

VA-503A

MAINBOARD MANUAL

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Handling Precautions

Warning:

1. Static electricity may cause damage to the integrated circuits on the motherboard. Before handling any motherboard 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 motherboard or other computer components:

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

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

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Handling Precautions

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Overview

The VA-503A is a Baby AT-sized Super 7 solution offering high performance, the highest speed of super 7 processors and the very best in onboard features. It supports the Pentium MMX, AMD K6, AMD K6-2, Cryix MII 300-400MHz, IBM, IDT WinChip processors, and significantly, **the new AMD K6-III 400/450 MHz*** processors with 66/75/83/95/100MHz Front Side Bus support.

The VA-503A is based around the **VIA MVP3** and **Super South** chipset, giving advanced performance with high quality audio/visual capabilities on a socket 7 platform. The VA-503A comes with a standard 1MB (manufacturing option: 2MB/512KB)* of onboard cache.

The Super South chip is a PC98 compliant PCI Super-I/O integrated peripheral controller with integrated super-I/O, integrated **sound blaster/direct sound AC97 audio**, and **ultra DMA-33/66**. The VA-503A also comes equipped with master mode PCI-EIDE controller, **USB controller (with four USB ports support)**, keyboard controller, RTC, plug and play, enhanced power management, and **temperature, voltage, and fan-speed monitoring**.

The VA-503A has 3 DIMM for up to 768 MB SDRAM, and comes with ECC memory support. It is equipped with 1 AGP, 4 PCI, 1 ISA and **1 AMR** expansion slot. The VA-503A is fully PC98 and Y2K compliant, and is ACPI ready, ensuring improved energy efficiency. Other features include Wake-On-LAN, IrDA, Intel LDCM software (manufacturing option)* and CD Pro with enhanced drivers.

** For features offered as a manufacturing option, please refer to the detailed specifications to establish which option is installed on this mainboard.*

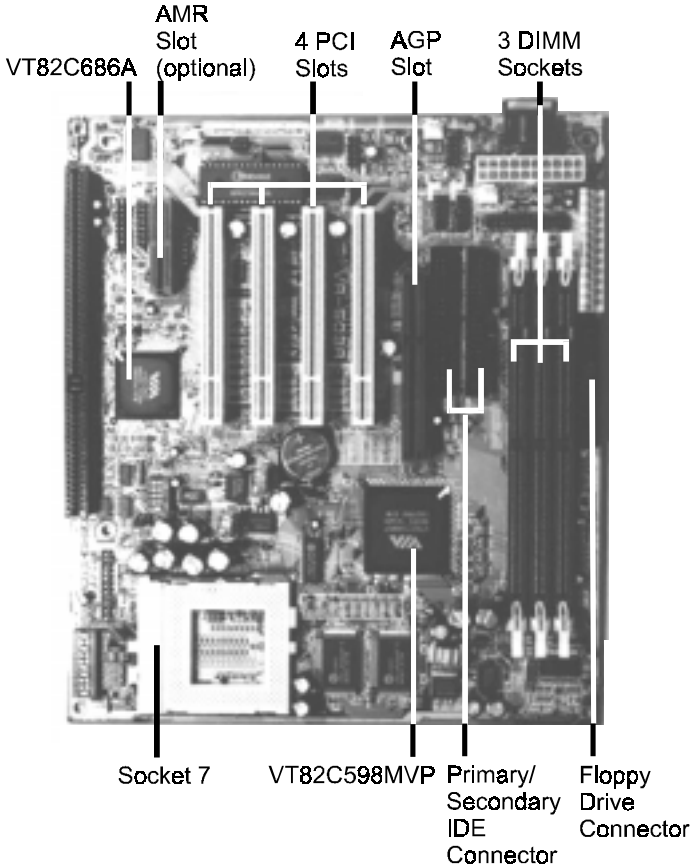
Package Checklist

If you discover any item below was damaged or lost, please contact your vendor.

- ö The VA-503A mainboard
- ö This user manual
- ö One floppy disk drive cable
- ö One HDD cable
- ö One audio riser card (optional)
- ö Software utilities
- ö One USB cable
- ö One printer and COM1 cable
- ö One PS/2 mouse and COM2 cable

The VA-503A Mainboard

Chapter 1
Overview



NOTE: On the upper-left corner the photo above, the AC_LINK Connector, GAME Connector, and AMR Slot are manufacturing optional.

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 and Super South

VIA APOLLO MVP3 chipset with integrated DRAM and Level 2 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 100/133/166/200/233 MHz;

Intel Pentium MMX 166/200/233 MHz.

AMD-K6-166 / 200 / 233 / 266 / 300 MHz; and K6-3/400 MHz;

K6-2-266 / 300 / 333 / 350 / 366 / 380 / 400 / 450 MHz.

Cyrix M II-300 / 333 / 350 MHz; and

Cyrix 6x86MX- PR166 / 200 / 233 / 266 / 300 / 333 / 350 MHz;

Cyrix 6x86L- PR166+ / PR200+ MHz.

IBM 6x86MX- PR166 / 200 / 233 / 266 / 300 / 333 / 350 MHz;

IBM 6x86L- PR166+ / PR200+ MHz.

■ 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 1.8V to 3.5V. (Please read **Install the CPU** in Chapter 2 for more information).

■ Ultra-fast Level II Cache

Supports 512KB / 1MB / 2MB onboard Pipeline Burst Level II write-back cache.

- **Versatile Main Memory Support**
Accepts up to 768MB RAM using three DIMMs of 8, 16, 32, 64, 128, 256MB with support for lightning-fast SDRAM (66/100MHz).
- **AGP, ISA, and PCI Expansion Slots**
One 32-bit AGP Bus, one 16-bit ISA Bus, and four 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 and Ultra DMA/66 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/66 protocol. Standard PIO Mode 3, PIO Mode 4, DMA Mode 2, DMA Mode 4 devices are also supported.
- **Super Multi I/O**
Integrated VIA VT82C686A Plug and Play multi-I/O chipset features two high-speed UART 16550 compatible serial ports, one SIR (IrDA) port, one EPP/ECP/SPP capable parallel port, and one FDD connector.
- **Onboard IrDA Connector**
An IrDA connector for wireless infrared connections is available.
- **USB Fly Support**
A fly cable comes with the board for allowing convenient, high-speed Plug and Play connections (up to four USB ports) to the growing number of USB compliant external peripheral devices on the market.

- **AMR Slot and Audio Riser Card (optional)**

The board optionally equips AMR slot and come with an audio riser card to give you the access to hardware most suitable by supporting next generation, audio-intensive PC applications such as DVD, 3D multi-player gaming, and interactive music, while the latest, high-quality audio or a locally certified modem can easily be added to the board based on your needs.

Intelligent Properties

- **Optimized MMX Performance**

The mainboard 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 mainboard also supports other leading-edge processors featuring MMX technology, including the AMD-K6, Cyrix MII, IBM MII, IDT WinChip processors.

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

The mainboard 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 mainboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft's Windows 98 and Windows NT 5.0 which implement DirectDraw will allow the system to take full use of AGP's benefits without the need to install additional drivers.

■ CPU Thermal Monitoring Alert

The onboard Super South bridge (VIA VT82C686A) contains a thermal alarm on either or any combination of three internal temperature sensing circuits to make sure the system is operating at a safe heat level. When the temperature is overheat, the system warns you the the CPU is overheating. The 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 board 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-503A is further boosted by the board's integrated I²C controller, which optimizes the memory timing settings.

ACPI Ready

This mainboard 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 major features of ACPI were listed on the next page-

■ Soft-Off Support

The mainboard's 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 useful when you are expecting a fax late at night and leave only your modem on to minimize power consumption. As soon as possible the phone rings, the modem automatically turns 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.

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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 devices; 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 kb/cm to avoid damaging the chip's pins.

1). Set System Switches/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:



Jumper cap is shown as above



Jumpers in a Block



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

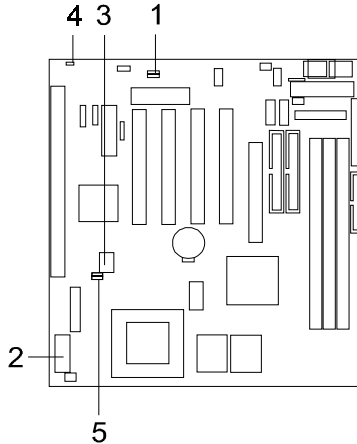
Quick Reference (Jumpers)

1. BIOS ROM Type Select

1MB Flash ROM	EP1	EP2
Intel 28F001 MXIC 28F1000	2-3	1-2
ATMEL AT29C010 SST 29EE010 AMD AM29F001NT	1-2	1-2
2MB Flash ROM		
MXIC 28F2000	2-3	2-3
ATMEL AT29C020 SST 29EE020 AMD AM29F002NT	1-2	2-3

2. Ratio of CPU Freq. / Bus Freq.

Intel P55C/ Cyrix&IBM M2/ AMD K6	S2-1	S2-2	S2-3
2X	OFF	OFF	ON
2.5X	ON	OFF	ON
3X	ON	OFF	OFF
3.5X	OFF	OFF	OFF
4X	OFF	ON	ON
4.5X	ON	ON	ON
5X	ON	ON	OFF
5.5X	OFF	ON	OFF



4. Clear Password

Setting	CPW
Enable	DN
Disable	OFF

5. Power Type Select

Power Type	PWR
AT Power	1-2
ATX Power	2-3

CPU/SDRAM/PCI/AGP Frequency Select

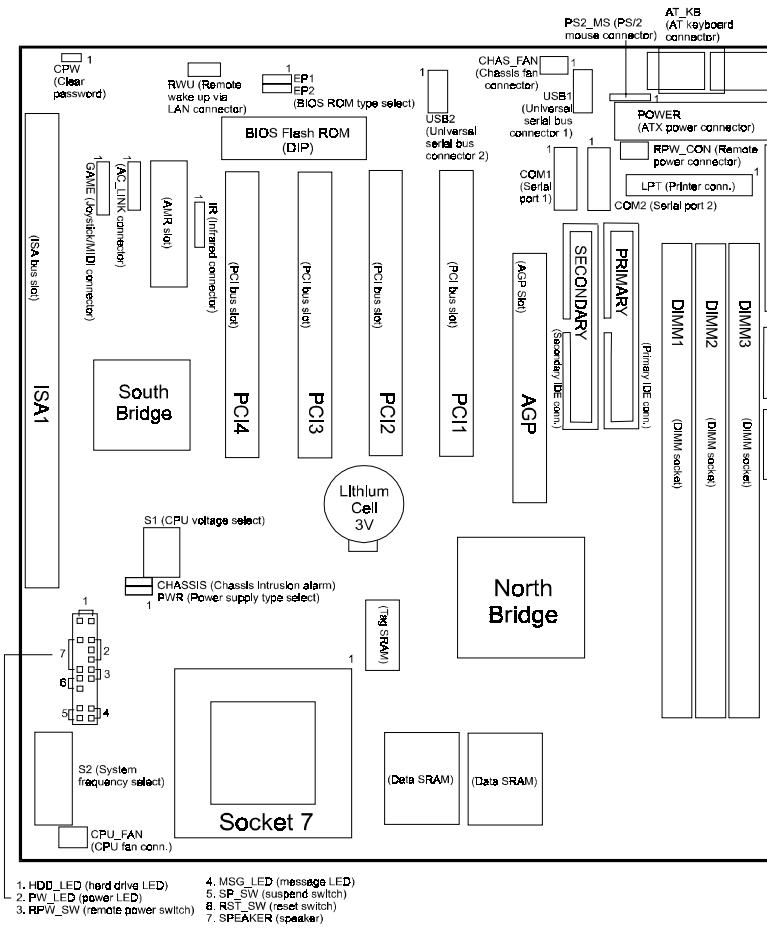
CPU	SDRAM	PCI	AGP	S2-4	S2-5	S2-6	S2-7	S2-8	S2-9	S2-10
100M	100M	33.3M	66.6M	OFF	OFF	OFF	ON	OFF	ON	ON
100M	66M	33.3M	66.6M	OFF	OFF	ON	ON	OFF	OFF	ON
95.25M	95.25M	31.75M	63.5M	ON	OFF	OFF	ON	OFF	ON	ON
83.3M	83.3M	27.77M	55.53M	ON	ON	OFF	OFF	OFF	ON	ON
75M	75M	37.5M	75M	OFF	ON	OFF	OFF	ON	ON	ON
66M	66M	33.3M	33.3M	OFF	OFF	OFF	OFF	ON	ON	OFF
112M	112M	37.3M	74.6M	OFF	ON	OFF	ON	OFF	ON	ON
112M	74.6M	37.3M	74.8M	OFF	ON	ON	ON	OFF	OFF	ON
124M	124M	41.3M	82.6M	ON	OFF	OFF	OFF	OFF	ON	ON
124M	82.6M	41.3M	82.6M	ON	OFF	ON	OFF	OFF	OFF	ON

3. CPU Vcore Voltage Select

Vcc	S1-1	S1-2	S1-3	S1-4	S1-5	Vcc	S1-1	S1-2	S1-3	S1-4	S1-5
1.8V	OFF	ON	ON	OFF	ON	2.7V	ON	OFF	OFF	ON	ON
1.9V	OFF	ON	ON	ON	OFF	2.8V	OFF	OFF	ON	OFF	OFF
2.0V	OFF	ON	ON	ON	ON	2.9V	ON	OFF	ON	OFF	OFF
2.1V	ON	OFF	OFF	OFF	OFF	3.0V	OFF	OFF	ON	OFF	ON
2.2V	OFF	OFF	OFF	OFF	ON	3.1V	ON	OFF	ON	OFF	ON

Quick Reference (Connectors)

Chapter 2
Installation
Procedures

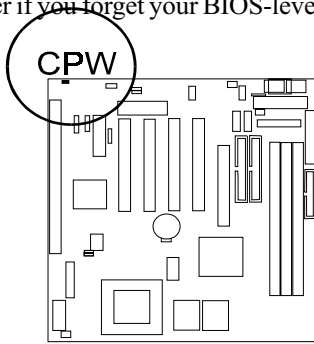
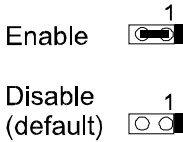


VA-503A Mainboard Manual

Onboard Mark	FUNCTION	PAGE
CPW	Clear Password	2-5
SW1-6	Clear ROM Type Select	2-5
EP1/2	Flash ROM Type Select	2-6
DIMM1/2/3	DIMM 1/2/3 Socket	2-7
Socket 7	CPU Socket 7	2-9
S2-1-/2/-3	CPU to Bus Freq. Ratio Select	2-10
S2-4/-5/.../-10	CPU/SDRAM/AGP Freq. Select	2-10
S1-1-/2/.../-5	CPU Voltage Select	2-11
ISA	ISA Bus Expansion Slot (16-bit)	2-12
PCI1/2/3/4	PCI Bus Expansion Slot (32-bit)	2-12
AGP	AGP Bus Expansion Slot (32-bit)	2-12
AMR	Audio Riser Card Slot (optional)	2-13
AT-KB	AT Keyboard Connector	2-14
COM1/2	Serial Port	2-14
USB1/2	Universal Serial Bus Connector	2-15
CPU_FAN	CPU Fan Connector	2-16
LPT	Printer Connector	2-16
FDD	Floppy Disk Drive Connector	2-17
RPW_CON	Remote Power Connector	2-17
PRIMARY/ SECONDARY	IDE HDD Device Connector	2-18
POWER	ATX Power Connector	2-18
IR	Infrared Connector	2-20
CHASSIS	Chassis Intrusion Alarm Connector	2-20
Front Panel Block Connector	Connectors to Front Panel	2-21

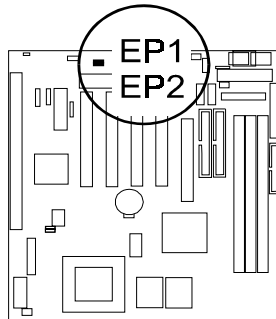
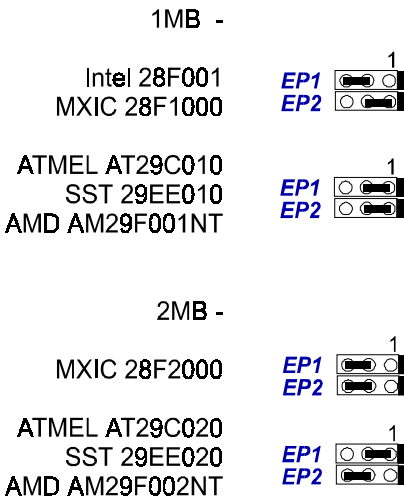
Clear Password: CPW

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

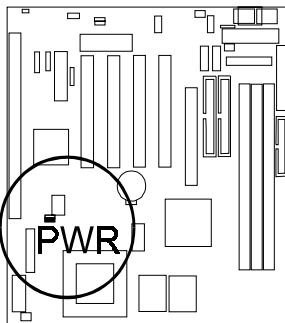
This jumper allows you to select the power supply type that you use: an AT or ATX power supply while both power supply connectors onboard. If only one type of power supply connector onboard, this jumper will be wired by the manufacturer.



ATX Power Supply
AT Power Supply with Remote Feature



AT Power Supply without Remote Feature
(default)



2). Install RAM Modules

SDRAM Memory

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. Occasionally the system must break apart data files because the entire file does not fit into the RAM area. Consequently, when the system needs data that is not in RAM, it must access the disk where the balance of the data is stored.

Compared to the lightning speed access of the system has to RAM, accessing a mechanical disk drive is a slow process. The board's RAM is comprised of three industry standard 168-pin Dual In-line Memory Modules (DIMMs). Each DIMM socket is able to support up to 256MB 3.3V (unbuffered) with data access time of 12ns, 10ns, 8ns or less EDO DRAM or lightning-fast SDRAM.

ECC memory and parity check are also supported. If the DIMM runs at the speed of 100MHz, it must meet the PC100 specifications. Use the same memory size of DIMM on each socket for better performance. The maximum total memory supported is up to 768MB* (a RAM module of this size was not available for testing).

PC100 DIMMs may have a serial EEPROM containing a number of critical timing parameters and data regarding the chip and DIMM vendor. This guarantees that the onboard core chipset will properly recognize the DIMM by reading all of the important timing parameters specified in the EEPROM on the serial presence detect interface. The DIMM supplier must understand these differences in detail and provide the correct information so that the core chipset will be programmed properly to control memory. Before making SDRAM 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.

<i>Socket</i>	<i>Acceptable Memory Module</i>		<i>Total Memory</i>
	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	X1	
	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	X1	
	8/16/32/64/128/256MB 168-pin 3.3V SDRAM	X1	

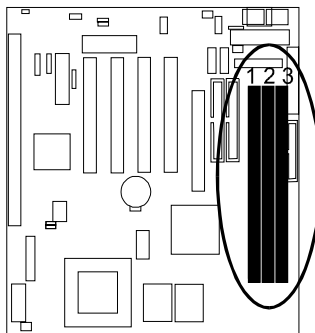
Total System Memory allowed up to 768MB

Install and Remove DIMMs

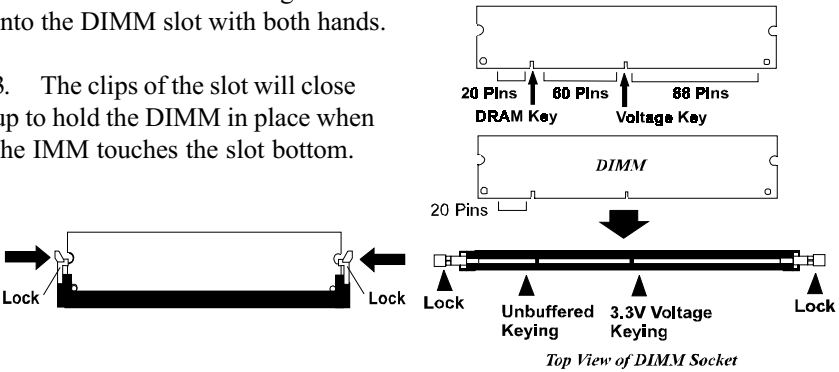
This mainboard supports 100MHz SDRAM DIMMs; when the system frequency set to 100MHz, PC100-compliant SDRAM should be used.

Complete the following procedures to install DIMMs:

1. Locate the DIMM slots on the mainboard.



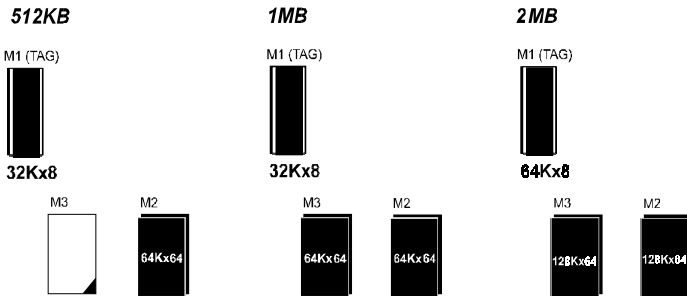
2. Install the DIMM straight down into the DIMM slot with both hands.
3. The clips of the slot will close up to hold the DIMM in place when the DIMM touches the slot bottom.



Press the clips with both hands to remove the DIMM.

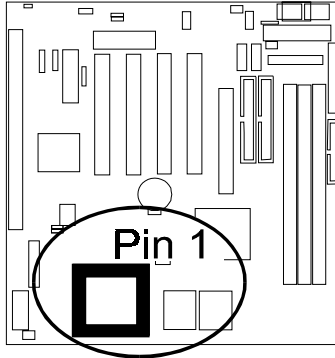
Cache Memory

The board can support onboard **512KB/1MB/2MB 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:

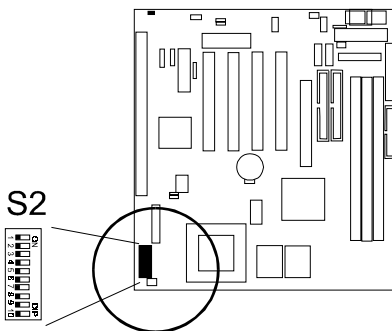
1. Always turn the system power off before installing or removing any device.
2. Always observe static electricity precautions. See “Handling Precautions” at the start of this manual.
3. Inserting the chip incorrectly may damage the chip.

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/SDRAM/AGP Frequency Selection: S2-4/-5/.../-10

The table below shows the switch settings for the combinations about different CPU speeds with SDRAM and AGP frequencies.

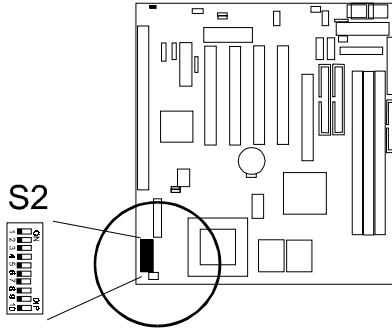


CPU	SDRAM	PCI	AGP	S2-4	S2-5	S2-6	S2-7	S2-8	S2-9	S2-10
100M	100M	33.3M	66.6M	OFF	OFF	OFF	ON	OFF	ON	ON
100M	66M	33.3M	66.6M	OFF	OFF	ON	ON	OFF	OFF	OFF
95.25M	95.25M	31.75M	63.5M	ON	OFF	OFF	ON	OFF	ON	ON
83.3M	83.3M	27.77M	55.53M	ON	ON	OFF	OFF	OFF	ON	ON
75M	75M	37.5M	75M	OFF	ON	OFF	OFF	ON	ON	ON
66M	66M	33.3M	33.3M	OFF	OFF	OFF	OFF	ON	ON	ON
112M	112M	37.3M	74.6M	OFF	ON	OFF	ON	OFF	ON	ON
112M	74.6M	37.3M	74.6M	OFF	ON	ON	ON	OFF	OFF	OFF
124M	124M	41.3M	82.6M	ON	OFF	OFF	OFF	OFF	ON	ON
124M	82.6M	41.3M	82.6M	ON	OFF	ON	OFF	OFF	OFF	OFF

CPU to Bus Frequency Ratio: S2-1/-2/-3

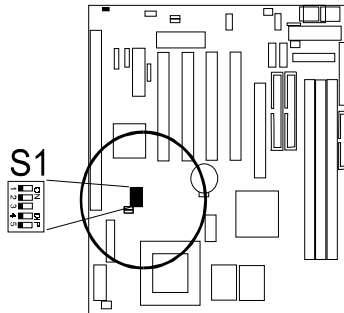
These switch settings are used in combination to decide the ratio of the internal frequency of the CPU to the bus clock.

Intel P55C/ Cyrix&IBM M2/ AMD K6	S2-1	S2-2	S2-3
2X	OFF	OFF	ON
2.5X	ON	OFF	ON
3X	ON	OFF	OFF
3.5X	OFF	OFF	OFF
4X	OFF	ON	ON
4.5X	ON	ON	ON
5X	ON	ON	OFF
5.5X	OFF	ON	OFF



Set CPU Voltage: S1-1/-2/.../-5

This section lists all possible CPU voltages (core voltage) that this motherboard supports. Please refer to your CPU top marking about the actual CPU voltage.



Vcc	S1-1	S1-2	S1-3	S1-4	S1-5
1.8V	OFF	ON	ON	OFF	ON
1.9V	OFF	ON	ON	ON	OFF
2.0V	OFF	ON	ON	ON	ON
2.1V	ON	OFF	OFF	OFF	OFF
2.2V	OFF	OFF	OFF	OFF	ON
2.3V	ON	OFF	OFF	OFF	ON
2.4V	OFF	OFF	OFF	ON	OFF
2.5V	ON	OFF	OFF	ON	OFF
2.6V	OFF	OFF	OFF	ON	ON
2.7V	ON	OFF	OFF	ON	ON
2.8V	OFF	OFF	ON	OFF	OFF
2.9V	ON	OFF	ON	OFF	OFF
3.0V	OFF	OFF	ON	OFF	OFF
3.1V	ON	OFF	ON	OFF	OFF
3.2V	OFF	OFF	ON	ON	ON
3.3V	ON	OFF	ON	ON	ON
3.4V	OFF	OFF	ON	ON	ON
3.5V	ON	OFF	ON	ON	ON

4). Install Expansion Cards

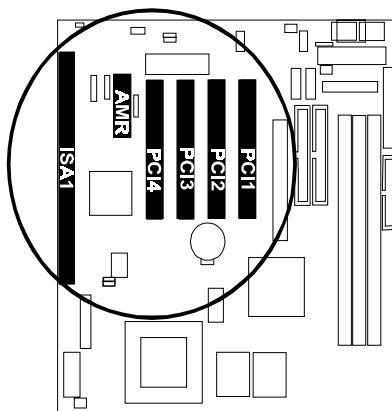
This section describes how to connect an expansion card to one of your system's expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities.

Your mainboard features **one AGP Bus slot, one ISA bus slot, four PCI bus slot, and one optional AMR expansion slots.**

CAUTION:



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



To install an expansion card, follow the steps below:

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

4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this “rocking” motion until the add-on card is firmly seated inside the expansion 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.

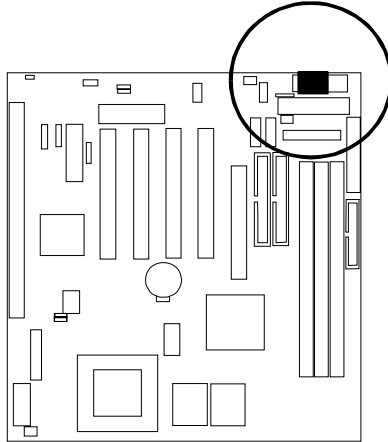
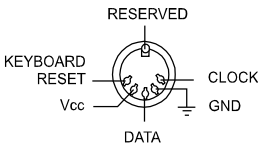
Audio Riser Card (optional)

The mainboard offers an optional AMR slot for using the audio riser card to utilize the onboard audio features. The riser card owns CD_IN1 and CD_IN2 connector for different specifications of the audio cable which the other end plugged into your CD drive. The riser card does not provide modem functions.

5). Connect Cables and Power Supply

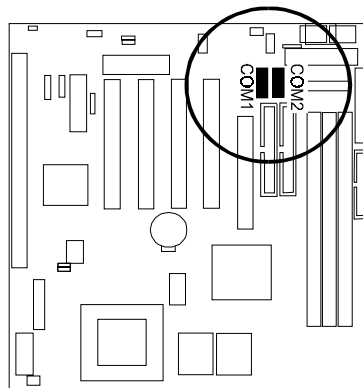
AT Keyboard Connector: AT_KB

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. Usually, it is recommended to connect your serial mouse to COM1 and your fax/modem to COM2.

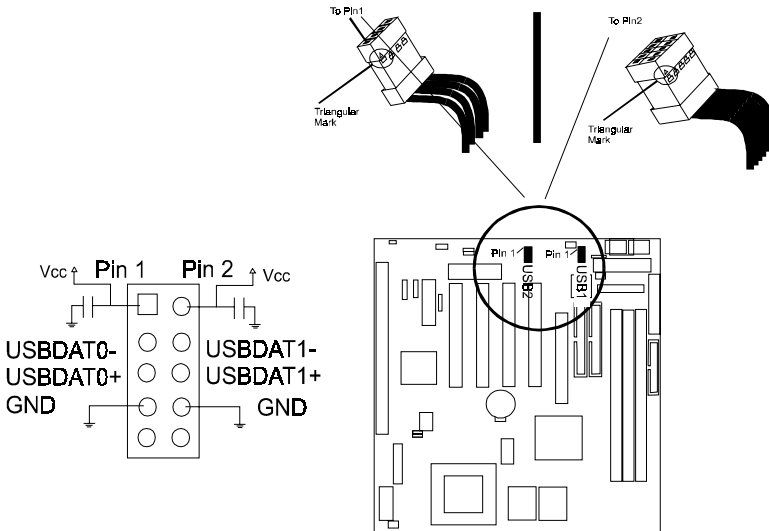


Universal Serial Bus Connectors: USB1, USB2

These two 2x5 pinheads link with USB peripheral devices via either a dual-port USB cable that one bracket with a 2x5-hole plug (the photo below right), or a single-port USB cable that has a 1x 4-hole plug (the photo below left).

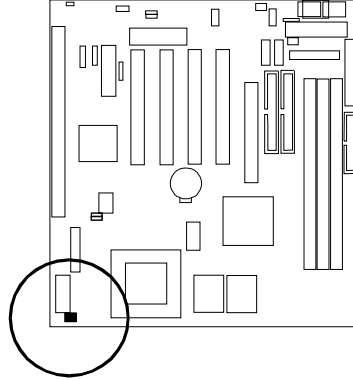
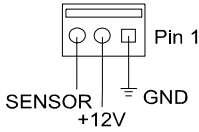


The pin 1 of the connector must be matched with the hole of the 1x4-hole plug that with a triangular mark; the pin 2 of the connector must be matched with the hole of the 2x5-hole plug that with a triangular mark.



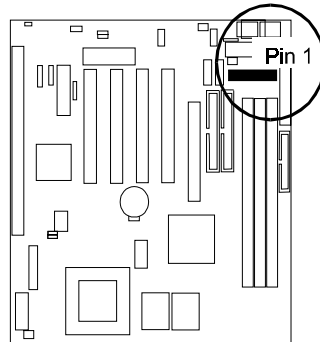
CPU Fan Connector: CPU_FAN

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



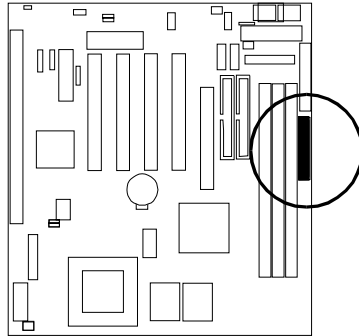
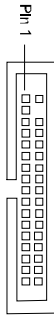
Printer Connector: LPT

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



Floppy Diskette Drive Connector: FDD

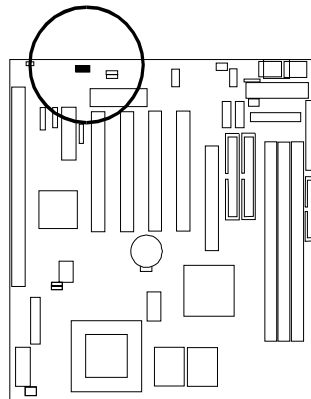
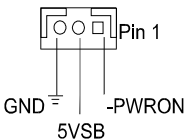
This 26-pin block connector connects to your slim floppy disk drive using the FFC-cable that is provided with this mainboard. Insert one end of the silver-finger contact and press down the FDD connector on both sides to lock it in place. After connecting the single end to the mainboard, connect the other end to the floppy drive.



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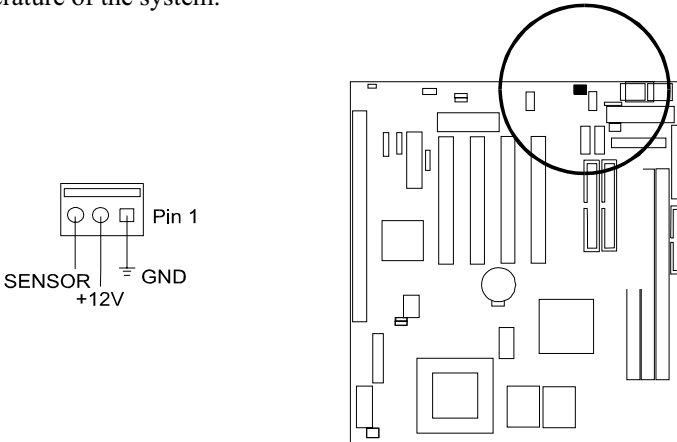
Remote Power Connector: RPW_CON

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 95/98.



Chassis Fan Connector: CHAS_FAN

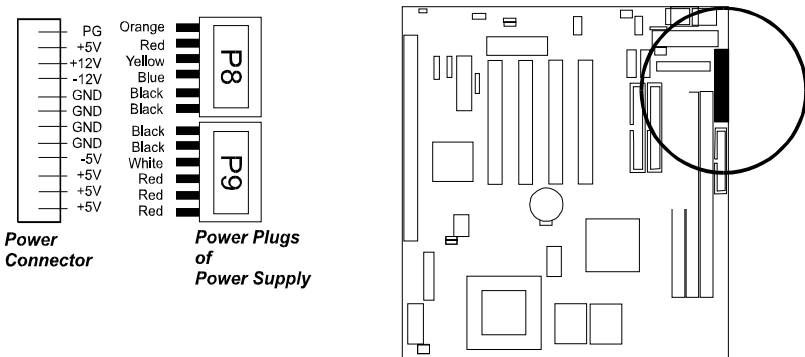
This connector is for linking to your cooling fan on the system case to lower the temperature of the system.



**Chapter 2
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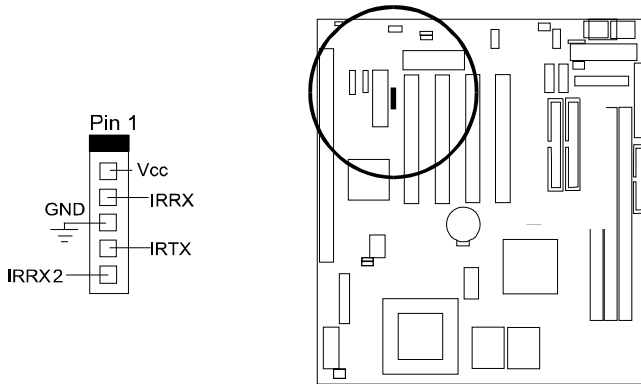
AT Power Supply Connector: POWER

This 12-pin block connector is used for connecting to the standard 5V power supply. There are two marks “P8” and “P9” on the surface of the connector. You have to insert the “P8” plug into the “P8” section, and so forth for “P9”. Please read PWR jumper in Page 11 if an AT power supply is used.



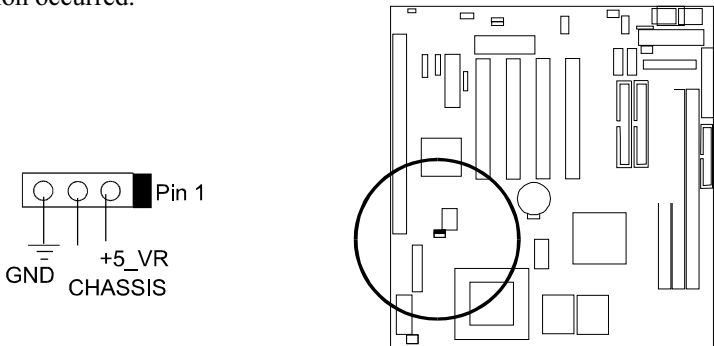
Infrared Connector: IR

This 5-pin connector is used to link with your IR device to allow transmission of data to another system that also supports the IR feature. This module mounts to a small opening on system cases that supports this feature.



Chassis Intrusion Alarm Connector: CHASSIS

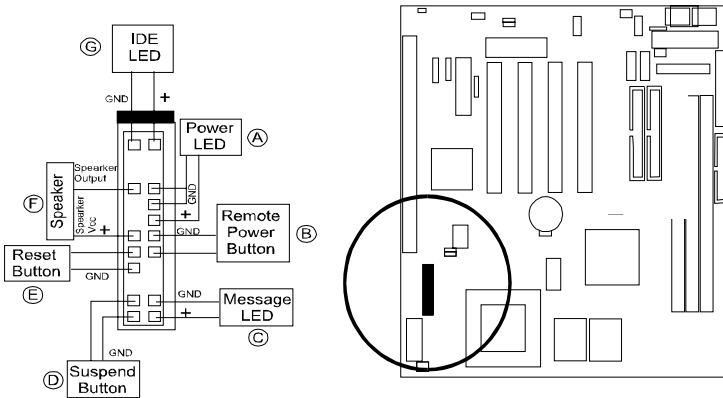
This 3-pin pinhead provides users with the functions that messages from the operating systems and system cases which support LDCM if the system cases intrusion occurred.



This feature is cooperated with the system case either by optical or mechanical way. If you purchase a case that supports the intrusion alarm by mechanical means; please check with your vendor carefully if it can work with this board.

Front Panel Block Connector

This block connector concludes the connectors for linking with IDE LED, power LED, remote power button, message LED, suspend button, reset button and speaker on the front panel of the system case. Please identify polarities of plug wires for the case speaker and LEDs. Please ask vendor about this information when you buy them and install the system by yourself. The plug wires' polarities of this buttons will not affect the function.



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Power LED (A) is connected with the system power indicator to indicate whether the system is on/off. When the system enter the suspend mode, it blinks.

Remote Power Button (B) is connected with remote power (soft power) switch. Push this switch will turn off and on the system instead of turning the power switch on the power supply.

Message LED (C) is connected with the message LED. When the system is running normally, the indicator is off. It is controlled by the operating system or application software.

Suspend Button (D) is connected with suspend mode switch.

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

Speaker (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.

BIOS Setup

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

CMOS Setup Utility

ROM PCI/ISA BIOS (2A5LEF0A) 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

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

Standard CMOS Setup

ROM PCI/ISA BIOS (2A5LEF0A)																
STANDARD CMOS SETUP																
AWARD SOFTWARE, INC.																
Date (mm:dd:yy): Wed, Feb 3 1999																
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 : None																
Drive B : None																
Floppy 3 Mode Support : Disabled																
Video : EGA/VGA																
Halt On : All Errors																
<table border="0"> <tr> <td>Base Memroy:</td> <td>640K</td> </tr> <tr> <td>Extended Meory:</td> <td>31744K</td> </tr> <tr> <td>Other Memory:</td> <td>384K</td> </tr> <tr> <td>Total Memory:</td> <td>32768K</td> </tr> </table>									Base Memroy:	640K	Extended Meory:	31744K	Other Memory:	384K	Total Memory:	32768K
Base Memroy:	640K															
Extended Meory:	31744K															
Other Memory:	384K															
Total Memory:	32768K															
Esc : Quit			↑ ↓ → ← : Select Item			PU/PD/+/- : Modify										
F1 : Save & Exit Setup			(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 User to fill the remaining fields. Select Auto to detect the HDD type automatically (recommended).

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 current.

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

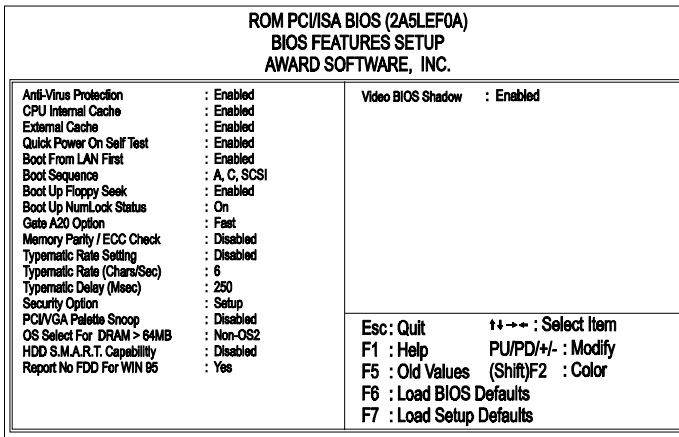
SECTOR: The sector number of each track defined on the hard disk.

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

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



Anti-Virus Protection

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

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.

Memory Parity Check

This feature enables BIOS to perform automatic memory checking upon detection of ECC or parity DRAM. The options are: Enabled, Disabled (Default).

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

Typematic Rate (Chars/Sec)

This feature is available only if the above item, Typematic Rate Setting, is set at Enabled. 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)

This feature is available only if the item, Typematic Rate Setting, is set at Enabled. 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.

PCI/VGA Palette Snoop

Set this feature to be enabled if any ISA adapter card installed in the system requires the VGA palette snoop function.

The options are: Disabled (Default), Enabled.

OS Select For DRAM > 64MB

If your operating system (OS) is OS/2, select the option OS2. Otherwise, stay with the default setting Non-OS2.

The options are: Non-OS2 (Default), OS2.

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

S.M.A.R.T. stands for Self-Monitoring and Analysis Reporting Technology which allows your hard disk drive to report any read/write errors and issues a warning with LDCM installed.

The options are: Disabled (Default); Enabled.

Report No FDD For WIN 95

When the field under the Standard CMOS Setup Menu for Drive A and/or Drive B is set at None, users must set this field is set at Yes for it to function properly. Otherwise, set at No, even if field for Drive A and/or Drive B is set at None, system will still detect and recognize of a floppy drive(s).

The options are: Yes (Default), No.

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 (2A5LEF0A) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.			
Bank 0/1 DRAM Timing	: FP/EDO 70ns	OnChip USB	: Enabled
Bank 2/3 DRAM Timing	: FP/EDO 70ns	OnChip USB 2	: Enabled
Bank 4/5 DRAM Timing	: FP/EDO 70ns	USB Keyboard Support	: Disabled
SDRAM Cycle Length	: Auto	Auto Detect DIMM/PCI Clk	: Enabled
DRAM Read Pipeline	: Enabled	Spread Spectrum Modulated	: Enabled
Cache Rd+CPU Wt Pipeline	: Enabled	CPU Host Clock	: Default
Cache Timing	: Fast	Current CPU Temp.	:
Video BIOS Cacheable	: Enabled	Current System Temp.	:
System BIOS Cacheable	: Enabled	Current CPUFAN1 Speed	:
Memory Hole At 15Mb Addr.	: Disabled	Current CPUFAN2 Speed	:
AGP Aparatura Size	: 64M	Vcore :	
AGP-2X Mode	: Enable	3.3V :	5V :
OnChip Sound	: Enabled	12V :	
OnChip Modem	: Disabled	Esc: Quit	↑↓←→ : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2	: Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

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: FP/EDO 70ns (Default), FP/EDO 60ns, Fast, Normal, Turbo.

SDRAM Cycle Length

This item will function only when SDRAM DIMM/s are installed on the mainboard (BIOS auto detection). If the CAS latency of your SDRAM DIMM is 2, set it at 2 to enhance your system performance. If the CAS latency of your SDRAM DIMM is 3, stay with the default setting, 3.

The options are: 3; 2; Auto (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.

Cache Rd+CPU Wt Pipeline

When enabled, it makes the cache RAMs read and the data write to CPU faster.

The options are: Enabled (Default), Disabled.

Cache Timing

The feature allows users to select the cache timing.

The options are: Fast (Default), Fastest.

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: Enabled (Default), Disabled.

Memory Hole At 15M Addr.

When you install a Legacy ISA card, this feature allows you to select the memory hole's 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).

AGP Aperture Size

It allows you to select the main memory frame size for AGP use.

The options are 4, 8, 16, 32, 64 (Default), 128MB.

AGP-2X Mode

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: Enable (Default), Disable.

OnChip Sound

When set at Enabled, this feature activated the onboard audio feature. The options are: Enabled (Default), Disabled.

OnChip Modem

When set at Enabled, this feature activated the onboard modem feature. The options are: Disabled (Default), Enabled .

OnChip USB

When enabled, this feature allows you to use the onboard USB feature. The options are: Enabled (Default), Disabled.

OnChip USB 2

When enabled, this feature allows you to use the onboard USB feature. The options are: Enabled (Default), Disabled.

USB Keyboard Support

This feature will appear only if the above item Onchip USB is set at Enabled. Set this feature to Enabled to use a USB keyboard with your system. The options are: Disabled (Default), Enabled.

Auto Detect DIMM/PCI Clk

Set this field at Enabled to allow auto detection of DIMM clock speed. 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.

CPU Host Clock

Select *Default* or select a timing combination for the CPU and the PCI bus. When set to *Default*, BIOS uses the actual CPU and PCI bus clock values. The options are: Default (default); 66MHz; 68MHz;75MHz; 83MHz; 95MHz; 100MHz; 112 MHz; 124MHz.

Current CPU Temp. / Current System Temp. / Current CPUFAN1 Speed / Current CPUFAN2 Speed / Vcore / 3.3V /12V / 5V

These items allow end users and technicians to monitor data provided by the BIOS on this mainboard. It is not user-configurable.

Power Management Setup

ROM PCI/ISA BIOS (2A5LEF0A) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
Power Management	: User Define
PM Control by APM	: Yes
Video Off Option	: Suspend ->Off
Video Off Method	: DPMS Support
MODEM Use IRQ	: 3
Soft-Off by PWRBTN	: Delay 4 Sec
PWRON After PW-Fail	: Former-Sts
** PM Timers **	
HDD Power Down	: Disable
Doze Mode	: Disable
Suspend Mode	: Disable
** PM Events **	
VGA	: OFF
LPT & COM	: LPT/COM
HDD & FDD	: ON
DMA/master	: OFF
Modem Ring Resume	: Enabled
RTC Alarm Resume	: Disabled
Primary INTR	: ON
IRQ3 (COM2)	: Primary
IRQ4 (COM1)	: Primary
IRQ5 (LPT2)	: Disabled
IRQ7 (LPT1)	: Primary
IRQ8 (RTC Alarm)	: Disabled
IRQ9 (IRQ2 Redir)	: Secondary
IRQ10 (Reserved)	: Secondary
IRQ11 (Reserved)	: Secondary
IRQ12 (PS/2 Mouse)	: Primary
IRQ14 (Hard Disk)	: Primary
IRQ15 (Reserved)	: Disabled
Esc : Quit ↑↓←→ : Select Item	
F1 : Help PUPD/+/- : 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 Define 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: User Define (Default), 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

The feature allows users to select the IRQ# of the system that is the same IRQ# as the modem use.

The settings are: NA, 3 (Default), 4, 5, 7, 9, 10, 11.

Soft-Off by PWR-BTTN

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.

PWRON After PW-Fail

When the system is shut down owing to the power failure, the system will not be back to power on by itself. This feature allows you to set the system back to which power status of the system when the system power is resumed. The options are: Former-Sts (Default), On, Off.

HDD Power Down

The option lets the BIOS turn the HDD motor off when system is in Suspend mode. Selecting 1 Min..15 Min allows you define the HDD idle time before the HDD enters the Power Saving Mode.

The options 1 Min..15 Min 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.

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

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

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

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).

DMA/master

To set this feature at ON activates that Power Management feature (PM) wake-up event for the DMA or bus master (of the LAN card or/and SCSI card). The options are: OFF (Default), ON.

Modem Ring Resume

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state. The options are: Enabled (Default), Disabled.

RTC Alarm Resume

Enabled allows you to set the time the system will be turned on from the system power-off status. The options are: Enabled, Disabled (Default).

Primary INTR

When the Primary interrupt (the Primary option in the feature of IRQ# Activity) generates will make the Power Management feature (PM) wake-up event on. If set at OFF, all the primary interrupt will not wake-up the system. 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.

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

The default values of IRQ 5, 8, 15 are: Disabled.

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

The default value of IRQ 9, 10, 11 are: Secondary.

PNP/PCI Configuration

ROM PCI/ISA BIOS (2A5LEF0A) 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
	PCI Delay Transaction : Enabled
	PCI#2 Access #1 Retry : Disabled
	AGP Master 1 WS Write : Enabled
	AGP Master 1 WS Read : Disabled
	PCI IRQ Activated By : Level
	Assign IRQ For VGA : Enabled
	Slot 1 Use IRQ No. : Auto
	Slot 2 Use IRQ No. : Auto
	Slot 3 Use IRQ No. : Auto
	Slot 4 Use IRQ No. : Auto
	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 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).

CPU to PCI Write Buffer

When enabled, allows data and address access to the internal buffer of the system controller; so the processor can be released from the waiting state.

The options are: Enabled (Default), Disabled.

PCI Dynamic Bursting

When enabled, the PCI controller allows Bursting PCI transfer if the consecutive PCI cycles come with the address falling in same 1KB space. This improves the PCI bus throughput.

The options are: Enabled (Default), Disabled.

PCI Master 0 WS Write

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

PCI Delay Transaction

Enable this feature to abort the current CPI master cycle and to accept the new PCI master request, it reaccepts the original PCI master and returns the PCI data phase to the original PCI master.

The options are: Disabled, Enabled (Default).

PCI#2 Access #1 Retry

When enabled, the AGP (PCI#2) access to PCI (PCI#1) will be retried until the maximum count. The options are: Disabled (default); Enabled.

AGP Master 1 WS Write

When enabled, the AGP bus master write access to DRAMs will add one wait-state cycle. The options are: Enabled (default); Disabled.

AGP Master 1 WS Read

When enabled, the AGP bus master read access to the DRAMs will add one wait-state cycle. The options are: Disabled (default); Enabled.

PCI IRQ Activated By

Leave the IRQ trigger set at *Level* unless the PCI device assigned to the interrupt specifies Edge-triggered interrupts.

The options are: Level (default); Edge.

Assign IRQ For VGA

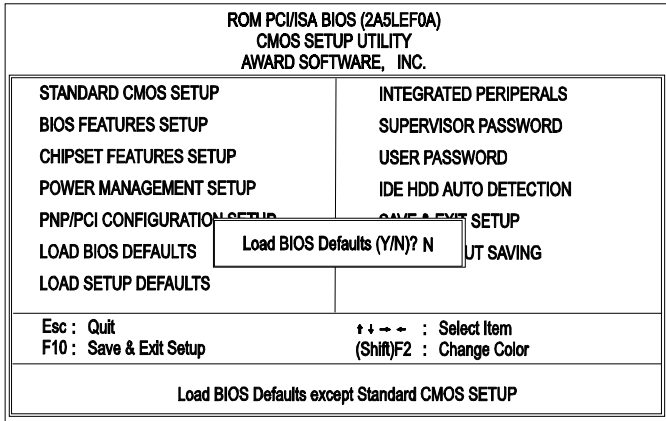
If your PCI VGA card does not need an IRQ, select Disabled; therefore, an IRQ can be released for the system use.

The options are: Enabled (Default), Disabled.

Slot 1/2/3/4 Use IRQ No.

Some PCI devices would need to use an IRQ on the PCI bus. Selecting Auto allows the PCI controller to automatically allocate an IRQ. The options are: Auto (default); 3 to 5; 7; 9 to 12; 14; 15.

Load BIOS Defaults



**Chapter 3
BIOS Setup**

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.

OnChip IDE First Channel

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.

OnChip IDE Second Channel

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 Prefetch Mode

When set at Enabled, it allows data to be posted to and prefetched from the primary IDE data ports. Data prefetching is initiated when a data port read occurs. The read prefetch eliminates latency to the IDE data ports and allows them to be performed back to back for the highest possible PIO data transfer rates. The first data port read of a sector is called the demand read. Subsequent data port reads from the sector are called prefetch reads. The demand read and all prefetch reads must be of the same size (16 or 32 bits).
The options are: Enabled (Default), Disabled.

IDE HDD Block Mode

When enabled, the system executes read/write requests to hard disk in block mode. 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.

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 first initiation of the monitor display from which card. The options are: PCI Slot (Default), AGP.

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 is available only if the above item, UART 2 Mode, is set at ASKIR or HPSIR. It allows you to select the infrared data transaction way. The options are: Half (Default), Full.

TX, RX inverting enable

This feature is available only if the item, UART 2 Mode, is set at ASKIR or HPSIR. 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: No, Yes (Default); Yes, Yes; No, No; Yes, No.

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. Select Normal for standard parallel port (SPP) used on IBM PC/XT, PC/AT and bi-directional parallel port found on PS/2 system. Select EPP mode for enhanced parallel port. Select ECP mode for Microsoft and HP Extended Capabilities Parallel Port. Select ECP/EPP mode for both ECP and EPP modes.

The options are: Normal (Default), EPP, ECP, ECP/EPP.

ECP Mode Use DMA

This feature allows you to select Direct Memory Access (DMA) channel if the ECP mode selected. The options are: 3 (Default), 1.

Parallel Port EPP Type

This feature allows you to select the EPP type version.

The options are: EPP1.9 (Default), EPP1.7.

Onboard Legacy Audio

When set at Enabled, the feature activated the Legacy audio function.

The options are: Disabled, Enabled (Default).

Sound Blaster

This feature allows you to select the Sound Blaster, if the onboard Legacy audio chosen.

The options are: Enabled, Disabled (Default).

SB I/O Base Address

This feature allows you to select the SB I/O base address, if the onboard Legacy audio chosen.

The options are: 220H (Default), 240H, 260H, 280H.

SB IRQ Select

This feature allows you to select the SB IRQ, if the onboard Legacy audio chosen.

The options are: IRQ 5 (Default), IRQ 7, IRQ 9, IRQ 10.

SB DMA Select

This feature allows you to select the SB DMA channel, if the onboard Legacy audio chosen.

The options are: DMA 1 (Default), DMA 2, DMA 3, DMA 0.

MPU-401

This feature allows you to select MPU-401, if the onboard Legacy audio chosen.

The options are: Disabled (Default), Enabled.

MPU-401 I/O Address

This feature allows you to select the MPU-401 I/O address, if the onboard Legacy audio chosen.

The options are: 310-313H, 320-323H, 330-333H (Default), 300-303H.

FM Port (388-38BH)

This feature allows you to select the FM port (388-38BH), if the onboard Legacy audio chosen.

The options are: Enabled, Disabled (Default).

Game Port (200-207H)

This feature allows you to select the game port (200-207H), if the onboard Legacy audio chosen.

The options are: Enabled (Default), Disabled.

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. To disable password, press Enter twice when you are prompted to enter a password. A message appears, confirming the password is disabled.

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

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)?