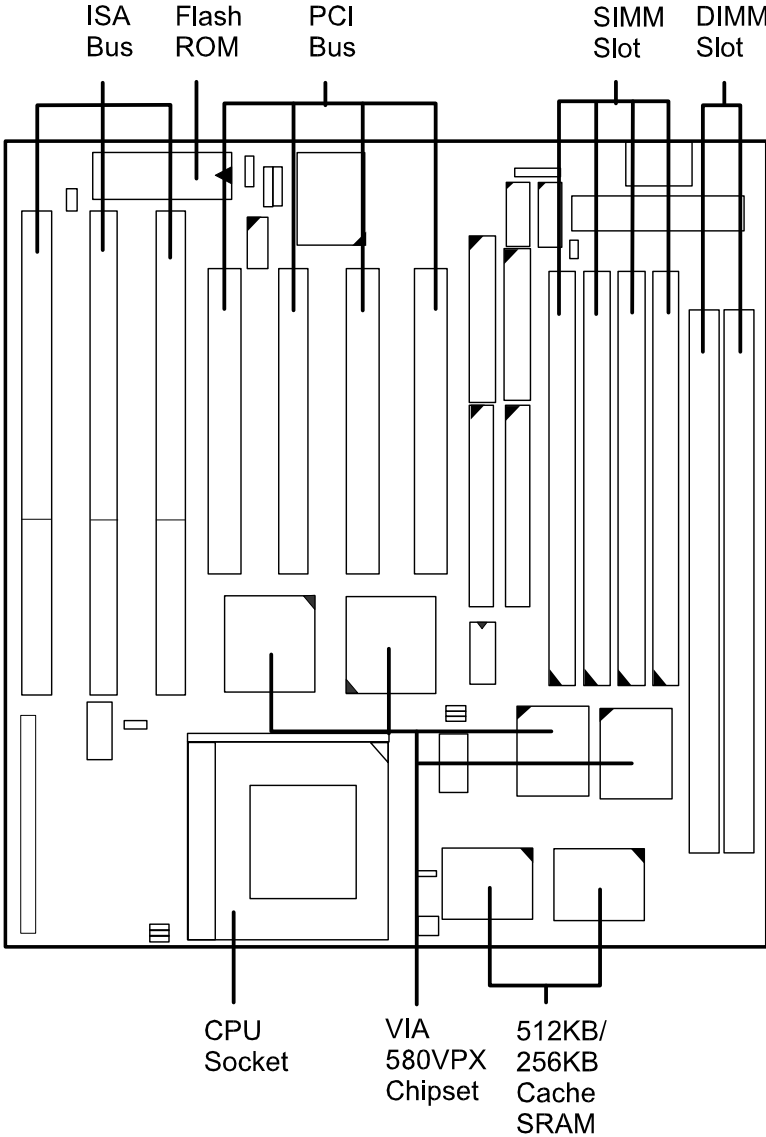
Chapter 1 of this manual gives you a brief overview of the VA-502 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard, while Chapter 3 provides detailed information about the board's BIOS settings. For the most up-to-date information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at www.fic.com.tw.

Package Checklist

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

- v The VA-502 mainboard
- v
- v This user manual
- v
- v One IDE HDD cable
- v
- v One floppy disk drive cable
- v
- v One printer and COM1 cable
- v
- v One COM2 cable
- v
- v Software utility
- v
- v One USB riser card (optional)

The VA-502 Mainboard



Main Features

The VA-502 mainboard comes with the following high-performance features:

v **Easy Installation**

- v Award BIOS with support for Plug and Play, auto detection of Hard Drive
- v and IDE features, and MS Windows 95 compatible.

v **Flexible Processor Support**

Onboard 321-pin ZIF socket and switching voltage regulator support complete range of leading-edge processors:

Intel Pentium® P55C with MMX™ technology 166/200/233 MHz processors.

Intel Pentium® P54C/P54CS 90/100/120/133/150/166/200 MHz processors.

AMD-K6™-166 (166 MHz) / K6-200 (200 MHz) / K6-233 (233 MHz) processors.

AMD-K5™- PR90 (90 MHz) / K5-PR100 (100 MHz) / K5-PR120 (90 MHz) / K5-PR133 (100 MHz) / K5-PR150 (105 MHz) / K5-PR166 (116 MHz) / K5-PR200 (133 MHz) processors.

Cyrix 6x86MX™- PR166 (150 MHz) / 6x86MX-PR200 (166 MHz) / 6x86-MX-PR233 (200 MHz) / 6x86MX-PR266 (233 MHz) processors. Please read page 23 for details.

Cyrix 6x86™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) / 6x86-PR200+ (150 MHz) processors.

IBM 6x86MX™- PR166 (150 MHz) / 6x86MX-PR200 (166 MHz) / 6x86-MX-PR233 (200 MHz) / 6x86MX-PR266 (233 MHz) processors. Please read page 25 for details.

IBM 6x86™- PR133+ (110 MHz) / 6x86-PR150+ (120 MHz) / 6x86-PR166+ (133 MHz) processors.

v **Leading Edge Chipset**

- v VIA 580VPX chipset, including a CPU interface controller, advanced
- v cache controller, integrated DRAM controller, synchronous ISA bus
- v controller, PCI local bus interface, integrated power management unit.

v **Ultra-fast Level II Cache**

Supports onboard 256KB/512KB synchronous PDSRAM direct-mapped write-back cache memory.

v **Versatile Main Memory Support**

- v Accepts up to 512MB RAM in two banks using four SIMMs of 8, 16, 32, 64, 128MB with support for FPM and EDO DRAM and two DIMMs of 8, 16, 32, 64MB with support for SDRAM and EDO DRAM.

v **ISA & PCI Expansion Slots**

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

v **USB Support**

- v 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.

v **Enhanced PCI Bus Master IDE Controller**

- v Integrated Enhanced PCI local bus IDE controller with two connectors supports up to four IDE devices such as Hard Disk, CD-ROM or Tape Backup drives via two channels for high speed data throughput. This controller supports PIO Modes 3 and 4, and DMA Mode 2 for optimized system performance.

v **Super Multi I/O**

- v Integrated SMC FDC 37C669/UMC UM8669F chipset features two 16550A UART compatible serial ports, one EPP/ECP capable parallel port, one IR port, and one Floppy Disk Drive connector.

Advanced Features

This mainboard comes equipped with the most advanced new features that not only optimize the performance of the latest processors but also enhance the manageability, power management capabilities, and user-friendliness of your system. This section provides detailed information on these features, and how they are implemented on the mainboard.

v **Optimized Intel MMX™ Performance**

The mainboard utilizes the advanced features of the VIA 580VPX to optimize the unrivaled performance of the Intel Pentium® processor with MMX™ technology, allowing you to enjoy a richer video, audio, digital imaging and communications experience from the latest generation of multimedia software. To provide you with additional flexibility, the mainboard also supports other leading-edge processors featuring Intel's MMX™ technology, including the AMD-K6™ processor.

v **Lightning-Fast SDRAM Performance**

The mainboard supports the new generation of lightning-fast SDRAM (Synchronous Dynamic Random Access Memory) via its two 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-502 is further boosted by the board's integrated I²C controller, which optimizes the memory timing settings.

v **Blistering Ultra DMA/33 HDD Performance**

With its integrated Enhanced PCI Bus Master IDE controller that supports the new Ultra DMA/33 protocol, this mainboard doubles HDD data transfer rates to 33MB/sec, compared to 16MB/sec for conventional PIO Mode 3, PIO Mode 4, and DMA Mode 2 devices. By reducing the CPU's workload and increasing CPU utilization, Ultra DMA/33 significantly improves system performance when running applications under Windows® 95 and Windows® NT environments. The Ultra DMA/33 protocol is completely backward compatible with conventional ATA-2 HDD devices; so the mainboard also supports existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices using the same cable.

With the integrated Enhanced PCI Bus Master IDE controller you can connect up to four Enhanced IDE peripheral devices to your system. All devices are categorized in the same way that IDE hard disks were configured in the past, with one device set as the master device and the other as the slave device. We recommend that Hard Disk Drives use the primary IDE connector and that CD-ROM Drives utilize the secondary IDE connector for optimum system performance.

Infrared (IR) Connections

This mainboard features support for highly-sophisticated SIR technology, which allows bi-directional and cordless data transactions with other IrDA compliant computers and peripheral devices using infrared as a medium. This 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.

The I/O chipset on this mainboard features a SIR interface that is fully compliant with the IrDA standard. An IrDA device can be installed via a **9-pin D-type connector** in the rear panel of the computer which is linked by a cable to the onboard IrDA pinhead.

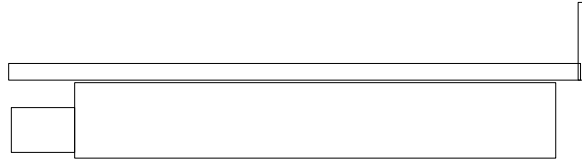
The **serial port COM2** on this mainboard is designed to be a **SIR compliant** port. If you wish to install the SIR connection feature, you need to adjust the BIOS option for high-speed performance.

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.

USB overcomes conventional I/O bottlenecks by combining the I/O ports into a single dual-channel connector. For optimum ease of use and flexibility, USB not only allows the automatic detection and configuration of peripherals after installation, but also enables the simultaneous connection.

This mainboard features an optional USB riser card (see the photo below) 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.



[USB Riser Card's Photo]

Installation Procedures

The VA-502 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.

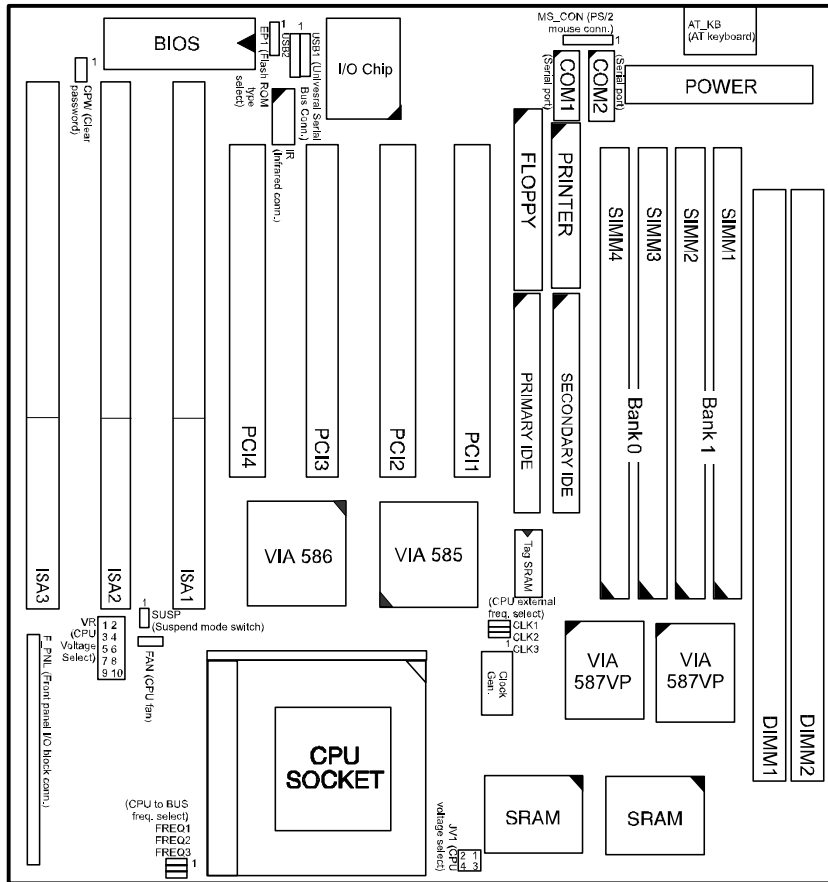
To set up your computer, you should follow these installation steps:

- v Step 1 -
 - v Set system jumpers
- v
- v Step 2 -
 - v Install System Memory
- v
- v Step 3 -
 - v Install the CPU
- v
- v Step 4 -
 - v Install expansion cards
- v
- v Step 5 -
 - v Connect cables and power supply
- v
- v Step 6 -
 - v 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 drill torque is from 5.0 to 8.0 kg/cm to avoid damaging chips' pins.

v

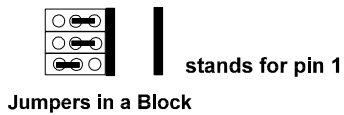
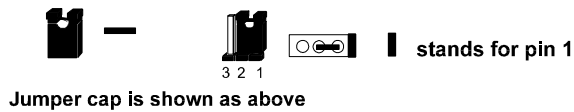
Mainboard Layout



1). Set System Jumpers

Jumpers

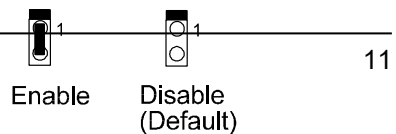
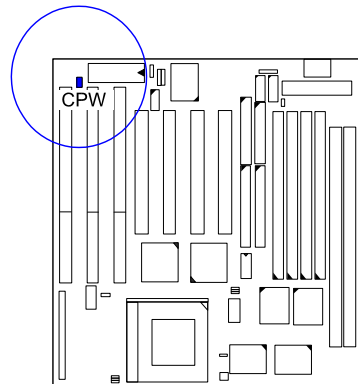
Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pins according to the required configuration. A jumper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



2). Install System Memory

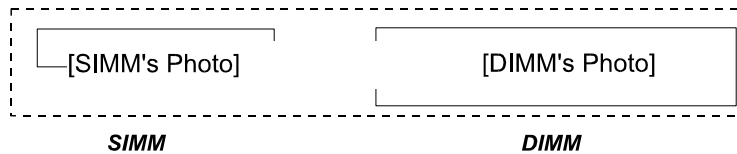
DRAM and SDRAM

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance.

The VA-502's RAM is comprised of four industry standard 72-pin Single In-line Memory Modules (SIMMs) and two 168-pin Dual In-line Memory Modules (DIMMs). Each SIMM socket supports from 4 to 128MB [FPM \(Fast Page Mode\)](#) and [high-speed EDO \(Extended Data Out\) DRAM](#). Each DIMM socket is able to support up to 64MB EDO DRAM or lightning-fast SDRAM.

SDRAM is an advanced new memory technology that boosts overall system performance with its ability to synchronize all operations with the processor clock signal. This makes the implementation of control interfaces easier, and speeds up column access time. SDRAM features an on-chip burst counter that can be utilized to increment column addresses for very fast burst access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM upgrades you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual will have unpredictable results.



RAM Module Configuration

(Unit : MB)

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

NOTE :

1. * A RAM module of this size was not available for testing at press time.
2. DIM1 and DIM2 only support 3.3V (unbuffered) EDO and SDRAM modules. It is recommended that SIMMs and DIMMs are not installed at the same time on this mainboard to avoid unexpected failure.
3. The different size of DIM1 and DIM2 is allowed. For example, 16MB is installed on DIM1 socket, 32MB is installed on DIM2 socket. DIM2 and SIMM 1&2 are shared. That is, It is not allowed to install RAM modules on DIM2 and SIMM 1 &2 at the same time. This mainboard allows the SIMMs (without ECC or parity check support) which

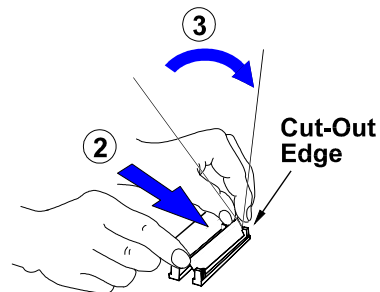
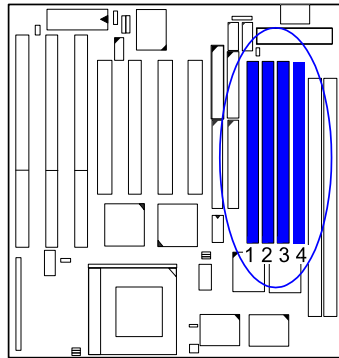
latency time are 70ns, 60ns, 50ns; and for the DIMMs which latency time are 12ns, 10ns.

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.

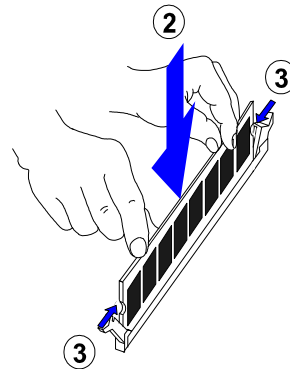
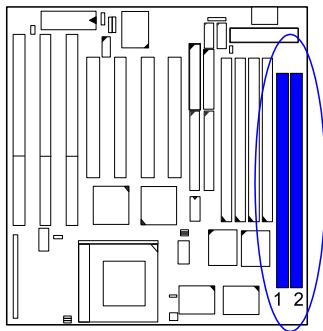
Remove SIMMs

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.

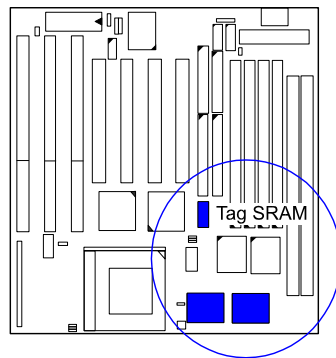
Remove DIMMs

Press the clips with both hands to remove the DIMM.

Cache Memory

The VA-502 comes with onboard 512KB (256KB 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.

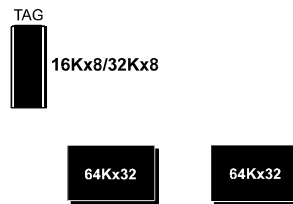
Socket 7 mainboards may implement various types of L2 cache SRAMs. Pipeline Burst SRAM is one of them, delivering the best price performance ratio. They perform much better than asynchronous SRAMs. The cache memory can not be upgraded by end users.



256KB

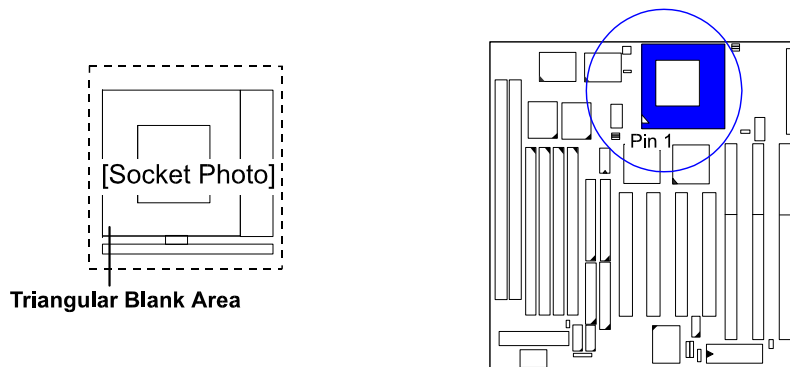


512KB



3). Install the CPU

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

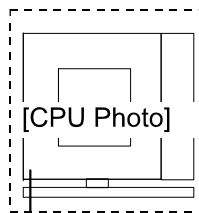


CAUTION :

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

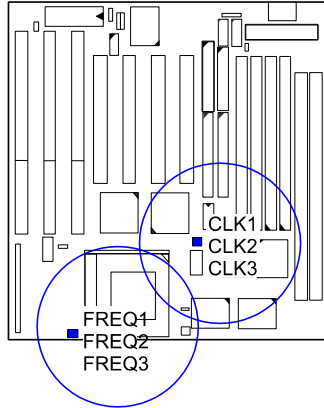
To install the CPU, do the following:

1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. The chip has a notch to correctly orientate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip.
4. Swing the lever to the down position to lock the CPU in place.



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

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



External (CPU/CLK)	CLK1	CLK2	CLK3
75 MHz	1	1	1
66 MHz	1	1	1
60 MHz	1	1	1
55 MHz	1	1	1
50 MHz	1	1	1

CPU to Bus Frequency Ratio: FREQ1, FREQ2, FREQ3

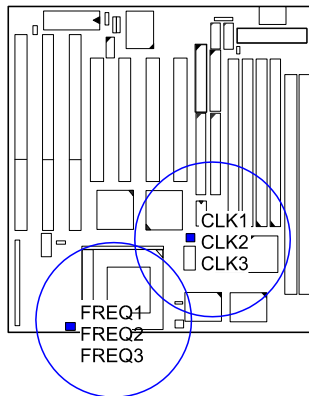
These three jumpers are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.

FREQ1	FREQ2	FREQ3	Ratio			
			P54C	P55C/ M2/K6	K5	M1
1	1	1	3 x	3 x	2 x	4 x
1	1	1	2.5 x	2.5 x	1.75 x	1 x
1	1	1	2 x	2 x	---	2 x
1	1	1	1.5 x	3.5 x	1.5 x	3 x

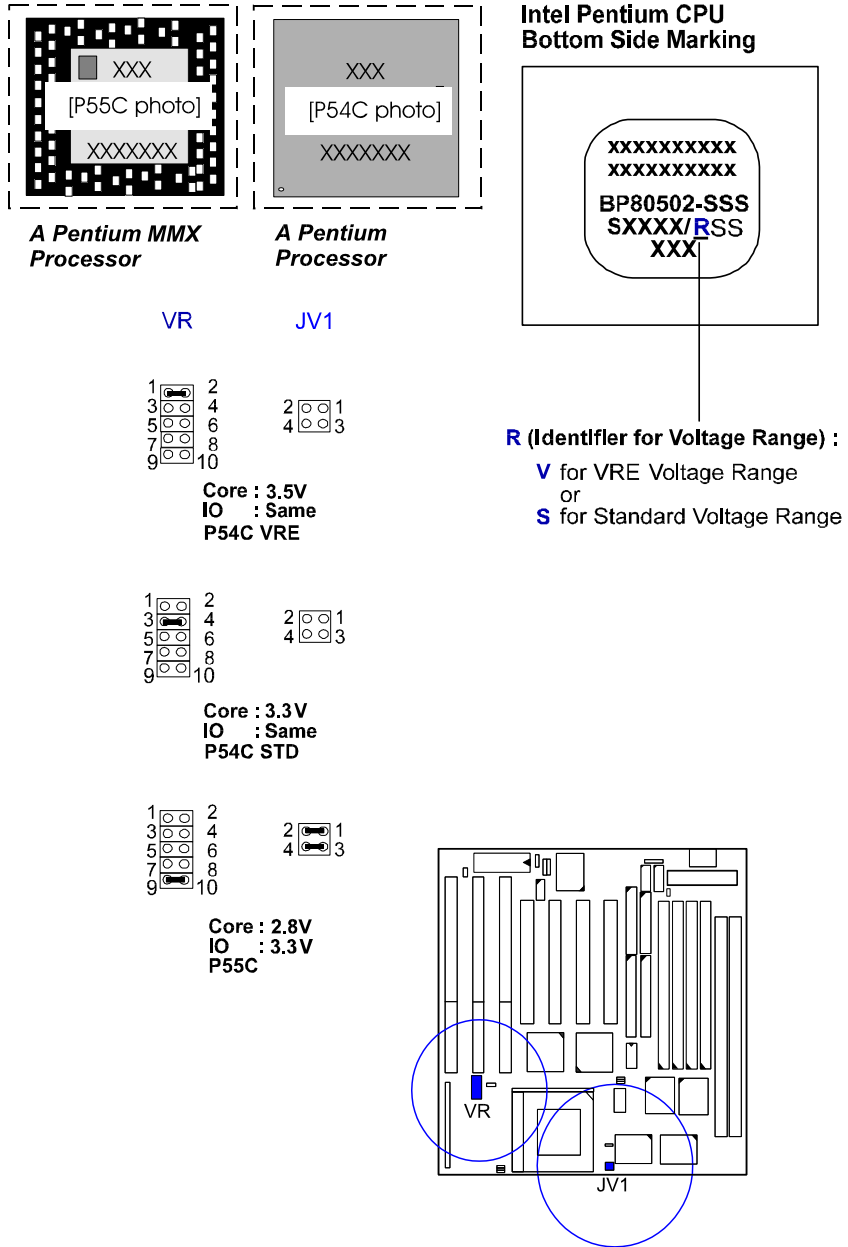
Intel Pentium/Pentium MMX CPUs

Frequency

CPU Speed (MHz)	External (CPU/CLK) (MHz)	CLK1	CLK2	CLK3	Internal	CPU Clock Rate		
						FREQ1	FREQ2	FREQ3
Pentium MMX								
233	66				3.5 x			
200	66				3 x			
166	66				2.5 x			
Pentium								
200	66				3 x			
166	66				2.5 x			
150	60				2.5 x			
133	66				2 x			
120	60				2 x			
100	66				1.5 x			
90	60				1.5 x			



Voltage

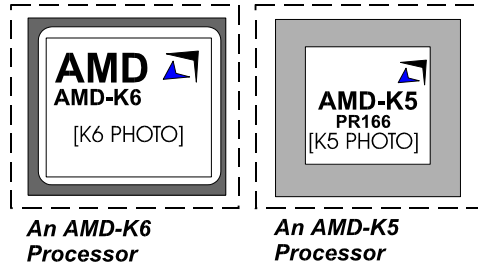


AMD-K5/K6 CPUs

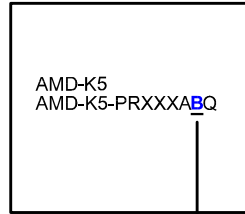
Frequency

Model	CPU Speed (MHz)	External (CPU/CLK) (MHz)	CLK1	CLK2	CLK3	Internal	CPU Clock Rate		
							FREQ1	FREQ2	FREQ3
K6-233	233	66		3.5x					
K6-200	200	66		3x					
K6-166	166	66		1.5x					
K5-PR200	133	66		2x					
K5-PR166	116	66		CLK1 CLK2 1.75x CLK3					
K5-PR150	105	60		FREQ4 FREQ2 FREQ3					
K5-PR133	100	66		1.5x					
K5-PR120	90	60		1.5x					
K5-PR100	100	66		1.5x					
K5-PR90	90	60	1.5x						

Voltage



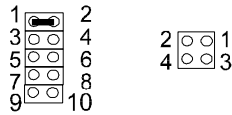
**AMD-K5 CPU
Top Side Marking**



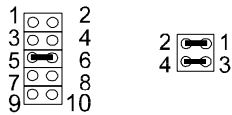
V (Identifier for Operation Voltage)

VR

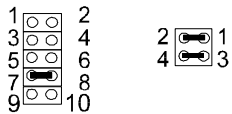
JV1



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

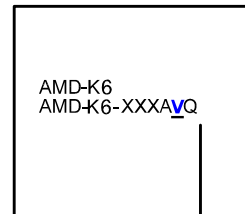


**Core : 3.2V
IO : 3.3V
AMD-K6 (233 MHz)**



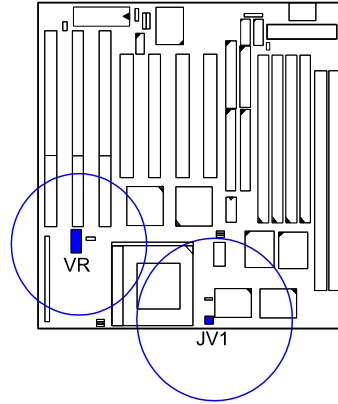
**Core : 2.9V
IO : 3.3V
AMD-K6 (166, 200 MHz)**

**AMD-K6 CPU
Top Side Marking**



V (Identifier for Operation Voltage) :

- N** 3.1-3.3V Core/3.135-3.6V I/O
- L** 2.755-3.045V Core/3.135-3.6V I/O



Cyrix 6x86/MX CPUs

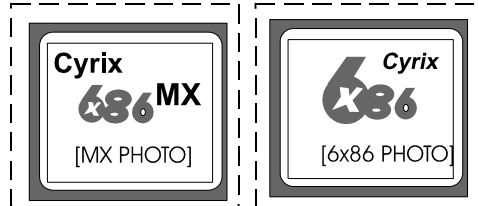
Frequency

Model	CPU Speed (MHz)	External (CPU/CLK) (MHz)	CLK1	CLK2	CLK3	Internal	CPU Clock Rate		
							FREQ1	FREQ2	FREQ3
6x86MX-PR266*	233	66				3.5 x			
6x86MX-PR266*	225	75				3 x			
6x86MX-PR233*	200	66				3 x			
6x86MX-PR233*	188	75				2.5 x			
6x86MX-PR200	180	60				3 x			
	166	66				2.5 x			
	165	55				3 x			
	150	75				2 x			
6x86MX-PR166	133	66				2 x			
	150	60				2.5 x			
	138	55				2.5 x			
	150	50				3 x			
6x86-PR200+ 6x86L-PR200+	150	75				2 x			
6x86-PR166+ 6x86L-PR166+	133	66				2 x			
6x86-PR150+ 6x86L-PR150+	120	60				2 x			
6x86-PR133+ 6x86L-PR133+	110	55				2 x			

NOTE :

- * This CPU had not been tested when this manual was printed.
- Please refer to your Cyrix CPU top marking about the actual CPU speed and ratio.

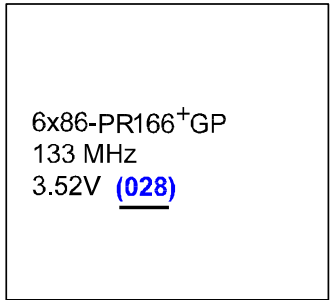
Voltage



A Cyrix 6x86MX Processor

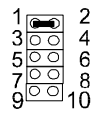
A Cyrix 6x86 Processor

**Cyrix 6x86 CPU
Top Side Marking**

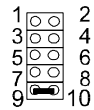


VR

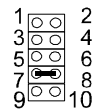
JV1



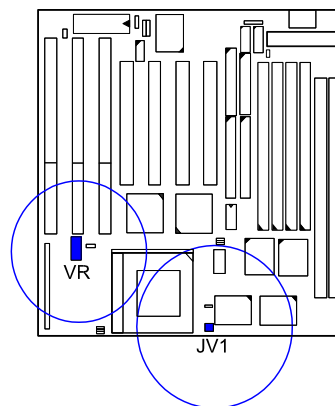
Core : 3.5V
IO : Same
Cyrix 6x86-028



Core : 2.8V
IO : 3.3V
Cyrix 6x86L



Core : 2.9V
IO : 3.3V
Cyrix 6x86MX



IBM 6x86/MX CPUs

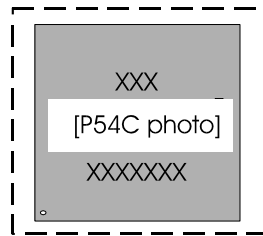
Frequency

Model	CPU Speed (MHz)	External (CPU/CLK) (MHz)	CLK1	CLK2	CLK3	Internal	CPU Clock Rate		
							FREQ1	FREQ2	FREQ3
6x86MX-PR266*	233	66				3.5 x			
6x86MX-PR266*	225	75				3 x			
6x86MX-PR233*	200	66				3 x			
6x86MX-PR233*	188	75				2.5 x			
6x86MX-PR200	180	60				3 x			
	166	66				2.5 x			
	165	55				3 x			
	150	75				2 x			
6x86MX-PR166	133	66				2 x			
	150	60				2.5 x			
	138	55				2.5 x			
	150	50				3 x			
6x86-PR200+ 6x86L-PR200+	150	75				2 x			
6x86-PR166+ 6x86L-PR166+	133	66				2 x			
6x86-PR150+ 6x86L-PR150+	120	60				2 x			
6x86-PR133+ 6x86L-PR133+	110	55				2 x			

NOTE :

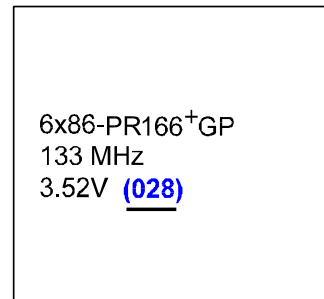
- * This CPU had not been tested when this manual was printed.
- Please refer to your IBM CPU top marking about the actual CPU speed and ratio.

Voltage

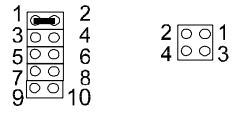


**An IBM 6x86
Processor**

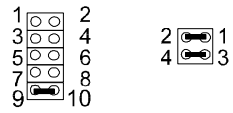
**IBM 6x86 CPU
Top Side Marking**



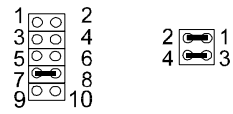
VR JV1



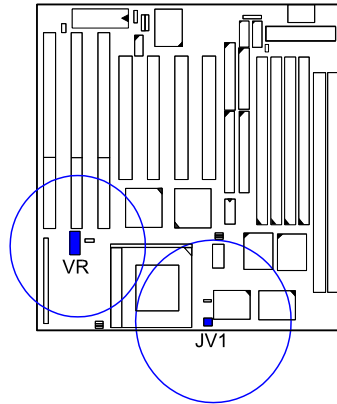
Core : 3.5V
IO : Same
IBM 6x86-028



Core : 2.8V
IO : 3.3V
IBM 6x86L

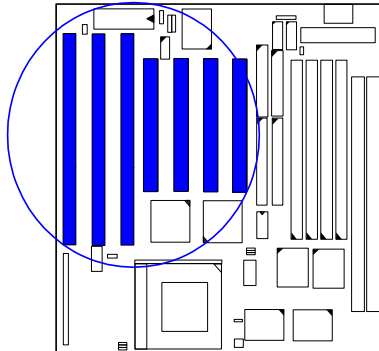


Core : 2.9V
IO : 3.3V
IBM 6x86MX



4). Install Expansion Cards

Your mainboard features three 16-bit ISA Bus and four 32-bit PCI Bus expansion slots.



This section describes how to connect an expansion card to one of your system's expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities.

CAUTION :

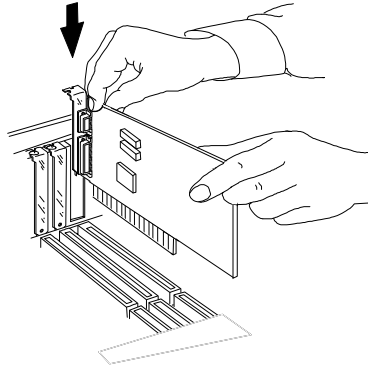
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions.
See "Handling Precautions" at the start of this manual.

To install an expansion card, do the following:

1. Remove the chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the chassis.

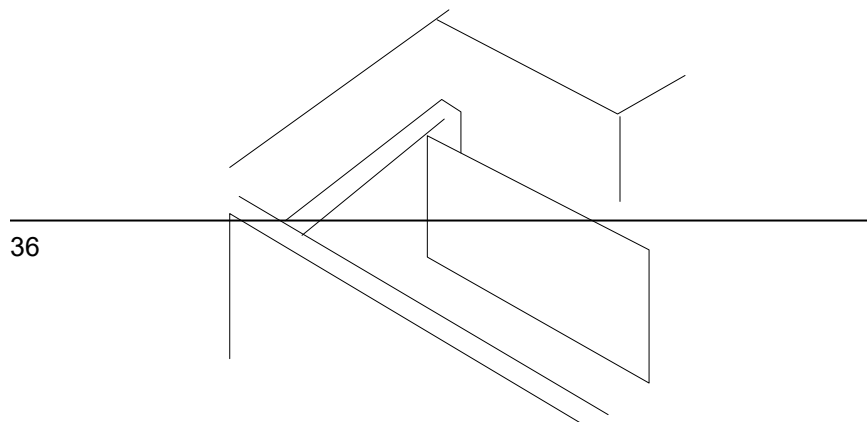
Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the chassis. Keep the slot cover mounting screw nearby.

3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot. (See figure below.)



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

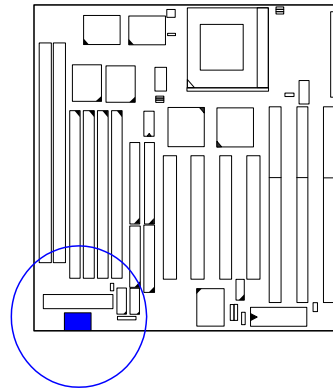
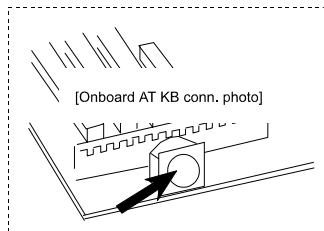
The photo below shows an add-on card that was installed in a system.



5). Connector Cables and Power Supply

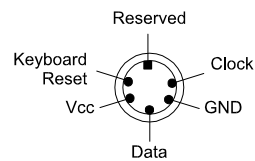
AT Keyboard Connector: AT_KB

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

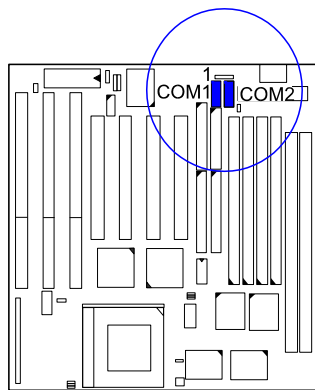


Serial Port Connectors: COM1, COM2

These two connectors allow you to connect with your devices that take serial ports, such as a serial mouse or a modem. Because COM2 and IR utilizes the same IRQ, COM2 will not work if an IR device is connected to the IR connector.

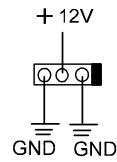
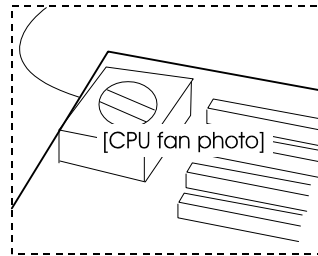
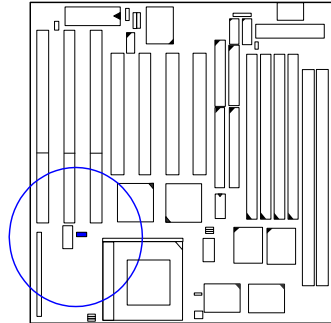


Plug of Keyboard



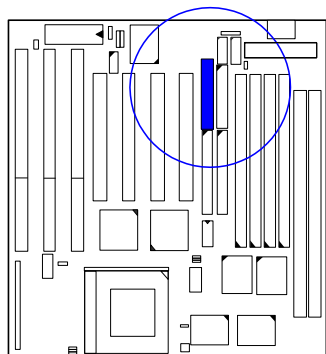
CPU Fan Connector: FAN

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



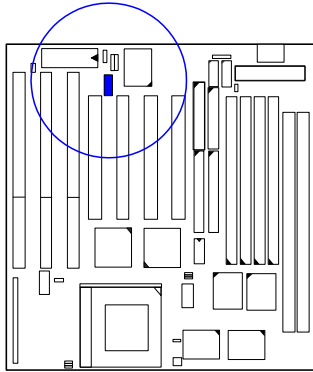
Floppy Diskette Drive Connector: FLOPPY

This connector provides the connection with your floppy disk drive.



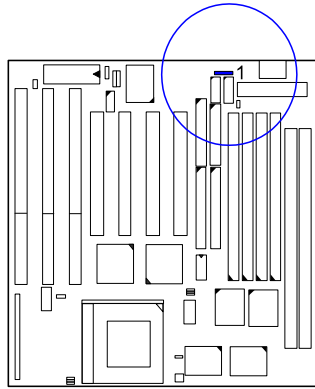
Infrared Connector: IR

This connector supports the connection to your IR device. The IR port uses the same IRQ as COM2 port, therefore you need to adjust this BIOS option when an IR device is installed.



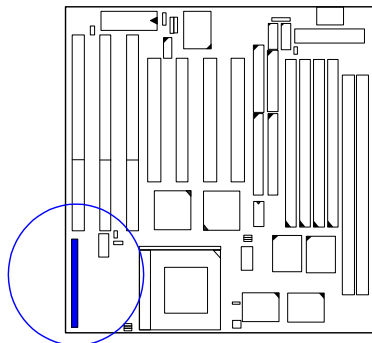
PS/2 Mouse Connector: MS_CON

This connector is connected to the PS/2 mouse.

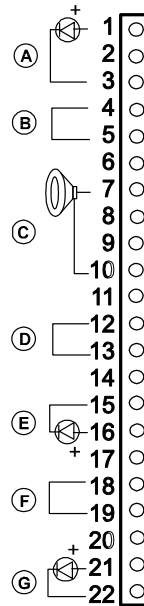


Front Panel Block Connector: F_PNL

This block connector concludes : Power LED, Keylock, Speaker, Reset, Turbo LED, Turbo switch, IDE HDD LED connectors.



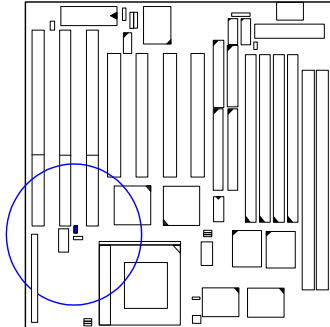
Installation Procedures



Item	Connector	Pin Type	Feature
A	Power LED	2-pin male	indicates the system power status
B	Keylock	2-pin male	allows the keyboard to access the system
C	Speaker	4-pin male	connects to speaker
D	Reset	2-pin male	allows you to reset the system
E	Turbo LED	2-pin male	indicates the system is in turbo speed mode
F	Turbo Switch	2-pin male	set the system speed is in normal or turbo speed
G	HDD LED	2-pin male	indicates the IDE HDD I/O access LED lit

NOTE : Software Turbo Speed feature is not supported. The only way to enter the system into turbo speed is pressing the turbo switch.

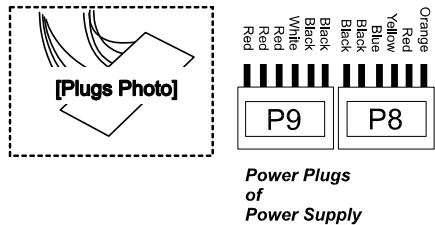
NOTE : The mainboard provides an optional suspend mode switch (2-pin male) connector.



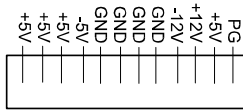
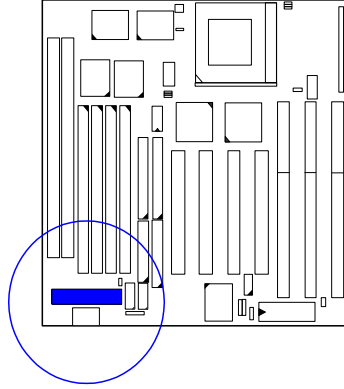
If this connector is onboard, the *Turbo LED* in the previous page becomes *Suspend Mode LED*. It can be used to set the system to suspend mode.

Standard Power Connector: POWER

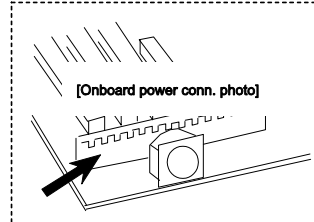
This 12-pin block connector is used for connecting to the standard 5V power supply. In the picture below, notice that, in most cases, there are two marks “P8” and “P9” on the surface of the connector. You have to insert the “P8” plug into the “P8” section of the connector, and so forth for “P9”. Two black wires must be in the middle.



Installation Procedures

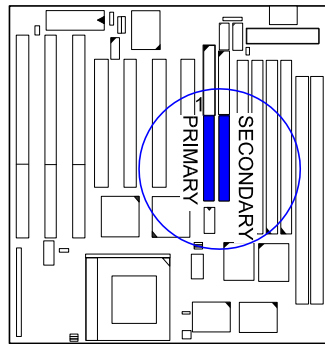


**Power
Connector**



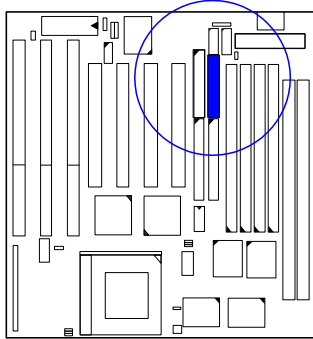
IDE HDD Device Connectors: PRIMARY, SECONDARY

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.



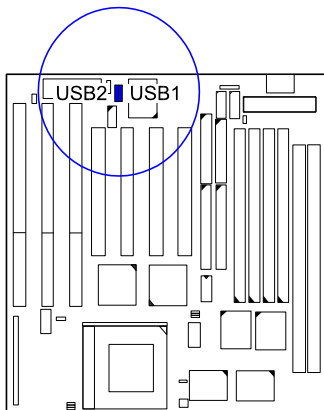
Printer Connector: PRINTER

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



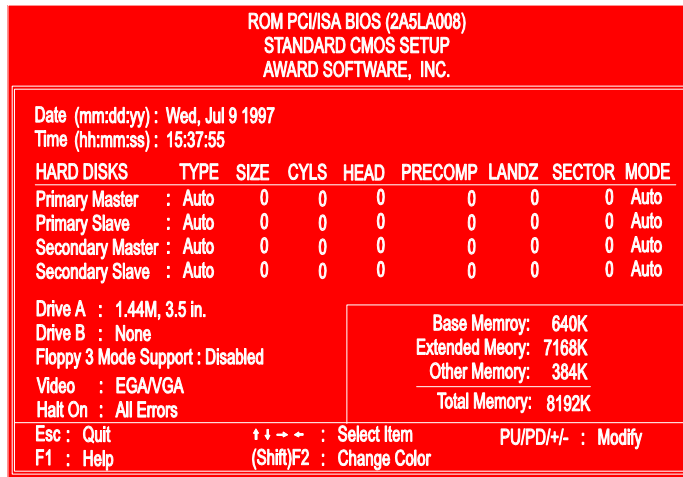
Universal Serial Bus Connectors: USB1, USB2

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



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Standard CMOS Setup



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, you have to 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. 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**Virus**

ROM PCI/ISA BIOS (2A5LA008)	
BIOS FEATURES UTILITY	
AWARD SOFTWARE, INC.	
Virus Warning	: Disabled
CPU Internal Cache	: Enabled
External Cache	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence (LS120/ZIP100)	: A, C, SCSI
Swap Floppy Drive	: Disabled
Boot Up Floppy 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
Video BIOS Shadow	: Enabled
C8000 - CBFFF Shadow	: Disabled
CC000 - CFFFF Shadow	: Disabled
D0000 - D3FFF Shadow	: Disabled
D4000 - D7FFF Shadow	: Disabled
D8000 - DBFFF Shadow	: Disabled
DC000 - DFFFF Shadow	: Disabled
Esc: Quit	↑↓←→ : Select Item
F1 : Help	PU/PD/+/- : Modify
F5 : Old Values	(Shift)F2 : Color
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

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. 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, SCSI (Default); C, A; C, CDROM, A; CDROM, C, A; C Only; LS/ZIP, C, A, C.

Swap Floppy Drive

Allows you to switch the order in which the operating system accesses the floppy drives during boot up. The options are: Enabled, Disabled (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, MS Windows NT, or MS Windows 95, 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.

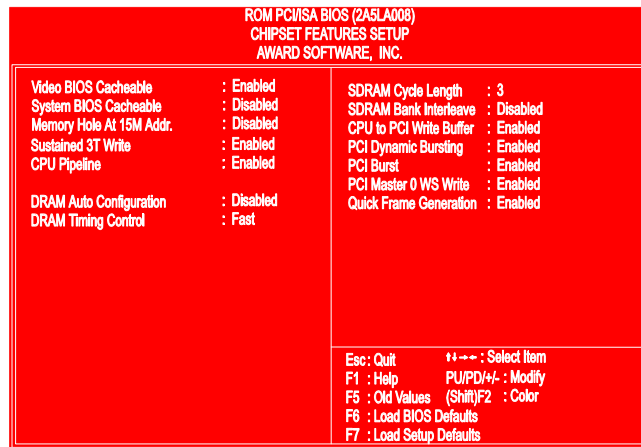
C8000-CBFFF to DC000-DFFFF Shadow

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. 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 15MB 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. The options are: Enabled, Disabled (Default).

Sustained 3T Write

When enabled, allows the CPU to complete the memory writes in 3 clocks. The options: Enabled (Default), Disabled.

CPU Pipeline

When enabled, allows the CPU to execute the pipeline function.
The options: Enabled (Default), Disabled.

DRAM Auto Configuration

When set at Enabled, it allows you to configure the features that from the third one, Fast RAS To CAS Delay, to the eighth one, Refresh RAS# Assertion. The options are: Enabled, Disabled (Default).

DRAM Timing Control

Allows you to select the speed of data access to EDO DRAM.
The options are: Fast (Default), Turbo, Normal.

SDRAM Cycle Length

This feature appears only when SDRAM DIMM/s is installed (BIOS auto dection). 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 dection). When the bank interleave fuction of the SDRAM is enabled, its the data transacting performance is better than when it is disabled.
The options are: 2 Bank, Disabled (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 Burst

When enabled, data transfer on PCI Buses will improve. Disable this item during trouble-shooting.
The options are: Disabled, Enabled (Default).

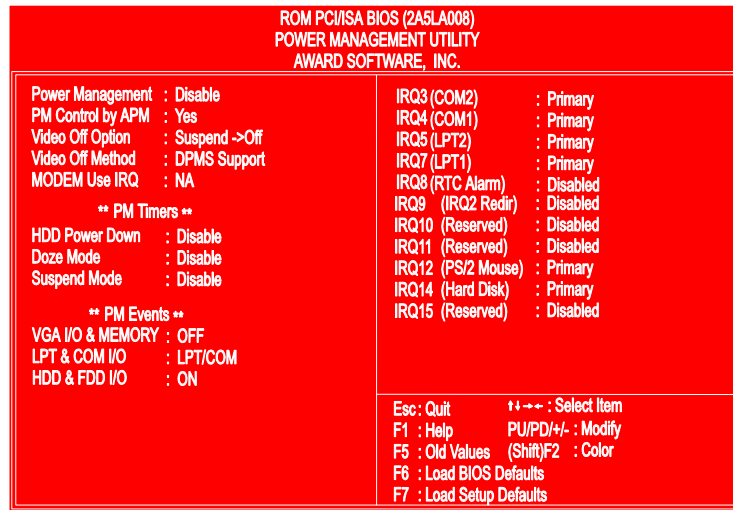
PCI Master 0 WS Write

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

Quick Frame Generation

When enabled, allows the system to start the PCI Bus (by asserting frame) as soon as possible when the bus cycle is going to forward to the PCI Bus.
The options are: Disabled, Enabled (Default).

Power Management Setup



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 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, 3, 4, 5, 7, 9, 10, 11.

HDD Power Management

Selecting Disabled will turn off the hard disk drive (HDD) motor. Selecting 1 Min..15Min allows you to define the HDD idle time before the HDD enters Power Saving Mode. The option When Suspend lets the BIOS turn the HDD motor off when the system is in Suspend mode.

The options 1 Min..15Min and When Suspend will not work concurrently. When HDD is in Power Saving Mode, any access to the HDD will wake the HDD up.

The options are: Disabled (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), 10, 20, 30, 40 sec, 1, 2, 4, 6, 8, 10, 20, 30, 40 min, 1h.

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), 10, 20, 30, 40 sec, 1, 2, 4, 6, 8, 10, 20, 30, 40 min, 1h.

VGA I/O & MEMORY

Selecting ON will enable the power management timers when a no activity events is detected in the VGA. Selecting OFF to disable the PM timer even if a no activity event is detected.

The options are: OFF (Default), ON.

LPT & COM I/O

Selecting LPT & COM will enable the power management timers when a no activity event is detected in the LPT and COM ports. Selecting LPT (COM) will enable the power management timers when a no activity event is detected in the LPT (COM) ports. Selecting 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

Selecting ON will enable the power management timers when a no activity event is detected in the hard disk drive and floppy disk drive. Selecting OFF to disable the PM timer even if a no activity event is detected.

The options are: OFF, ON (Default).

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 the dreaming mode to execute the corresponding calling routine.

The options are: Primary, Secondary, Disabled.

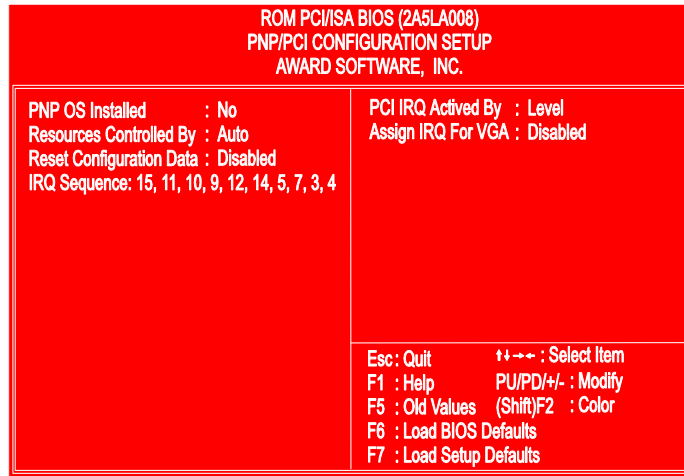
The default values of IRQ3, 4, 5, 7, 12, 14 are: Primary.

The default value of IRQ8, 9, 10, 11, 15 are: Disabled.

NOTE : Under certain operating system such as Windows NT 4.0 (Build 1381), the CD auto-insertion feature might have some effect on the power management. It is recommended that the CD-ROM drive to use the secondary channel, and set the following features in the feature Power Management Setup. - HDD & FDD : Off ; IRQ15 (Reserved) : Secondary

PNP/PCI Configuration Setup

PNP
OS



Installed

If your operating system is a Plug-and-Play one, such as Windows NT, 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 (Default); 9, 10, 11, 5, 7, 4, 3, 12, 15, 14.

PCI IRQ Activated By

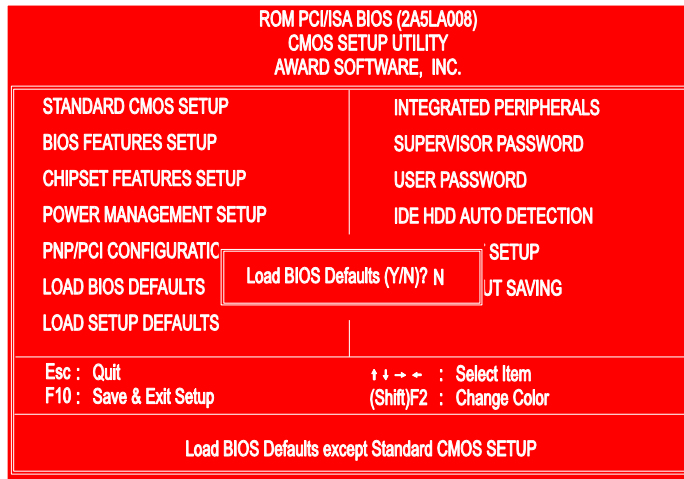
We suggest that you set this to its default configuration unless you are a qualified technician. The options are: Level (Default), Edge.

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).

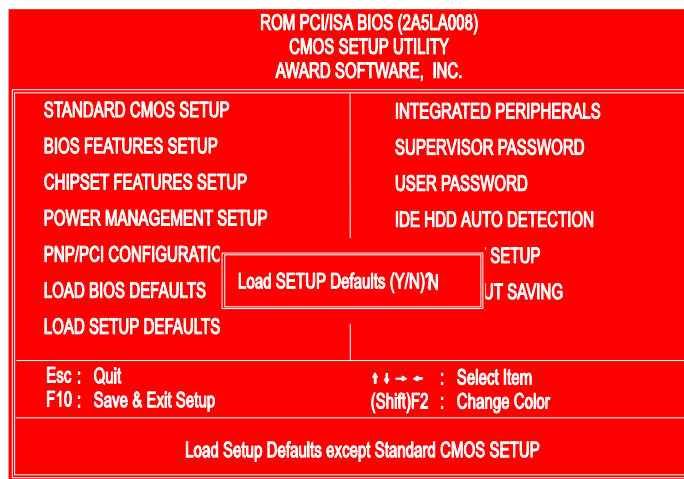
Load BIOS Defaults

BIOS



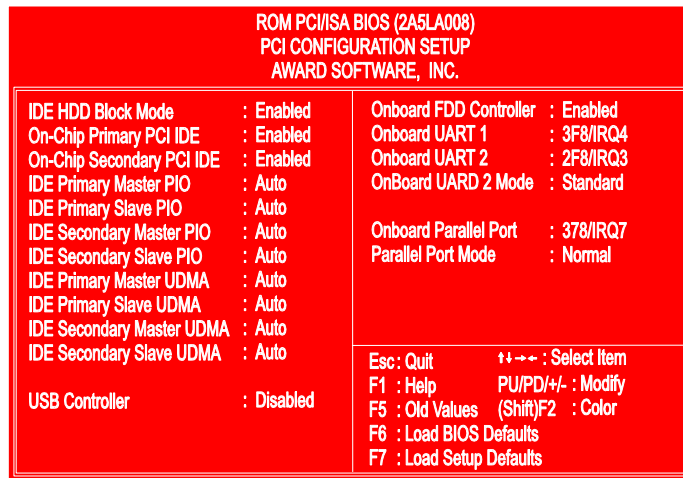
defaults contain the most appropriate values of the system parameters that allow minimum system performance. The OEM manufacturer may change the defaults through MODBIN before the binary image burns into the ROM.

Load Setup Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Integrated Peripherals



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. The options are: Enabled (Default), Disabled.

On-Chip Secondary PCI IDE

When enabled, allows you to use the onboard secondary PCI IDE. 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).

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).

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.

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 FDC Controller

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

The options are: Enabled (Default), Disabled.

Onboard UART 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 UART 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.

OnBoard 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 Duplex Mode

This feature allows you to select the infrared data transaction way.

The options are: Half (Default), Full.

Use IR Pins

Allows you to select the active signals of the reception end and the transmission end. The options are: IR-RX2TX2 (Default), IR-RX TX.

Onboard Parallel Port

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

Parallel Port Mode

Allows you to connect with an advanced printer. The options are: Normal (Default), EPP, ECP, ECP+EPP.

ECP Mode Use DMA

If you select ECP mode to be the parallel port 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 mode to be the parallel port 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 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.

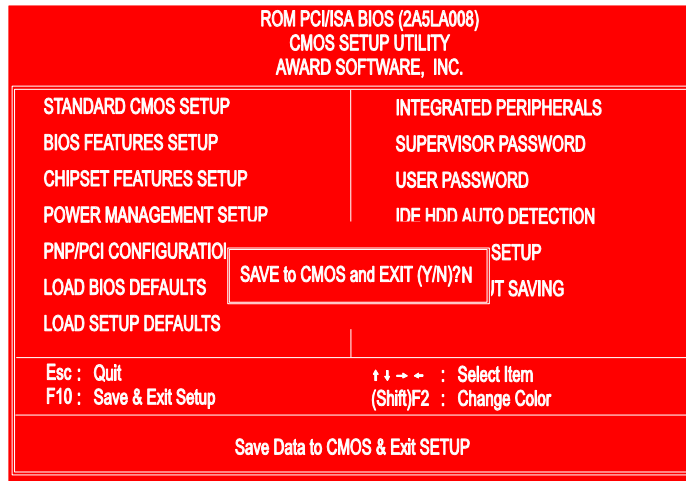
Clear Password

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.

BIOS Update Instruction

Flash Process

The mainboard provides a Flash BIOS. If you have any question about the BIOS upgrade, please contact your local dealer for more information. The following instructions are introduced when the upgrade is needed.

1. Create a Bootable Floppy (in DOS) -
with a non-formatted diskette, type **format a:/s**
With a formatted diskette, type **sys a:**
2. Download the BIOS File -
Download the correct BIOS file via FTP, by clicking on the file name of the BIOS you wish to download.

Save the BIOS file and the Flash Utility file in the boot disk you have created.

Unzip the BIOS file and the Flash Utility file.
There are two files after extraction: Flash BIOS utility, (e.g. flash531.exe), and BIOS file (e.g. 615J900.bin). Use the standard Flash BIOS utility (flash531.exe), unless otherwise specified.

Place the bootable floppy disk containing the BIOS file and the Flash Utility in drive a:, and reboot the system in MS-DOS, preferably Ver. 6.22

At the A: > prompt, type the corresponding Flash BIOS utility and the BIOS file with its extension. For example, **flash531 615j900.bin**

From the Flash Memory Write menu, select **Y** to **Do you want to save BIOS?** If you want to save your current BIOS, then type the current BIOS name and the extension after **FILE NAME TO SAVE:** . e.g. 613J900.bin
Alternatively, select **N** if you do not want to save your current BIOS.

Select **Y** to **Are you sure to program?**

Wait until it displays **Message: Power Off or Reset the system.**

Once the BIOS has been loaded successfully, remove the floppy diskette and reboot the system holding the END key prior to power on until you enter CMOS setup. If you do not do this the first time booting up after upgrading the BIOS, the system will hang.

NOTE : Do not turn off or reset the computer during the flash process. It will corrupt the BIOS data.

Software Utilities

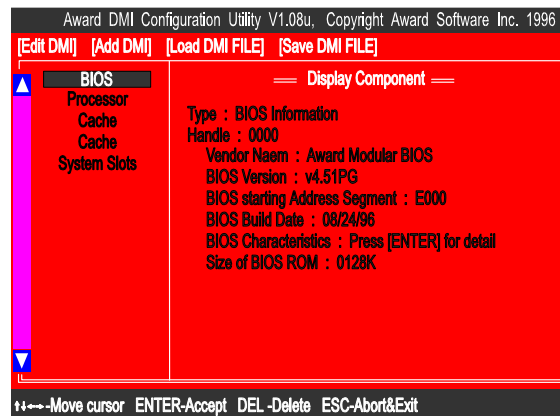
DMI Utility

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 utility is contained in a 3.5" diskette. Two files, DMICFG.EXE and README.TXT, are included. The DMICFG.EXE must be run in real mode. The README.TXT records the version of DMICFG.EXE.

NOTE :

1. Duplicate the original diskette and use the backup one.
2. End users are not encouraged to update DMI information. Please contact your vendor for details.

Starting DMI Utility



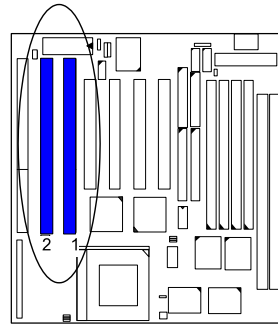
Type **DMICFG** under DOS to run the DMI utility. A menu like the figure above will appear in your monitor. It provides record data about your computer system.

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Application Note

Below are some recommended configurations that will allow your mainboard to perform efficiently when using certain devices or when under a particular environment.

1). Add-On Card Installation



There are some space limitation for add-on card size when they are installed on Slot1 and Slot2 as shown right-hand side. Please pay attention to it if you purchase your add-on cards.

2). *Under certain operating system such as Windows NT 4.0 (Build 1381), the CD auto-insertion feature might have some effect on the power management. It is recommended that the CD-ROM drive to use the secondary channel, and set the following features in the feature Power Management Setup. - HDD & FDD : Off ; IRQ15 (Reserved) : Secondary.*