



# **SY-P4VSA**

# **Motherboard**

\*\*\*\*\*

mPGA Socket 478 Processor supported

VIA P4X266 AGP/PCI

400 MHz Front Side Bus supported

ATX Form Factor

\*\*\*\*\*

## **User's Manual**

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**About This Guide:**

This Quick Start Guide can help system manufacturers and end users in setting up and installing the Motherboard. Information in this guide has been carefully checked for reliability; however, to the correctness of the contents there is no guarantee given. The information in this document is subject to amend without notice.

For further information, please visit our **Web Site** on the Internet. The address is "<http://www.soyo.com.tw>".

**Edition: September 2001****Version 1.0****P4VSA SERIAL****FC** Tested To Comply  
With FCC Standards  
FOR HOME OR OFFICE USE**100%** POST CONSUMER  
RECYCLED PAPER

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## Chapter 1

# MOTHERBOARD DESCRIPTION

### 1-1 INTRODUCTION

The **SY-P4VSA** AGP/PCI Motherboard is a high-performance Socket 478 processor supported ATX form-factor system board. The **SY-P4VSA** uses VIA Chipset technology and supports Socket 478 class processors. This Motherboard is fully compatible with industry standards and adds many technical enhancements.

### 1-2 KEY FEATURES

#### ➤ CPU SUPPORT

- Supports Intel® mPGA Socket 478 processors
- FSB 400MHz: Pentium® 4

#### ➤ CPU SETTINGS

The SY-P4VSA provides the user with a very complete and convenient CPU setting environment. The CPU settings are all adjusted through the special SOYO COMBO page in the BIOS, therefore rendering the use of jumpers obsolete.

##### ■ CPU FSB Frequency

The SY-P4VSA supports a wide range of CPU FSB frequency settings: 100~132MHz. (CPU FSB Frequency can be setup by 1MHz increment)

This ensures that the SY-P4VSA has an overwhelming overclocking potential.

##### ■ CPU Multiplier

The SY-P4VSA supports a wide range of multipliers: 8X ~ 50X depend on CPU.

#### ➤ EXPANDABILITY

The SY-P4VSA provides all the standard expansion slots, and many more additional expansion features:

◆ **Expansion slots**

- 1 x 32-bit bus master AGP slot
- 5 x 32-bit bus master PCI slots

◆ **Enhanced IO**

- Floppy disk controller
- 2x EIDE controllers with support for up to 4 Ultra DMA 33/66 /100 devices
- Standard/EPP/ECP parallel port
- 2x 16550 compatible serial ports
- IrDA compatible infrared port
- 6x USB (Universal Serial Bus) connectors
- PS/2 mouse connector
- PS/2 keyboard connector

➤ **SMART CARD READER**

Compliant with Personal Computer Smart Card(PC/SC) Working Group standard. Supports Smart Card insertion power-on feature.

➤ **ADVANCED FUNCTIONS**

The SY-P4VSA supports advanced functions such as:

- Wake-On-LAN

Supports Wake-On-LAN (*Some advanced network cards can wake the system up over the network, the WOL connector is provided by the SY-P4VSA to support this function*).

- Multiple boot

The SY-P4VSA supports booting from devices such as CD-ROM.

- Power on by modem or alarm

If the SY-P4VSA system is in suspend mode, it can be switched back on through the modem or RTC alarm through this function. This opens a lot of possibilities, such as remote access that switches the system on only after the modem receives a call.

➤ **FAIL SAFE**

The SY-P4VSA comes with added functionality to make managing the system easy and safe

◆ **Hardware Monitor**

The integrated Hardware Monitor IC and Hardware doctor software enables the user to monitor system voltages, temperatures and FAN speeds. This makes sure that the user is full control of the system

◆ **Power Failure Resume Function**

This function can be set in the BIOS, and determines whether the system will automatically turn on again after a power failure. This function is indispensable for server systems that need to always be on line.

➤ **SOYO Bonus Pack CD-ROM**

➤ **COMPLIANCE**

The SY-P4VSA complies with all important industry standards. The following underlines the reliability of the SY-P4VSA, a motherboard to trust.

- PC99, ACPI compliant

➤ **USER FRIENDLY**

- SOYO COMBO Setup
- Jumperless design
- You can set up the following options through the BIOS setup
  - CPU FSB frequency
  - CPU multiplier
  - CPU Vcore voltage
  - SDR RAM Clock

### 1-3 HANDLING THE MOTHERBOARD

To avoid damage to your Motherboard, follow these simple rules while unpacking:

- Before handling the Motherboard, ground yourself by grasping an unpainted portion of the system's metal chassis.
- Remove the Motherboard from its anti-static packaging. Hold the Motherboard by the edges and avoid touching its components.
- Check the Motherboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.



**Warning:** Do not apply power if the Motherboard appears damaged. If there is damage to the board, contact your dealer immediately.

---

### 1-4 ELECTROSTATIC DISCHARGE PRECAUTIONS

Make sure to ground yourself before handling the Motherboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precautions when handling the Motherboard in dry or air-conditioned environment.

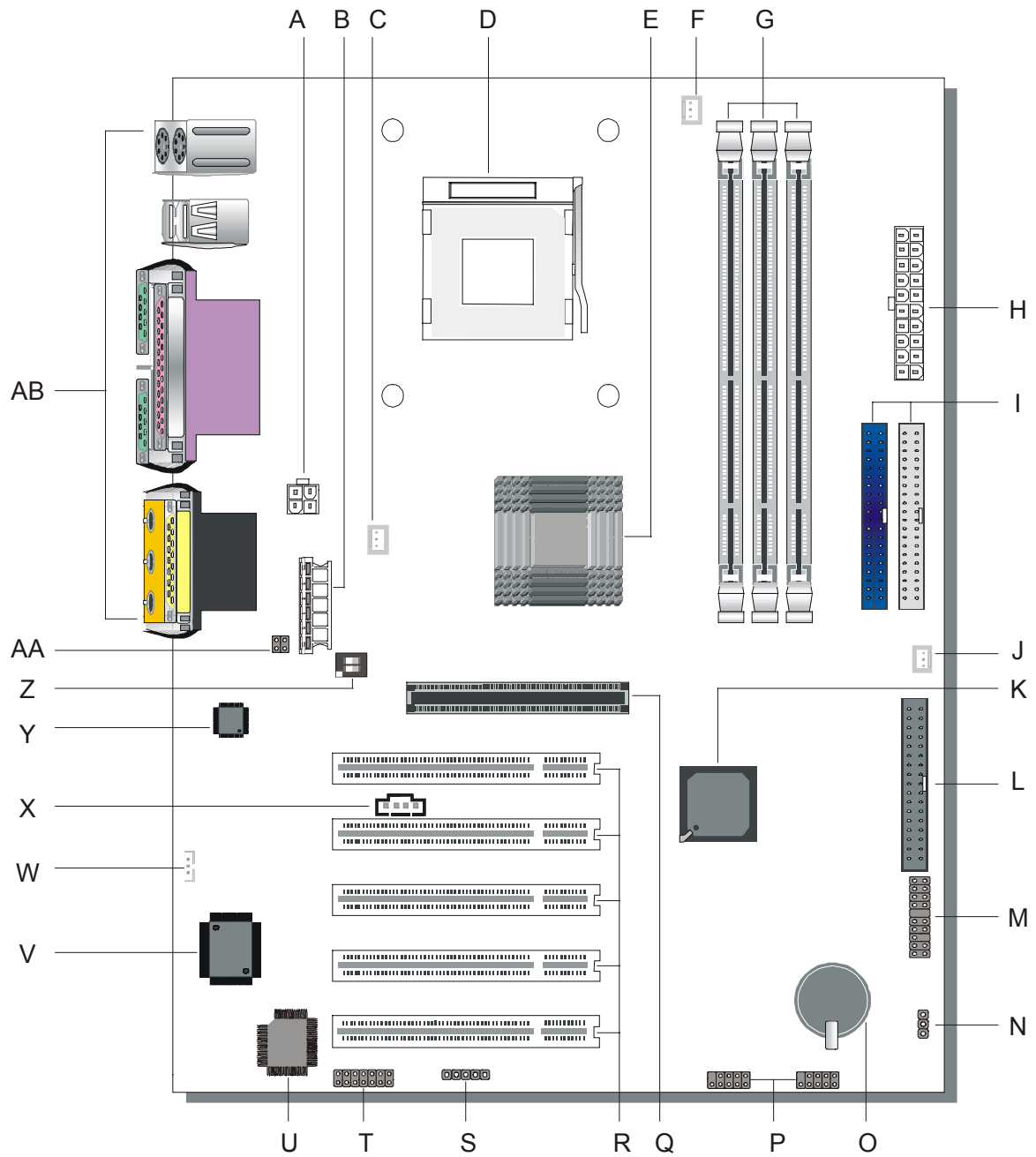
To protect your equipment from electrostatic discharge, take the following precautions:

- Do not remove the anti-static packaging until you are ready to install.
- Ground yourself before removing any system component from its protective anti-static packaging. (To ground yourself, grasp the expansion slot covers or other unpainted portions of the computer chassis.)
- Frequently ground yourself while working or use a grounding strap.
- Handle the Motherboard by its edges and avoid touching its components.





## 1-6 SY-P4VSA MOTHERBOARD COMPONENTS



- A ATX12V 4-Pin(+12V) Connector**
- B ATX12V 6-Pin(+3.3V, +5V) Connector**
- C Chassis Cooling Fan Connector**
- D Socket 478 Connector**
- E VIA VT8753 North Bridge Chip**
- F CPU Cooling Fan Connector**
- G DIMM Banks**
- H ATX Power Supply Connector**
- I Bus Mastering EIDE/ATAPI Ports**
- J Chassis Cooling Fan Connector**
- K VIA VT8233 South Bridge Chip**
- L Floppy Disk Drive (FDD) Port**
- M Front Panel Connectors**
- N CMOS Clear Jumper**
- O 3V Lithium Battery**
- P USB Ports**
- Q 32-bit AGP Slot**
- R 32-bit PCI Mastering Slots**
- S Serial Infrared (IrDA) Device Header**
- T Smart Card Reader Connector**
- U Flash BIOS**
- V ITE I/O Chip**
- W Wake-On-LAN (WOL) Header**
- X CD-IN Connector**
- Y Onboard Audio Codec**
- Z CPU Frequency Select Switch**
- AA Front Panel Audio Jumper**
- AB Back panel Connectors**

## **1-7 MICROPROCESSOR**

The motherboard supports a single Socket 478 processor. The processor's VID pins automatically program the voltage regulator on the motherboard to the required processor voltage. In addition, the front side bus speed (100 MHz and 133 MHz) is selected by CW1. The motherboard supports all current Socket 478 processor speeds, voltages, and bus frequencies.

### **1-7.1 Microprocessor Packaging**

The CPU is packaged in a 478 pin PGA package. A CPU fan must be used to ensure adequate cooling.

### **1-7.2 Second Level Cache**

The second-level cache is located on the substrate of the CPU package. The cache includes 0KB/128KB or 512 KB of synchronous pipelined burst static RAM. All supported onboard memory can be cached.

### **1-7.3 Microprocessor Upgrades**

The motherboard can be upgraded with Socket 478 processors that run at higher speeds. When upgrading the processor, use the BIOS configuration mode to change the processor speed.

## 1-8 MEMORY

### ➤ Main Memory

The motherboard has three DIMM sockets. RAM can be installed in one, two, or three sockets. Using the serial presence detect (SPD) data structure, programmed into an E<sup>2</sup>PROM on the DIMM, the BIOS can determine the SDR RAM's size and speed. Minimum DIMM memory size is 64 MB; maximum DIMM memory size is 256/512 MB. Memory size and speed can vary between sockets.

The motherboard supports the following memory features:

- DRAM interface pseudo-synchronous with host CPU (100/133 MHz) for most flexible configuration
- DRAM interface may be faster than CPU by 33 MHz to allow use of 133 MHz memory with 100 MHz FSB clock
- Concurrent CPU, AGP, and V-Link access
- Supports SDR SDRAM memory types
- Dynamic Clock Enable (CKE) control for SDRAM power reduction in high speed systems
- Mixed 1M / 2M / 4M / 8M / 16M / 32M / 64MxN DRAMs
- Supports 6 banks up to 3 GB DRAMs (512Mb x8/x16 DRAM technology) for registered SDR modules
- Supports 8 banks up to 2 GB DRAMs (512Mb x8/x16 DRAM technology) for unbuffered SDR modules
- Flexible row and column addresses. 64-bit data width only
- LVTTL 3.3V DRAM interface with 5V-tolerant inputs for SDR SDRAM
- Programmable I/O drive capability for MA, MD, and command signals
- Dual copies of MA and control signals for improved drive
- Two-bank interleaving for 16Mbit SDRAM support
- Two-bank and four bank interleaving for 64Mbit SDRAM support
- Supports maximum 8-bank interleave (i.e., 8 pages open simultaneously); banks are allocated based on LRU
- Seamless DRAM command scheduling for maximum DRAM bus utilization

- (e.g., precharge other banks while accessing the current bank)
- Four cache lines (16 quadwords) of CPU to DRAM write buffers
- Four cache lines of CPU to DRAM read prefetch buffers
- Read around write capability for non-stalled CPU read
- Speculative DRAM read before snoop result
- Burst read and write operation
- x-1-1-1-1-1-1 back-to-back accesses for SDR SDRAM
- Decoupled and burst DRAM refresh with staggered RAS timing (CAS before RAS or self refresh)

## **1-9 CHIPSET**

### **➤ P4X266**

The **P4X266** (VT8753) is a high performance, cost-effective and energy efficient chip set for the implementation of desktop personal computer systems computer systems with 400 MHz (100 MHz QDR) CPU host bus (“Front Side Bus”) based on 64-bit Intel Pentium-IV super-scalar processors.

The P4X266 chip set consists of the VT8753 system controller (664 pin BGA) and the VT8233 V-Link south bridge (376 pin BGA). The VT8753 Host system controller is an update of VIA’s VT8633 Apollo Pro266T system controller that adds CPU bus extensions to support Pentium IV and AGP bus extensions to support 8x transfer mode. The VT8753 provides superior performance between the CPU, DRAM, V-Link bus and AGP 8x graphics controller bus with pipelined, burst, and concurrent operation. The VT8233 V-Link Client controller is a highly integrated PCI / LPC controller. Its internal bus structure is based on 66 MHz PCI bus that provides 2x bandwidth compare to previous generation PCI / ISA bridge chips. The VT8233 also provides a 266MB/sec bandwidth Host/Client V-Link interface with V-Link-PCI and V-Link-LPC controllers. It supports five PCI slots of arbitration and decoding for all integrated functions and LPC bus. The VT8753 supports eight banks of SDR SDRAM up to 4 GB for registered modules (eight banks up to 2 GB for unbuffered modules). The

DRAM controller support standard PC133 / PC100 Synchronous DRAM (SDR SDRAM). The SDR DRAM interface allows zero wait state bursting between the DRAM and the data buffers at 100 / 133 MHz. The different banks of DRAM can be composed of an arbitrary mixture of 1M / 2M / 4M / 8M / 16M / 32M / 64M xN DRAMs. The DRAM controller also supports optional ECC (single-bit error correction and multi-bit detection) or EC (error checking) capability. The DRAM controller can run either synchronous or pseudo-synchronous mode with the host CPU bus.

The VT8753 host system controller supports a high speed 8-bit 66 MHz Quad Data Transfer interconnect (V-Link) to the VT8233 South Bridge. The chip also contains a built-in bus-to bus bridge to allow simultaneous concurrent operations on each bus. Five levels (doublewords) of post write buffers are included to allow for concurrent CPU and V-Link operation. For V-Link Host operation, forty-eight levels (doublewords) of post write buffers and sixteen levels (doublewords) of prefetch buffers are included for concurrent V-Link bus and DRAM/cache accesses. When combined the V-Link Host / Client controllers, it realizes a complete PCI sub-system and supports enhanced PCI bus commands such as Memory-Read-Line, Memory-Read-Multiple and Memory-Write-Invalid commands to minimize snoop overhead. In addition, advanced features are supported such as snoop ahead, snoop filtering, L1 write-back forward to PCI master, and L1 write-back merged with PCI post write buffers to minimize PCI master read latency and DRAM utilization. Delay transaction and read caching mechanisms are also implemented for further improvement of overall system performance.

The 376-pin Ball Grid Array VT8233 Client V-Link PCI / LPC controller supports four levels (doublewords) of line buffers, type F DMA transfers and delay transaction to allow efficient PCI bus utilization and (PCI-2.1 compliant). The VT8233 integrated PCI controller and PCI arbitration for up to five PCI slots. One of the PCI REQ / GNT pair can be configured as high-priority to better support a low latency PCI bus master device. The VT8233 integrated networking MAC controller with standard MII interface

to an external PHY for 10/100Mb base-T Ethernet or 1/10Mb PNA home networking.

The VT8233 also includes an integrated keyboard controller with PS2 mouse support, integrated DS12885 style real time clock with extended 256 byte CMOS RAM, integrated master mode enhanced IDE controller with full scatter / gather capability and extension to UltraDMA-33/66/100 for 33/66/100 MB/sec transfer rate, integrated USB interface with root hubs and six function ports with built-in physical layer transceivers, Distributed DMA support, and OnNow / ACPI compliant advanced configuration and power management interface.

For sophisticated power management, P4X266 provides independent clock stop control for the CPU / SDRAM and AGP bus plus Dynamic CKE control for powering down of the SDRAM. A separate suspend-well plane is implemented for the SDRAM control signals for Suspend-to-DRAM operation. Coupled with the VT8233 south bridge chip, a complete power conscious PC main board can be implemented with no external TTLs.

The VT8233 South Bridge is a high integration, high performance, power-efficient, and high compatibility device that supports Intel and non-Intel based processor to V-Link bus bridge functionality to make a complete Microsoft PC99-compliant PCI/ISA system. In addition to complete ISA extension bus functionality, the VT8233 includes standard intelligent peripheral controllers:

- a) IEEE 802.3 compliant 10 / 100 Mbps PCI bus master Ethernet MAC with standard MII interface to external PHYceiver.
- b) Master mode enhanced IDE controller with dual channel DMA engine and interlaced dual channel commands. Dedicated FIFO coupled with scatter and gather master mode operation allows high performance transfers between PCI and IDE devices. In addition to standard PIO and DMA mode operation, the VT8233 also supports the UltraDMA-33 standard to allow reliable data transfer rates up to 33 MB/sec throughput. The VT8233 also supports the UltraDMA-66 / 100 standard. The IDE



- controller is SFF-8038i v1.0 and Microsoft Windows-family compliant.
- c) Universal Serial Bus controller that is USB v1.1 and Universal HCI v1.1 compliant. The VT8233 includes the root hub with six function ports with integrated physical layer transceivers. The USB controller allows hot plug and play and isochronous peripherals to be inserted into the system with universal driver support. The controller also implements legacy keyboard and mouse support so that legacy software can run transparently in a non-USB-aware operating system environment.
  - d) Keyboard controller with PS2 mouse support.
  - e) Real Time Clock with 256 byte extended CMOS. In addition to the standard ISA RTC functionality, the integrated RTC also includes the date alarm, century field, and other enhancements for compatibility with the ACPI standard.
  - f) Notebook-class power management functionality compliant with ACPI and legacy APM requirements. Multiple sleep states (power-on suspend, suspend-to-DRAM, and suspend-to-Disk) are supported with hardware automatic wake-up. Additional functionality includes event monitoring, CPU clock throttling and stop (Intel processor protocol), PCI bus clock stop control, modular power, clock and leakage control, hardware-based and software-based event handling, general purpose I/O, chip select and external SMI.
  - g) Full System Management Bus (SMBus) interface.
  - h) Integrated bus-mastering dual full-duplex direct-sound AC97-link-compatible sound system.
  - i) Plug and Play controller that allows complete steerability of all PCI interrupts and internal interrupts / DMA channels to any interrupt channel. One additional steerable interrupt channel is provided to allow plug and play and reconfigurability of on-board peripherals for Windows family compliance.

The VT8233 also enhances the functionality of the standard ISA peripherals. The integrated interrupt controller supports both edge and level triggered interrupts channel by channel. The integrated DMA controller supports type F DMA in addition to standard ISA DMA modes. Compliant with the PCI-2.2 specification, the VT8233 supports delayed transactions and remote power management so that slower ISA peripherals do not block the traffic of the PCI bus. Special circuitry is built in to allow concurrent operation without causing dead lock even in a PCI-to-PCI bridge environment. The chip also includes eight levels (doublewords) of line buffers from the PCI bus to the ISA bus to further enhance overall system performance.

## **1-10 I/O INTERFACE CONTROLLER**

The motherboard uses the ITE 8705 LPC Super-I/O controller which features:

- Supports 2 serial ports, IR port, parallel port, and floppy disk controller functions
- Two UARTs for Complete Serial Ports
  - Even, odd, stick or no parity bit generation and detection
  - Programmable baud rate generator
  - High speed baud rate (230Kbps, 460Kbps) support
  - Independent transmit/receiver FIFOs
  - Modem Control
  - Plug and play with 96 base IO address and 12 IRQ options
- One dedicated IR port
  - Third serial port dedicated to IR function
  - IR function either through the two complete serial ports or the third dedicated port
  - Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR
- Multi-mode parallel port
  - Standard mode, ECP and EPP support
  - Plug and play with 192 base IO address, 12 IRQ and 4 DMA options
- Floppy Disk Controller

- 16bytes of FIFO
- Data rates up to 1Mbps
- Perpendicular recording driver support
- Plug and play with 48 base IO address, 12 IRQ and 4 DMA options

The Setup program provides configuration option for the I/O controller.

### **1-10.1 Serial Ports**

The motherboard has two 9-pin D-Sub serial port connectors located on the back panel. The NS16C5450-compatible UARTs support data transfers at speeds up to 115.2 Kbits/sec with BIOS support.

### **1-10.2 Parallel Port**

The connector for the multimode bi-directional parallel port is a 25-pin D-Sub connector located on the back panel of the motherboard. In the Setup program, there are four options for parallel port operation:

- Compatible (standard mode)
- Bi-directional (PS/2 compatible)
- Bi-directional EPP. A driver from the peripheral manufacturer is required for operation.
- Bi-directional high-speed ECP

### **1-10.3 Diskette Drive Controller**

The I/O controller is software compatible with the 82077 diskette drive controller and supports both PC-AT and PS/2 modes. In the Setup program, the diskette drive interface can be configured for the following diskette drive capacities and sizes.

- 360 KB, 5.25-inch
- 1.2 MB, 5.25-inch
- 720 KB, 3.5-inch
- 1.2 MB, 3.5-inch (driver required)
- 1.25-1.44 MB, 3.5-inch
- 2.88 MB, 3.5-inch

## 1-10.4 PS/2 Keyboard and Mouse Interface

PS/2 keyboard and mouse connectors are located on the back panel of the motherboard. The +5 V lines to keyboard and mouse connectors are protected with a fuse that prevents motherboard components from being damaged when an over-current condition occurs.



### **Note**

*The mouse and keyboard can be plugged into either PS/2 connector. Power to the computer should be turned off before a keyboard or mouse is connected or disconnected.*

The keyboard controller contains code, which provides the traditional keyboard and mouse control functions, and also supports Power On/Reset password protection. Power On/Reset password can be specified in the BIOS Setup program.

The keyboard controller also supports the hot-key sequence <Ctrl><Alt><Del>, software reset. This key sequence resets the computer's software by jumping to the beginning of the BIOS code and running the Power On Self Test (POST).

## 1-10.5 Infrared Support

On the front panel I/O connector, there are six pins that support Hewlett Packard HSDL-1000 compatible infrared (IR) transmitters and receivers. In the Setup program, Serial Port B can be directed to a connected IR device. (In this case, the Serial Port B connector on the back panel cannot be used.) The IR connection can be used to transfer files to or from portable devices like laptops, PDAs, and printers. The Infrared Data Association (IrDA) specification supports data transfers of 115Kbits/sec at a distance of 1 meter.

## 1-11 HARDWARE MONITOR

The optional hardware monitor subsystem provides low-cost instrumentation capabilities. The features of the hardware monitor subsystem include:

- An integrated ambient temperature sensor

- Fan speed sensors, which monitor the fan 1 and fan 2 connector.
- Power supply voltage monitoring to detect levels above or below acceptable values

When suggested ratings for temperature, fan speed, or voltage are exceeded, an interrupt is activated. The hardware monitor component connects to the SMBus.

## **1-12 WAKE ON LAN TECHNOLOGY**

Wake on LAN technology enables remote wakeup of the computer through a network. Wake on LAN technology requires a PCI add-in network interface card (NIC) with remote wakeup capabilities. The remote wakeup connector on the NIC must be connected to the onboard Wake on LAN connector. The NIC monitors network traffic at the Ethernet interface; upon detecting a Magic Packet, the NIC asserts a wakeup signal that powers up the computer. This feature uses the Wake on LAN connector.

### **⚠ CAUTION**

For Wake on LAN, the 5-V standby line for the power supply must be capable of delivering  $+5V \pm 5\%$  at 720 mA. Failure to provide adequate standby current when implementing Wake on LAN can damage the power supply.

## Chapter 2

# HARDWARE INSTALLATION

Congratulations on your purchase of **SY-P4VSA** Motherboard. You are about to install and connect your new Motherboard.



---

**Note:** Do not unpack the Motherboard from its protective anti-static packaging until you have made the following preparations.

---

### 2-1 PREPARATIONS

Gather and prepare all the following hardware equipment to complete the installation successfully:

1. Socket mPGA 478 processor with built-in CPU cooling fan (boxed type)



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**Note:** This Motherboard supports non-boxed type CPUs. The heavier CPU cooling fan requires the installation of a CPU support stand.

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2. SDRAM memory module (s)
3. Computer case and chassis with adequate power supply unit
4. Monitor
5. PS/2 Keyboard
6. Pointing Device (PS/2 mouse)
7. Speaker(s) (optional)
8. Disk Drives: HDD, CD-ROM, Floppy drive...
9. External Peripherals: Printer, Plotter, and Modem (optional)
10. Internal Peripherals: Modem and LAN cards (optional)

## 2-2 UNPACKING THE MOTHERBOARD

When unpacking the Motherboard, check for the following items:

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◆ The SY-P4VSA P4X266 AGP/PCI Motherboard



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◆ This Quick Start Guide



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◆ The Installation CD-ROM



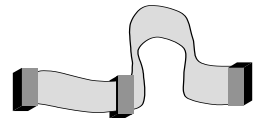
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◆ SOYO Bonus Pack CD-ROM



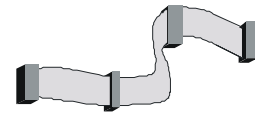
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◆ One IDE Device ATA 100 Flat Cable



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◆ One Floppy Disk Drive Flat Cable



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◆ One Heat Sink Compound



**Warning:** Do not unpack the Motherboard from its anti-static packaging until you are ready to install it.

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Like most electronic equipment, your Motherboard may be damaged by electrostatic discharge. To avoid permanent damage to components ground yourself while working by using a grounding strap. Otherwise, ground yourself frequently by touching the unpainted portion of the computer chassis to drain the static charges.

Handle the Motherboard carefully, holding it by the edges.

You are now ready to start the installation.

---

## 2-3 INSTALLATION GUIDE

We will now begin the installation of the Motherboard. Please follow the step-by-step procedure designed to lead you to a complete and correct installation.



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**Warning:** Turn off the power to the Motherboard, system chassis, and peripheral devices before performing any work on the Motherboard or system.

---

**BEGIN THE INSTALLATION**



### 2-3.1 CPU Installation

To perform the installation of your new **SY-P4ISR** Motherboard, follow the steps below:

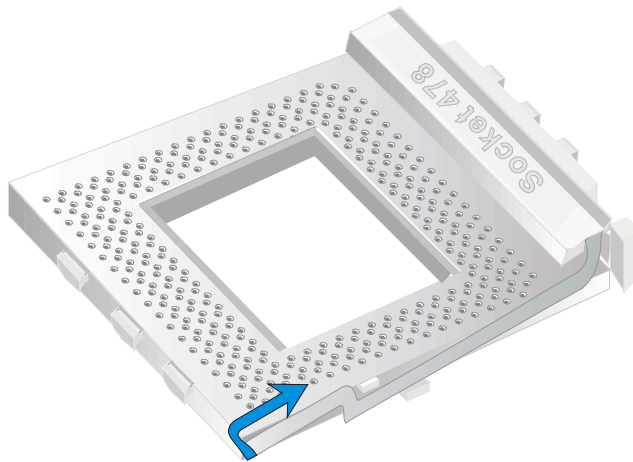
**Mark your CPU Frequency:** Record the working frequency of your mPGA CPU that should be clearly marked on the CPU cover.

#### FSB 400MHz

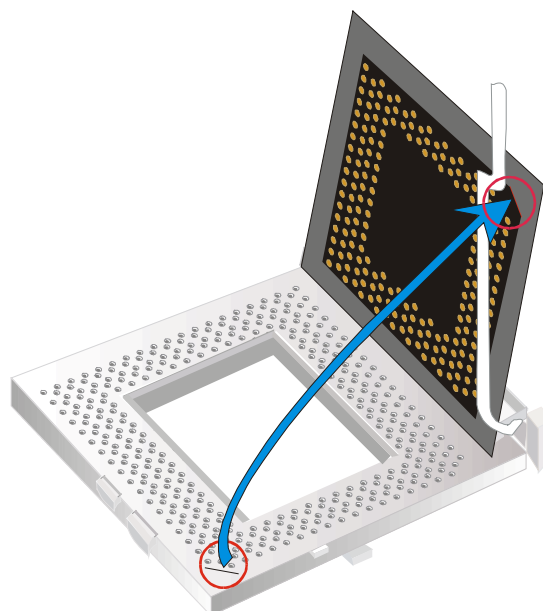
<input type="checkbox"/> 1.5GHz (100 x 15.0)	<input type="checkbox"/> 1.6GHz (100 x 16.0)	<input type="checkbox"/> 1.7GHz ( 100 x 17.0)	<input type="checkbox"/> 1.8GHz (100 x 18.0)
<input type="checkbox"/> 1.9GHz (100 x 19.0)	<input type="checkbox"/> 2.0GHz (100 x 20.0)	<input type="checkbox"/>	<input type="checkbox"/>

**CPU Mount Procedure:** To mount the Pentium® 4 Socket mPGA478 processor that you have purchased separately, follow these instructions.

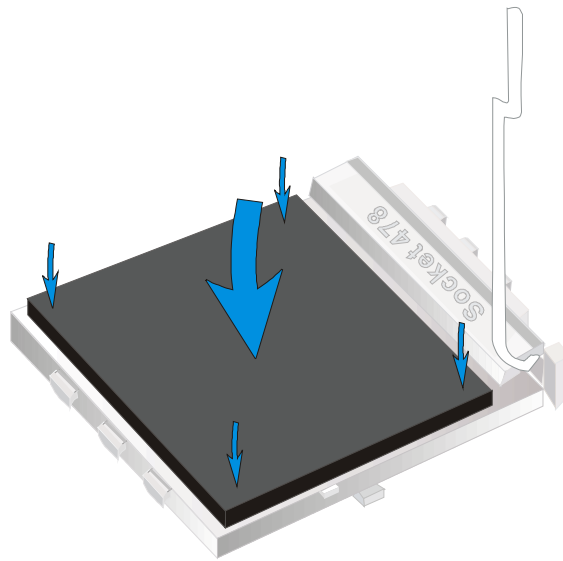
1. Lift the socket handle up to a vertical position.



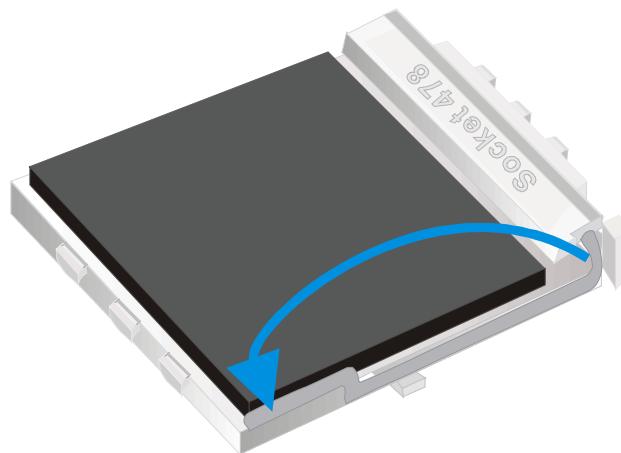
2. Align the blunt edge of the CPU with the matching pinhole distinctive edge on the socket.



3. Seat the processor in the socket completely and without forcing.



4. Then close the socket handle to secure the CPU in place.



 **HOT**

---

Remember to connect the CPU Cooling Fan to the appropriate power connector on the Motherboard. *The fan is a key component that will ensure system stability. The fan prevents overheating, therefore prolonging the life of your CPU.*

---

### 2-3.1.1 CPU Fan Installation

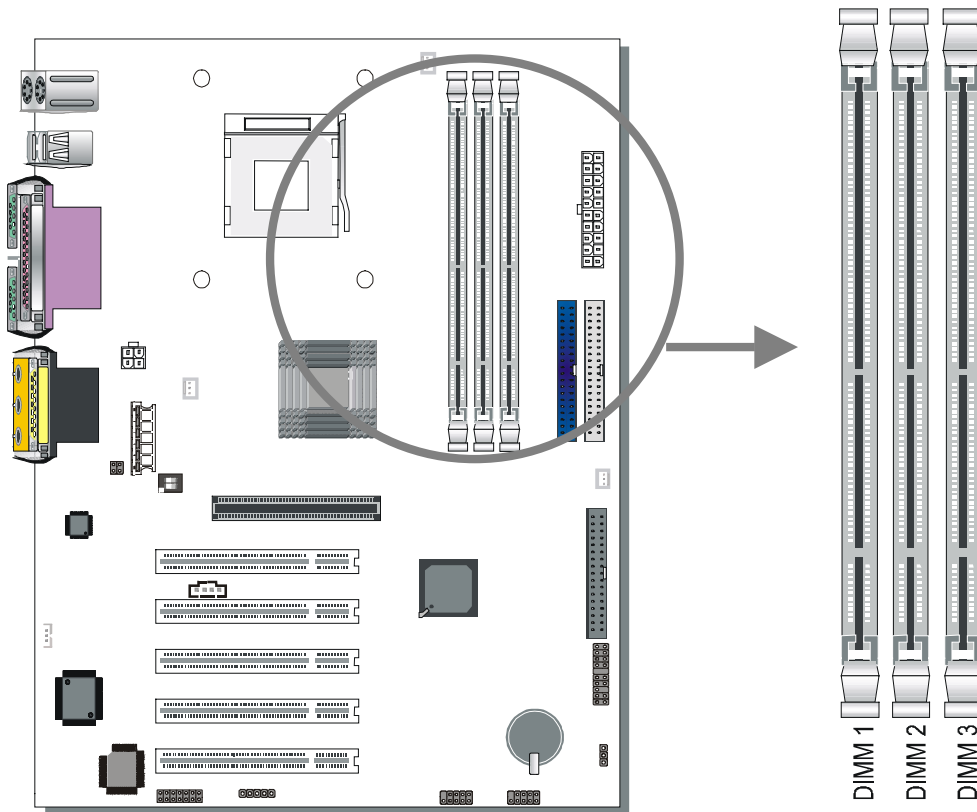
Your Socket A processor kit comes with a cooling fan. Mount the fan on the processor according to the instructions provided by the manufacturer. The fan is a key component that will ensure system stability. The fan prevents overheating, therefore prolonging the life of your CPU.



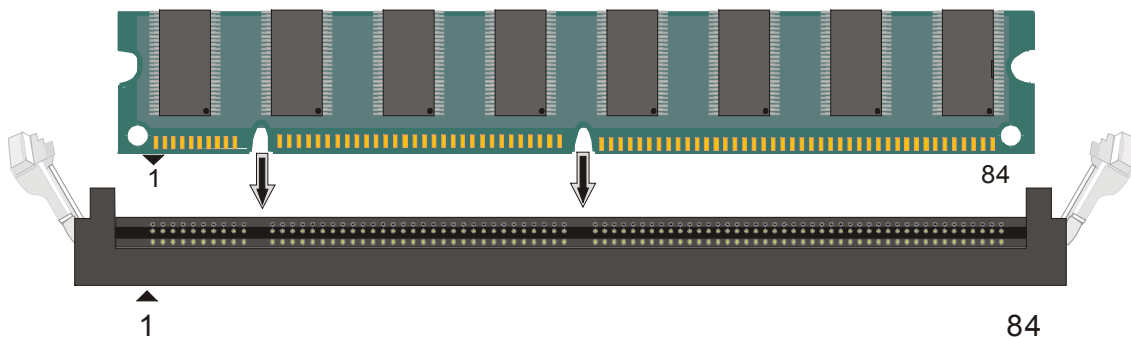
**Note:** Remember to connect the fan to the appropriate power source.

---

## 2-3.2 SDRAM Memory Module Installation



Your board comes with three DIMM sockets, Directly supports one SDR SDRAM channel, 64b wide (72b with ECC), providing support max of 3 Double-Sided DIMMs with unbuffered PC133. ***The largest memory capacity possible is 3GB.*** On this motherboard, DRAM speed can be set independent from the CPU front side bus speed. Depending on the DRAM clock speed setting in the BIOS setup.

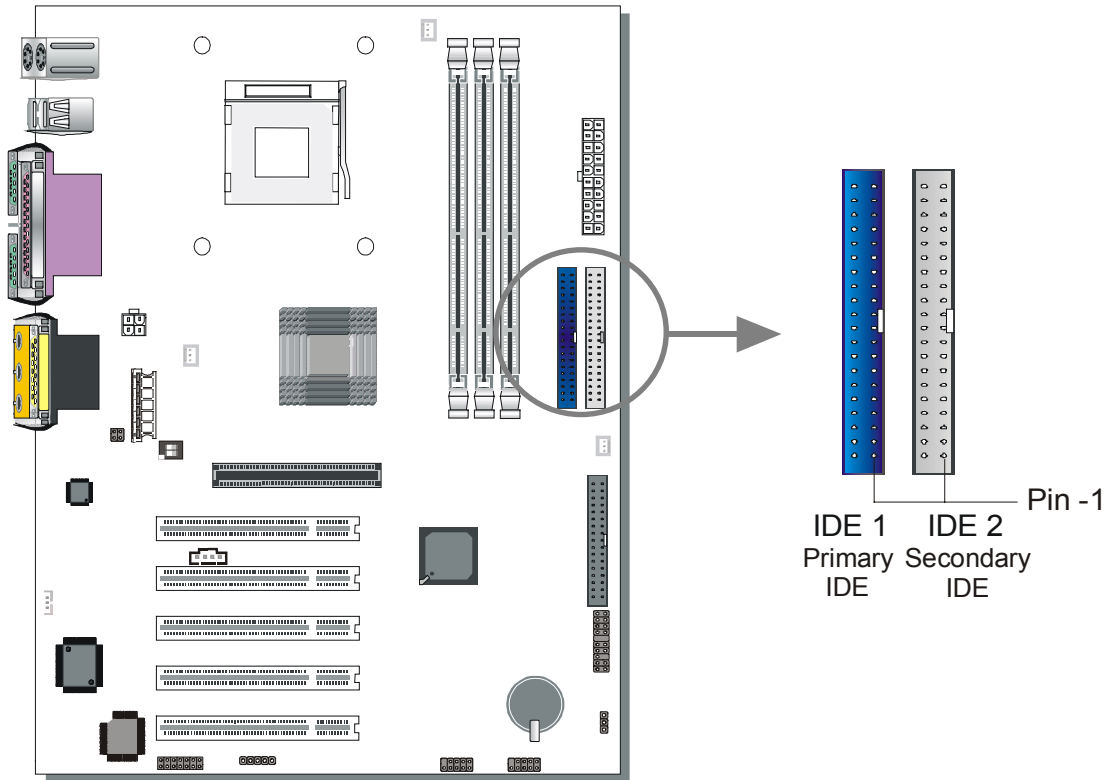


**Memory Configuration Table**

<b>Number of Memory Modules</b>	<b>DIMM 1</b>	<b>DIMM 2</b>	<b>DIMM 3</b>
<b>RAM Type</b>	SDRAM		
<b>Memory Module Size (MB)</b>	32/64/128/256/512 MB/1 GB		

**2-3.3 Motherboard Connector**

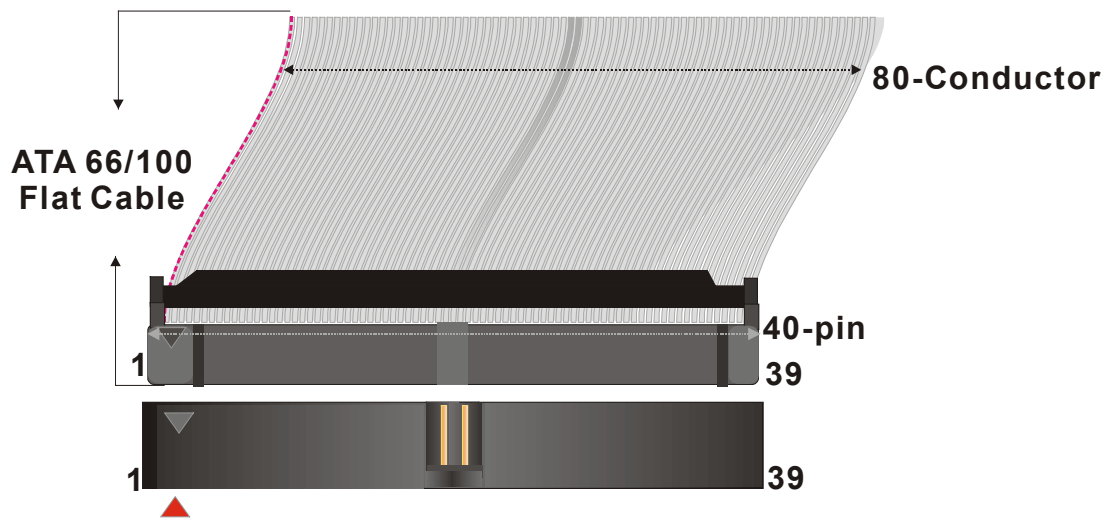
**2-3.3.1 IDE Device Installation (HDD, CD-ROM)**



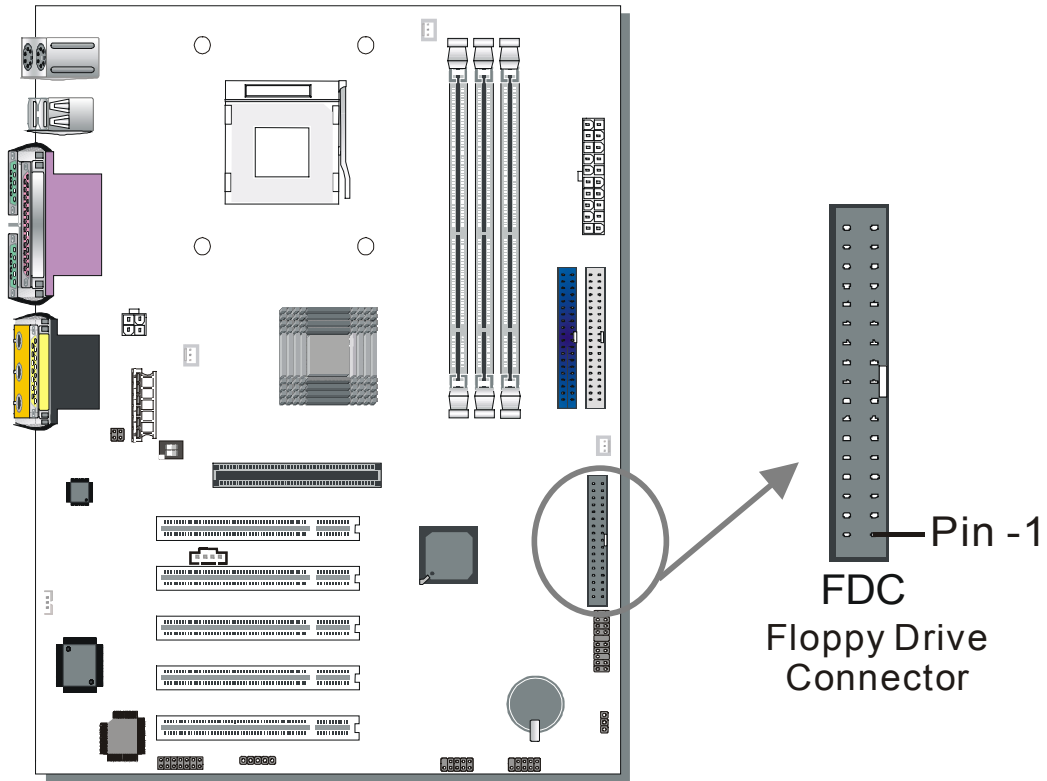
This Motherboard offers two primary and secondary IDE device connectors (IDE1, IDE2). It can support up to four high-speed Ultra DMA 33/66/100HDD or CD-ROM.

Connect one side of the ATA66/100 flat cable to the IDE device (HDD or CD-ROM) and plug the other end to the primary (IDE1) or secondary (IDE2) directionally keyed IDE connector on the Motherboard. The ATA66/100 cable is backward compatible with ATA33 HDDs.

This Motherboard can support up to 4 HDDs.



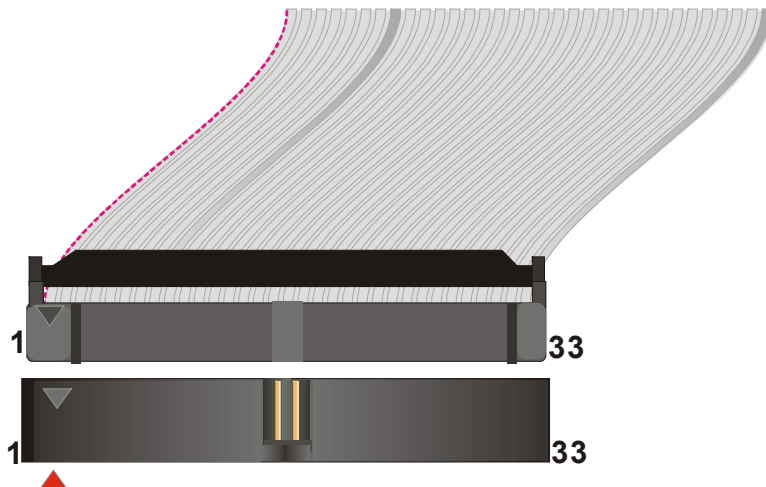
### 2-3.3.2 Floppy Drive Installation



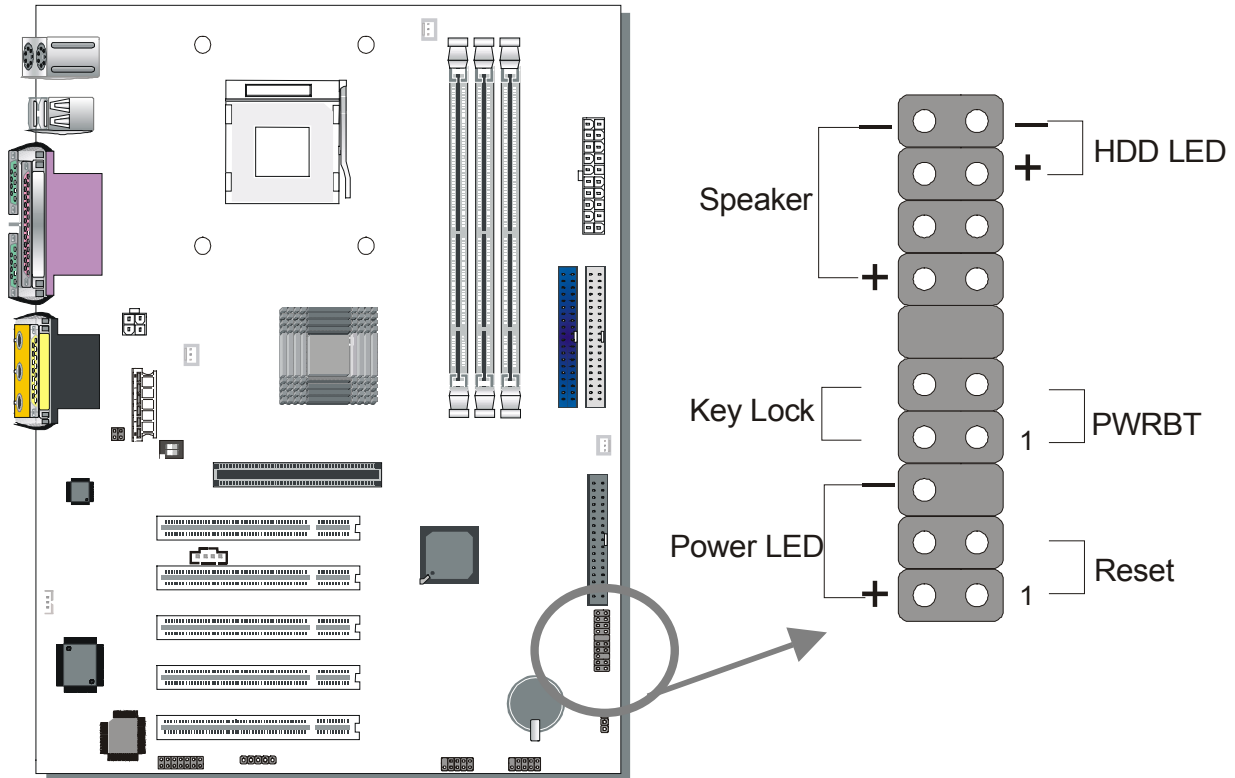
The system supports 5 possible floppy drive types: 720 KB, 1.2 MB, 1.44 MB, 2.88 MB, and LS-120.

Connect one side of the 34-pin flat cable to the floppy drive and plug the other end to the floppy drive connector on the Motherboard.

This Motherboard can support up to 1 floppy drives.



### 2-3.3.3 Front Panel Connections



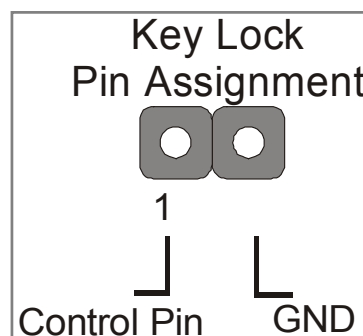
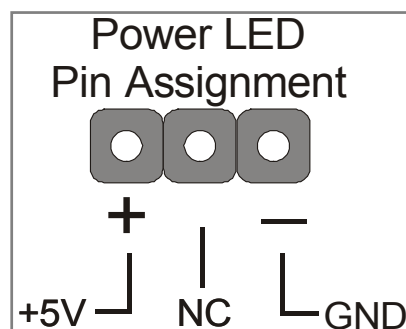
Plug the computer case's front panel devices to the corresponding headers on the Motherboard.

#### 1. Power LED & KeyLock

Plug the Power LED cable into the 5-pin Keylock header.

Some systems may feature a KeyLock function with a front panel switch for enabling or disabling the keyboard. Connect the KeyLock switch to the 5-pin Keylock header on the Motherboard.

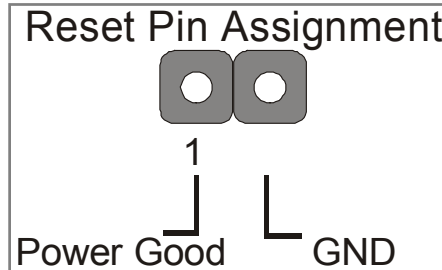
Please install according to the following pin assignment: pin 1,3 are for Power LED and pin 4,5 are for Keylock.





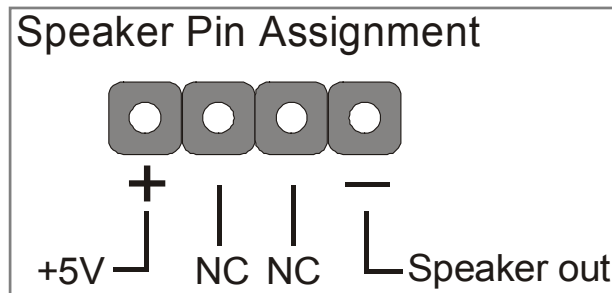
## 2. Reset

Plug the Reset push-button cable into the 2-pin Reset header on the Motherboard. Pushing the Reset button on the front panel will cause the system to restart the boot-up sequence.



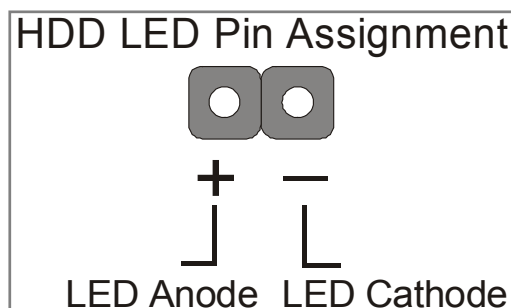
## 3. Speaker

Attach the 4-pin PC speaker cable from the case to the Speaker header on the Motherboard.



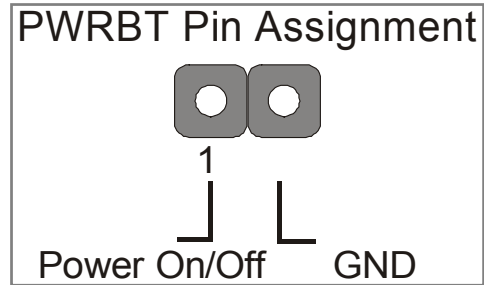
## 4. IDE LED

Attach the 2-pin IDE device LED cable to the corresponding IDE LED header on the Motherboard. This will cause the LED to lighten when an IDE (HDD, CD-ROM) device is active.



### 5. ATX Power On/Off Switch

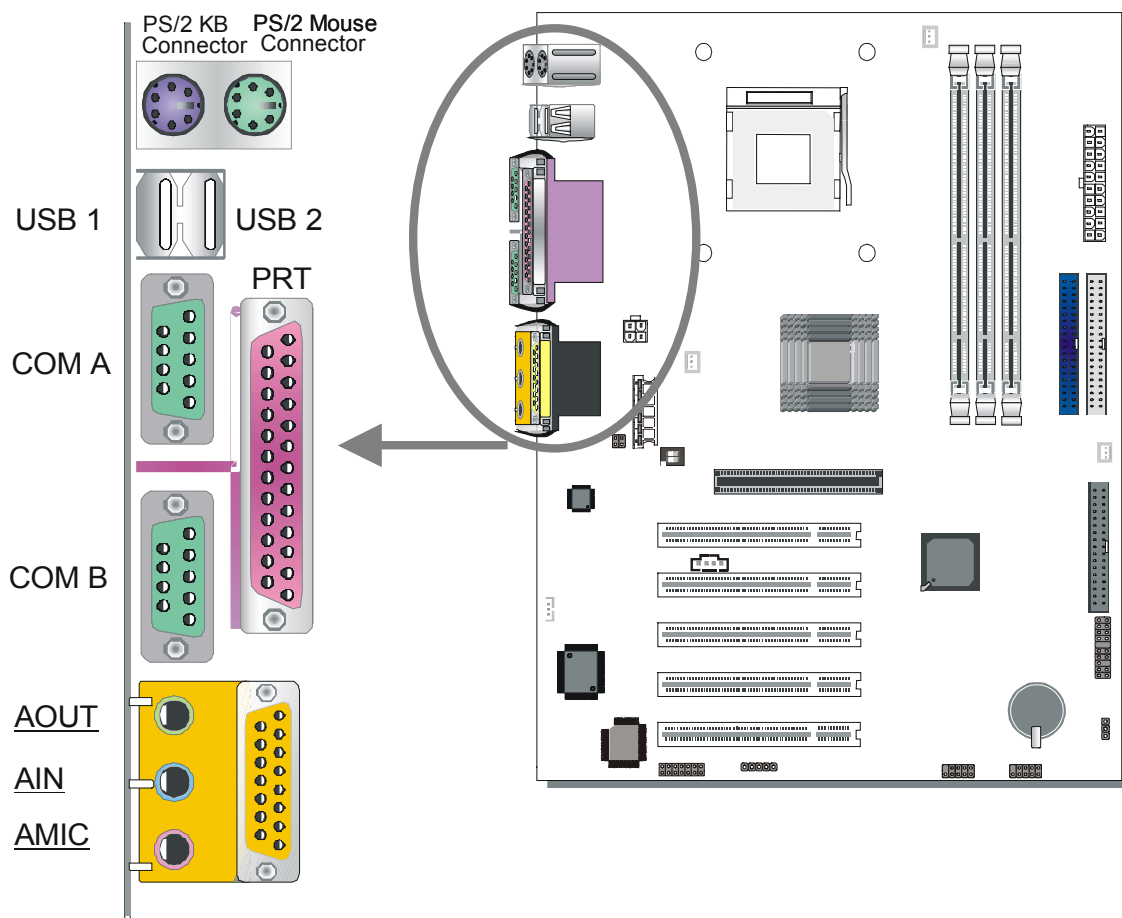
Attach the 2-pin momentary type switch to the PWRBT header for turning On or Off your ATX power supply.



### 2-3.3.4 Back Panel Connections

All external devices such as the PS/2 keyboard, PS/2 mouse, printer, modem, USB can be plugged directly onto the Motherboard back panel. Only after you have fixed and locked the Motherboard to the computer case can you start connecting the external peripheral devices.

When connecting an external device, use the following figure to locate and identify which back panel connector to plug the device to.



#### 1. Onboard Serial Ports COMA/COMB

External peripherals that use serial transmission scheme include:

- serial mouse,
- and modem.

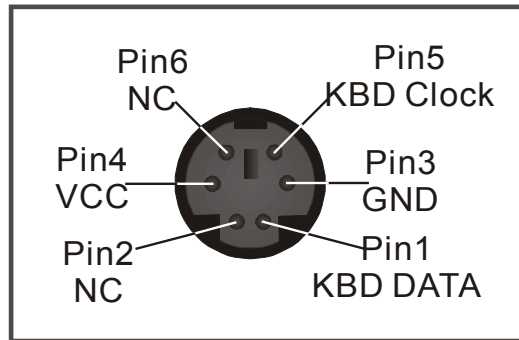
Plug the serial device cables directly into the COMA/COMB 9-pin male connectors located at the rear panel of the Motherboard.

#### 2. Parallel Port PRT

This parallel port is used to connect the printer or other parallel devices. Plug the parallel device cable into the 25-pin female connector located at the rear panel of the Motherboard.

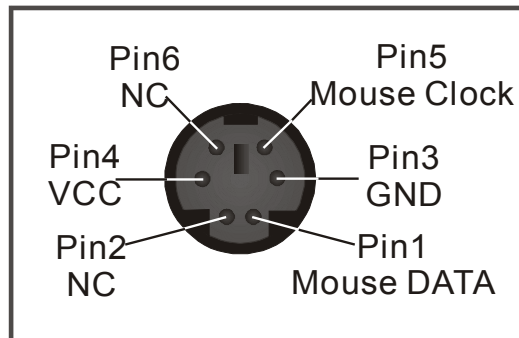
### 3. PS/2 Keyboard

Plug the keyboard jack directly into the 6-pin female PS/2 keyboard connector located at the rear panel of the Motherboard.



### 4. PS/2 Mouse

Similarly, plug the mouse jack directly into the 6-pin female PS/2 mouse connector.

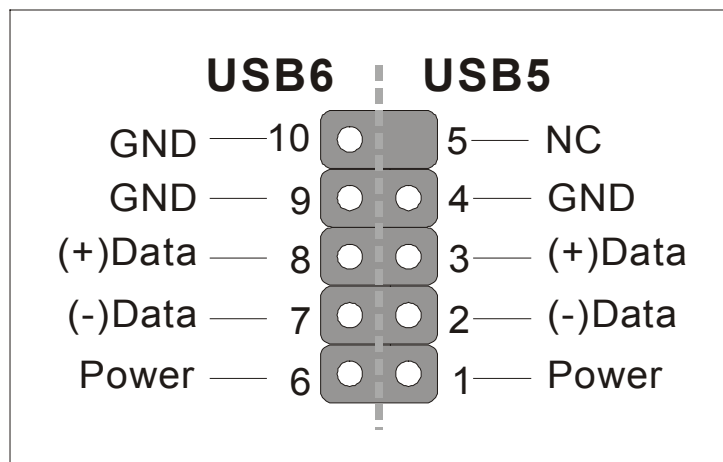
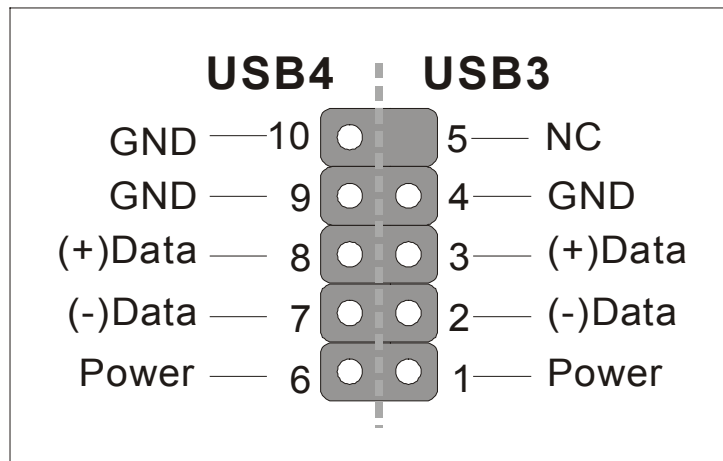


**5. Universal Serial Bus USB1/USB2 (USB3/USB4 ; USB5/USB6)**

This Motherboard provides four USB ports for your additional devices. Plug the USB device jack into the available USB connector USB1 or USB2.

- Standard device drivers come with the Win98 for commonly used USB devices.
- With Win95, use the flow UHCI specifications. To use USB devices under Win95, usually you have to install the device that driver comes with the USB device you have purchased.

USB3, USB4, USB5 and USB6 are available. To make use of these USB ports, purchase a USB cable from your dealer. The lay-out of USB3/USB4 and USB5/USB6 are as follows:



## **6. Onboard Game port/audio**

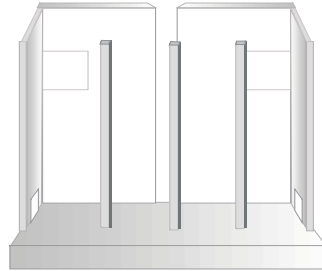
This Motherboard provides Joystick port and audio.

- Attach the joystick cable to the 15-pin GAME port at the rear panel of you motherboard.
- This Motherboard features three built-in audio-stereo ports (labeled line-in, line-out, and mic jack) convenient to directly plug-in all your external audio devices.

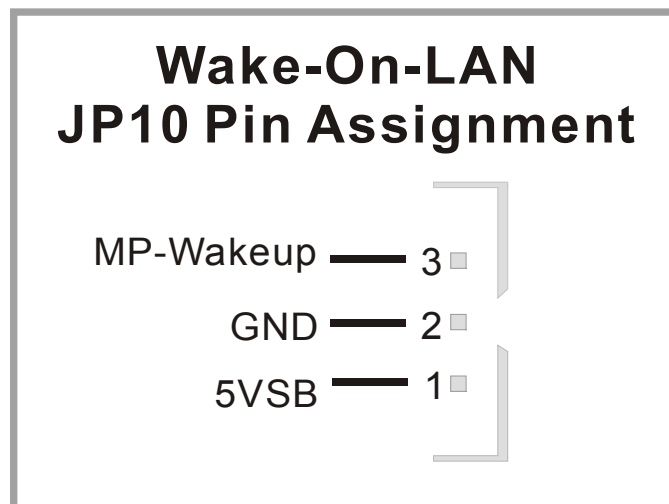
### 2-3.3.5 Other Connections

#### 1. Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function to the JP10 header on the Motherboard. This WOL function lets users wake up the connected computer through the LAN card.



Please install according to the following pin assignment:



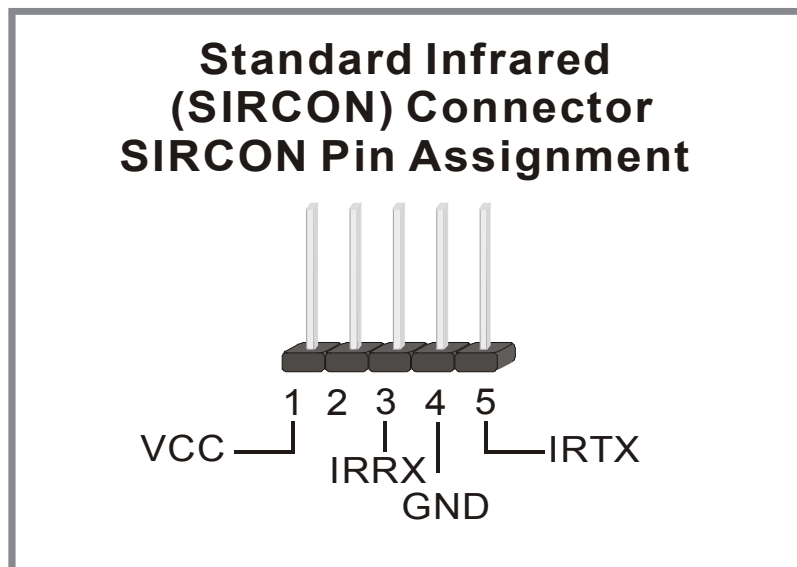
## 2. Standard Infrared (SIRCON)

Plug the 10-pin infrared device cable to the SIRCON header.



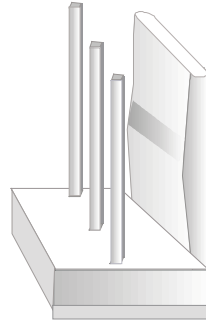
This will enable the infrared transfer function. This Motherboard meets both the ASKIR and HPSIR specifications.

Please install according to the following pin assignment:



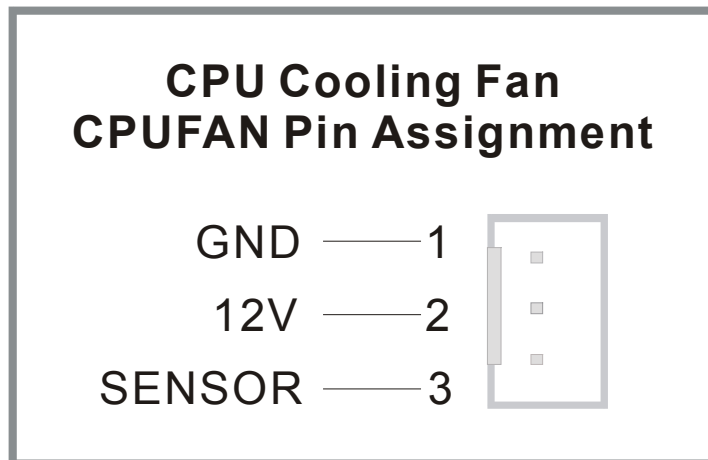


### 3. Cooling Fan Installation



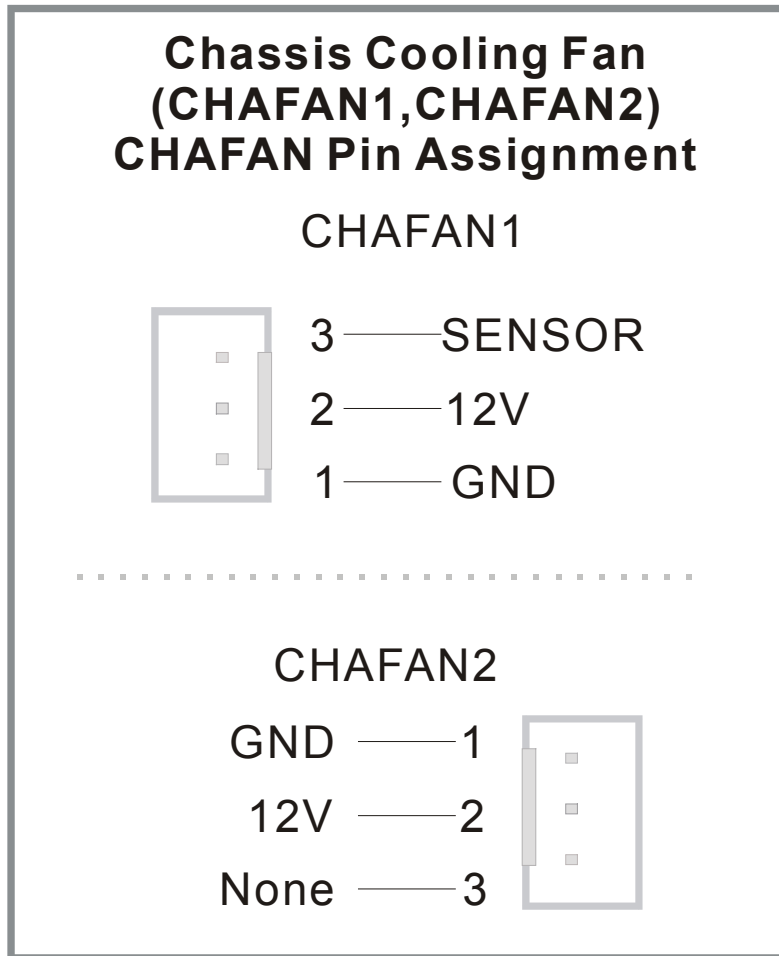
#### (1) CPU Cooling Fan (CHAFAN1,CHAFAN2)

After you have seated the CPU properly on the processor, attach the 3-pin fan cable to the CPUFAN connector on the Motherboard. The fan will stop when the system enters into Suspend Mode. (Suspend mode can be enabled from the BIOS Setup Utility, [POWER MANAGEMENT] menu.) To avoid damage to the system, install according to the following pin assignment:



**(2) Chassis Cooling Fan (CHAFAN1,CHAFAN2)**

Some chassis also feature a cooling fan. This Motherboard features a CHAFAN connector to provide 12V power to the chassis fan. Connect the cable from the chassis fan to the CHAFAN 3-pin connector. Install according to the following pin assignment:

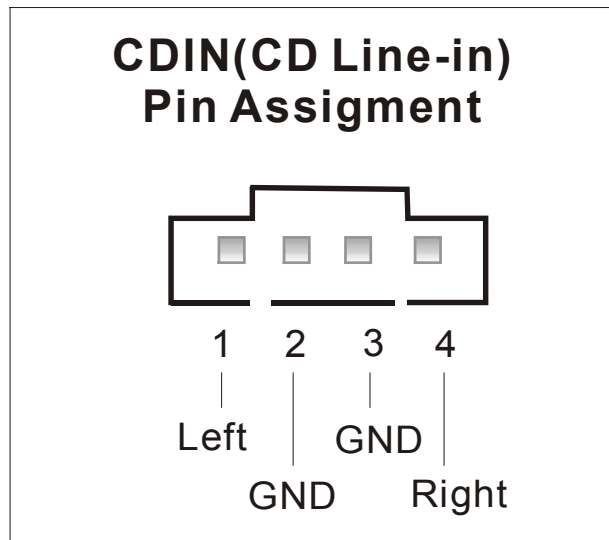


**Note:** CPUFAN must be installed for this Motherboard, CHAFAN is optional.

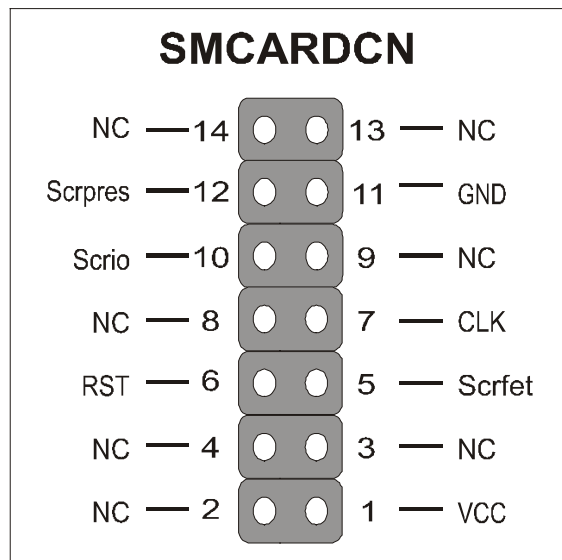
#### 4. CD Line-in (CDIN1,CDIN2)

This Motherboard provides two CD-Line in connectors. Please connect the 4-pin audio cable from your CD-ROM drive to either CDIN1 or CDIN2. (It fits in only one, depending on the cable that came with your CD-ROM drive)

Please install according to the following pin assignment:

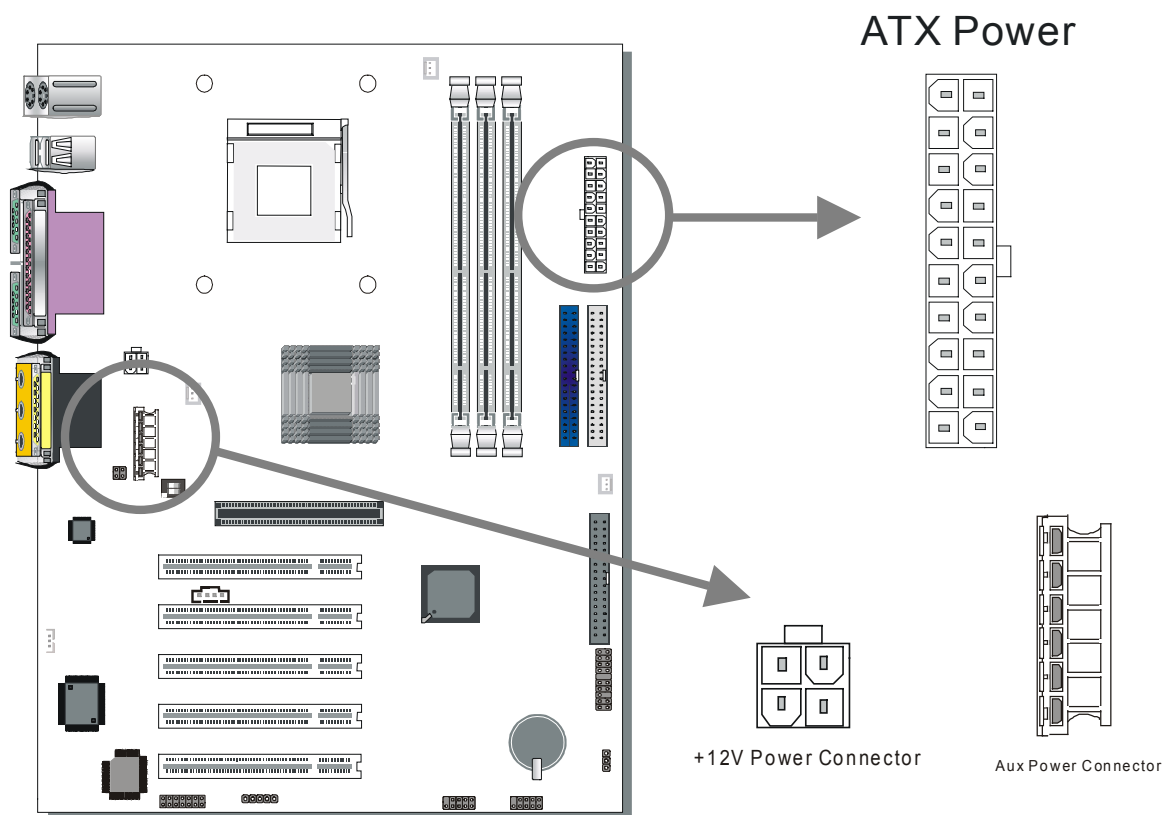


#### 5. Smart Card Reader



### 2-3.3.6 ATX Power Supply

The ATX12V power supply includes a 20-pin ATX connector that comply with the ATX specification, Version 2.03 for M/B specification, a new 4-pin receptacle/header combination--the +12V power connector--has been defined. The presence of the +12V power connector indicates that a power supply is ATX12V; the absence of the +12V power connector indicates that a supply is ATX. To allow for greater than +3.3V current, the Aux power connector is recommended for ATX and ATX12V power supplies with +3.3V current >18A.



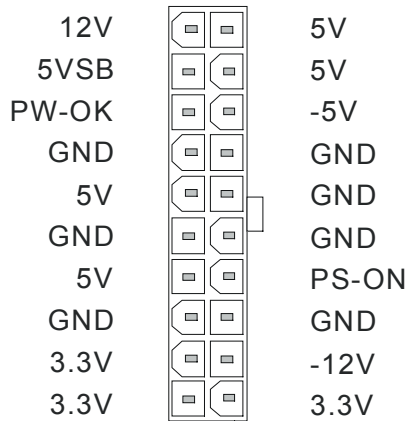
**Warning:** Follow these precautions to preserve your Motherboard from any remnant currents when connecting to ATX power supply: **Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.**

The Motherboard requires a power supply with at least 200 Watts and a "power good" signal. Make sure the ATX power supply can take at 1.5 A max current \* load on the 5V Standby lead (5VSB) to meet the standard ATX specification.

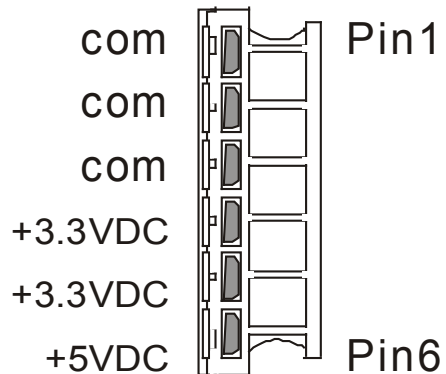
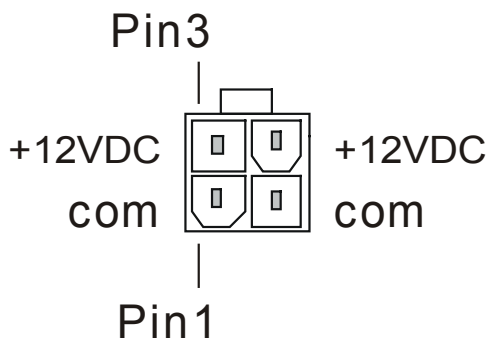
\* **Note:** If you use the Wake-On-LAN (WOL) function, make sure the ATX power supply can support at least 720 mA on the 5V Standby lead (5VSB).

Please install the ATX power according to the following pin assignment:

### ATX Power



➤ **Pay special care to the directionality.**



## 2-3.4 Jumper Setting


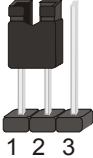
### CPU Frequency Select Switch (CW1)

CW1	Pin 1	Pin 2
100 MHz (Default)	On	Off
133 MHz	Off	On

### 2-3.5 CMOS Clear (JP5)

In some cases the CMOS memory may contain wrong data, follow the steps below to clear the CMOS memory.

1. Clear the CMOS memory by momentarily shorting pin 2-3 on jumper JP5. This jumper can be easily identified by its white colored cap.
2. Then put the jumper back to 1-2 to allow writing of new data into the CMOS memory.

CMOS Clearing	Clear CMOS Data	Retain CMOS Data
JP5 Setting	Short pin 2-3 for at least 5 seconds to clear the CMOS 	Short pin 1-2 to retain new settings 
<p><i>Note: You must unplug the ATX power cable from the ATX power connector when performing the CMOS Clear operation.</i></p>		

### 2-3.6 Power On

You have now completed the hardware installation of your Motherboard successfully.

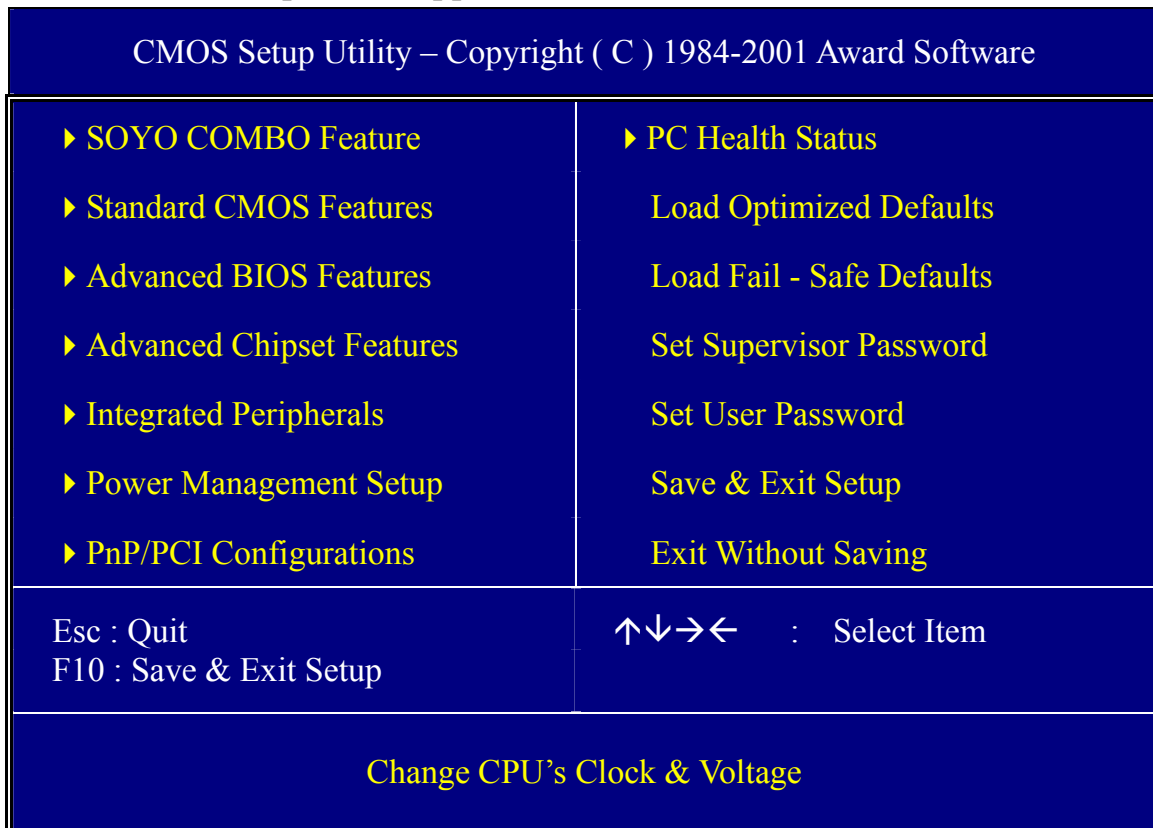
1. Turn the power on
2. To enter the BIOS Setup Utility, press the <DEL> key while the system is performing the diagnostic checks,



**Note:** If you have failed to enter the BIOS, wait until the boot up sequence is completed. Then push the RESET button and press <DEL> key again at the beginning of boot-up, during diagnostic checks.

Repeat this operation until you get the following screen.

3. The BIOS Setup screen appears:



### 2-3.7 Quick BIOS Setup

This Motherboard does not use any hardware jumpers to set the CPU frequency. Instead, CPU settings are software configurable with the BIOS [SOYO COMBO FEATURE]. The [SOYO COMBO FEATURE] combines the main parameters that you need to configure, all in one menu, for a quick setup in BIOS.

After the hardware installation is complete, turn the power switch on, then press the <DEL> key during the system diagnostic checks to enter the Award BIOS Setup program. The CMOS SETUP UTILITY will be shown on the screen. Then, follow these steps to configure the CPU settings.

**Step 1. Select [STANDARD CMOS SETUP]**

Set [Date/Time] and [Floppy drive type], then set [Hard Disk Type] to “Auto”.

**Step 2. Select [LOAD OPTIMIZED DEFAULTS]**

Select the “LOAD OPTIMIZED DEFAULTS” menu and type “Y” at the prompt to load the BIOS optimal setup.

**Step 3. Select [SOYO COMBO FEATURE]**

Move the cursor to the [CPU Frequency Select], [CPU Ratio] field to set CPU Clock/Ratio.

*Note:* Set the [CPU Frequency Select] field to “Manual”, to be able to change the CPU frequency 1 MHz stepping..

**Step 4. Select [SAVE & EXIT SETUP]**

Press <Enter> to save the new configuration to the CMOS memory, and continue the boot sequence.



## 2-3.8 Troubleshooting at First Start

### USB Issues

#### **Can I use USB port 3\_4 and port 5\_6 for keyboard resume function?**

This M/B has 6 USB ports, but only the 2 at the back panel can be used for USB keyboard resume function.

#### **I cannot get my USB working, help!**

Please check if the system performance setting in the BIOS is set to maximum, if yes, then enable the USB by setting the system performance to normal or manually enable the USB port (on-chip USB controller under Integrated Peripherals).

### Video (no display) related issues

#### **I built a new computer system using a Soyo board and nothing happens when turning it on, no video and no beeps from the PC speaker. What is happening and how can it be fixed?**

No screen and no beep means that your CPU and motherboard do not work at all. It could be that the CPU is not seated correctly or that a component on the M/B is grounded (shorted) with the case. Also make sure to check the voltage setting switch (110V/220V) on the back of the power supply. To isolate the problem do the following:

1. Press and hold down on the “Ins” (insert) key while turning on the computer until you get video. If you do not get video then,
2. Double-check jumpers setting on your motherboard and remove all add-on cards, unplug all hard-disk and floppy-disk drive cables and see if you can hear some beeps. If you still do not get any beeps, then try putting the motherboard on the table (to isolate it from the case) with the CPU and speaker only, and give it one more try.

#### **I hear a series of beeps and I do not get anything from my monitor. What could be wrong?**

The following lists some basic beep codes and their possible meanings:

- One long beep and 3 very short beeps - The video card is not

detected by the motherboard. Please re-seat your video card. If you are using an AGP card, please push your AGP card down real hard. You may have to push VERY hard without the AGP card mounting screw. Make sure not to insert the card the other way around.

- Continuous beeps – One or more of the memory modules is not seated correctly in its socket.

**My PCI VGA card works fine with my system, but when I put in a new AGP card, it does not give me any video. Is my AGP slot bad?**

This is a common problem with AGP video cards. The reason is that your AGP card did not get seated into the AGP slot fully and firmly. Please push your AGP card down into the socket real hard, it should snap twice. You may have to unscrew the AGP card to allow the card to go further down. Do take care not to damage the card by using too much force.

**I get distorted video with my AGP card right after I save my bios.**

**Why is that?**

The cause is likely that your AGP card is not running at the correct bus speed. To fix this, please clear the CMOS via JP5 and if it still does not work, please upgrade your motherboard bios to the latest version.

**BIOS Issues**

**Where can I find the BIOS revision of my mainboard?**

It will be displayed on the up-left corner on the screen during boot-up. It will show as your board type followed by the revision number, such as 5EH\_2CA1 (meaning revision 2CA1 for the SY-5EH board) or 6BA+ IV\_2AA2 which means SY-6BA+ IV motherboard with 2AA2 bios.

**Where can I find the latest BIOS of my motherboard?**

Please go to the technical support page of one of the SOYO websites (Taiwan: [www.soyo.com.tw](http://www.soyo.com.tw)), and look up your motherboard to find the latest BIOS revision.

## **Hard disk, floppy drive, CD-ROM etc**

**When I boot up my new computer I got "floppy boot failure" and the LED on the floppy stays on**

Make sure the red wire of floppy ribbon cable goes to Pin1 on the floppy drive side (don't trust the "key lock" or "notch") and use the end-connector of the cable (don't use middle one).

## **Modem issues**

**I get an "I/O Conflict" message when I turn on my system and I can not get my modem to work.**

What you need to do is to disable 'COM2' (or UART2 or serial port 2) in the bios under integrated peripheral setup.

**I have installed my modem drivers several times and I still cannot get my modem to work. Why?**

If you are sure that the modem driver has been installed correctly, then you need to install the VIA 4 in 1 driver from the SOYO CD, this is because Windows does not properly recognize relatively new chipsets.

## **Audio Issues**

**When I'm accessing my CD-ROM or in some application, I hear a hissing sound, what could be the problem?**

The audio cable is plugged on to the M/B the wrong way. Flip it around and the problem should be solve.

**Windows have detected the on-board audio, but I cannot get any sound from my M/B, what could be the problem?**

The audio cable is plugged on to the M/B the wrong way. Flip it around and the problem should be solve.

**How can I disable the on-board Audio ?**

Set the "AC97 Audio" option in the BIOS to disable this option can be found under SOYO COMBO Feature.

**In Device Manager, I keep getting yellow exclamation signs on my sound port even though I have installed my sound driver several times**

**and I could not get my sound card to work. What is wrong?**

It is likely that you did not have the correct driver installed. If you are sure that the correct sound driver has been installed, then please install the 'VIA 4 in 1' driver for the motherboard.

**The sound is working in my system, but when I play CD music from the CD-ROM, I do not get any sound. What is wrong?**

This is because the 3-wire audio cable from the CD-ROM to the sound card is not connected or it is loose.

**The sound and everything else works fine except that the recorder and microphone do not work. What is wrong?**

This is because the recorder and microphone in the Windows are not enabled. Please go to sound properties and enable them.

**Lock up (freeze)**

**When I boot up my system, everything works fine. It sees my CPU and memory, detects my hard drive, floppy drive and CD-ROM but locks up at "Verify DMI pool data... ", and it won't go any further. What should I do?**

Please clear the CMOS via JP5 then choose 'load optimized default' in the bios and save the bios and exit. Next, unplug all other add-on cards except the video card and floppy drive controller, and see if it can boot from floppy. Then put back the peripherals one by one to identify which one causes the lockup.

**I can not get my board to run properly.**

Please make sure you have the latest bios and driver from the SOYO web site at: <http://www.soyo.com>

### **2-3.9 Power Off**

There are two possible ways to turn off the system:

1. Use the **Shutdown** command in the **Start Menu** of Windows 95/98 to turn off your computer.
2. Press the mechanical power-button and **hold down for over 4 seconds**, to shutdown the computer. If you press the power-button for less than 4 seconds, then your system will enter into **Suspend Mode**.

You are now ready to configure your system with the BIOS setup program.  
Go to *Chapter 3: BIOS SETUP*

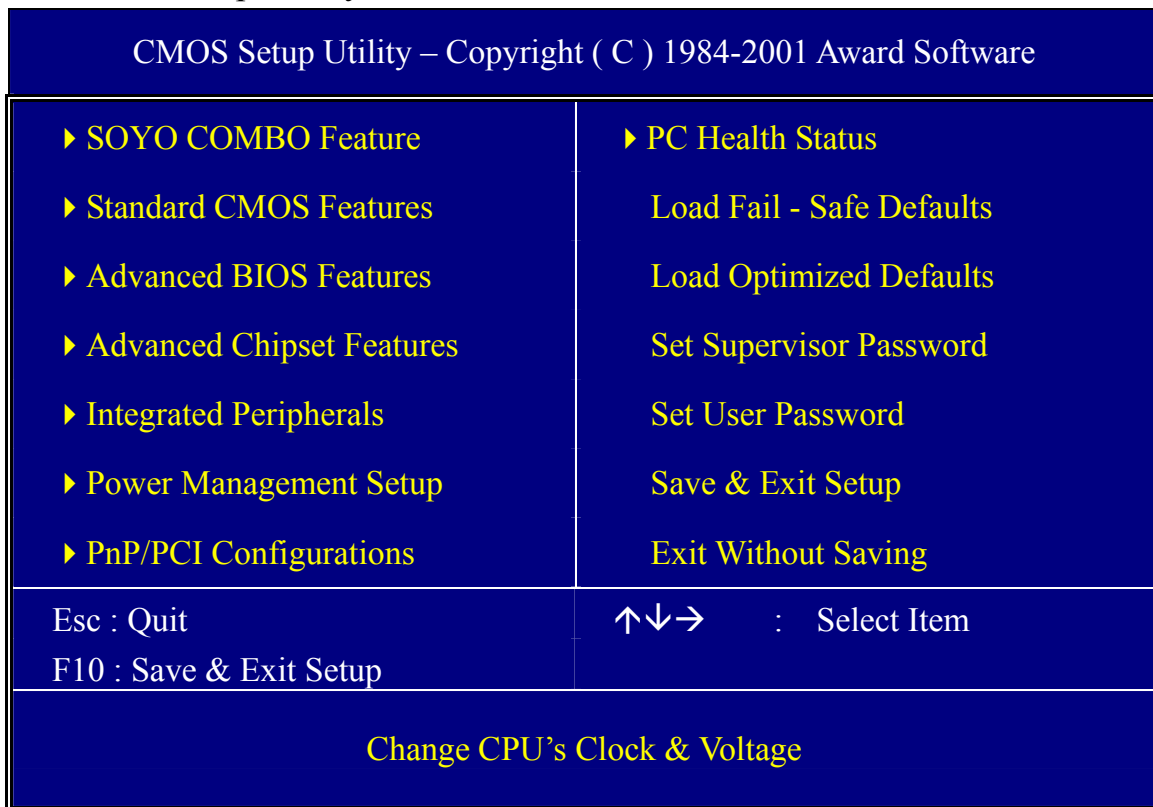
## Chapter 3

# BIOS SETUP UTILITY

This Motherboard's BIOS setup program uses the ROM PCI BIOS program from Award Software Inc.

To enter the Award BIOS program's Main Menu:

1. Turn on or reboot the system.
2. After the diagnostic checks, press the [Del] key to enter the Award BIOS Setup Utility.



### Selecting items

- Use the arrow keys to move between items and select fields.
- From the Main Menu press arrow keys to enter the selected submenu.

### Modifying selected items

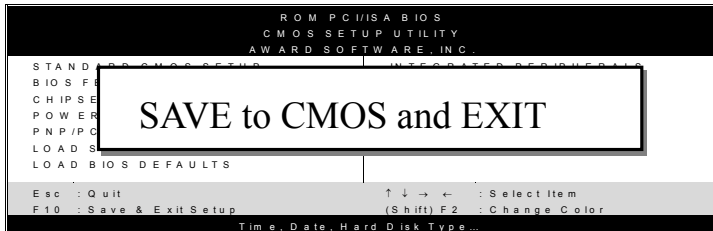
- Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

**Hot Keys:** Function keys give you access to a group of commands throughout the BIOS utility.

<b>Function</b>	<b>Command</b>	<b>Description</b>
<b>F1</b>	General Help	Gives the list of options available for each item.
<b>F5</b>	Previous Values	Restore the old values. These are the values that the user started the current session with.
<b>F6</b>	Load Fail-Safe Defaults	Loads all items with the most conservative values.
<b>F7</b>	Load Optimized Defaults	Loads all options with the optimize values.
<b>F10</b>	Save	Saves your changes and reboots the system.
<b>[Esc]</b>	Exit	Returns at anytime and from any location to the Main Menu.
<b>[Enter]</b>	Select	Will display a overlapping window with all options for the current item.
<b>[+/-/PU/PD]</b>	Value	Using the +, -, Page Up and Page Down keys the user can toggle the value of the current item.

## SAVE AND EXIT SETUP

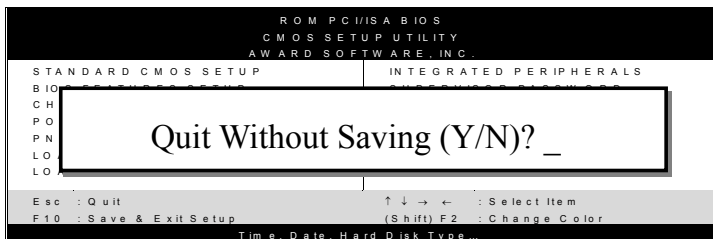
Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.



Type [Y] to save the changes and exit or [N] to return to the Main Menu and keep current values.

## EXIT WITHOUT SAVING

Selecting the [EXIT WITHOUT SAVING] option allows you to abandon all data and exit setup, therefore ignoring all your changes.



Type [Y] to abandon changes and exit or [N] to return to the Main Menu and keep current values.



### 3-1 SOYO COMBO SETUP

This Motherboard does not use any hardware jumpers to set the CPU frequency. Instead, CPU settings are software configurable with the BIOS [SOYO COMBO SETUP].

After the hardware installation is complete, turn the power switch on, then press the <DEL> key during the system diagnostic checks to enter the Award BIOS Setup program. The CMOS SETUP UTILITY will display on screen. Then, select the [SOYO COMBO SETUP] option from the main menu and press the <Enter> key.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 SOYO COMBO Feature

System Performance	Normal	Item Help Menu Level ▶
CPU Frequency Select	AUTO	
x Frequency 1MHz Stepping	100 MHz	
CPU Clock Ratio	8X	
Auto Detect PCI/DIMM Clk	Enabled	
Spread Spectrum	Disabled	
CPU Vcore Select	Default	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS120	
Boot Other Device	Enabled	
AC97 Audio	Auto	

↑↓→ Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			

The [SOYO COMBO SETUP] menu combines the main parameters that you need to configure, all in one menu, for a quick setup in BIOS.

## System Performance

	Setting	Description	Note
<b>System Performance</b>	Normal	Adjust your computer performance.	Default
	Turbo		

## SOYO COMBO Feature

	Setting	Description	Note
<b>CPU Frequency Select</b>	AUTO	Chose 100MHz/133MHz, depending on the Front Side Bus of your CPU.	Default
	Manual		
<b>Frequency 1MHz Stepping</b>	100 MHz ~ 132 MHz	Press "Page Up" / "Page Down" key to Over Clock the CPU Front Side Bus in 1MHz increment or Press "Enter" key, then type the desired CPU Front Side Bus.	
<b>CPU Clock Ratio Select</b>	Auto	Allows you to select your CPU Ratio.	Default
	8X ~ 50X		
<b>Auto Detect PCI/DIMM Clk</b>	Disabled	When enabled, this item will auto detect if the DIMM and PCI socket have devices and will send clock signal to DIMM and PCI devices. When disabled, it will send the clock signal to all DIMM and PCI socket.	Default
	Enabled		
<b>Spread Spectrum</b>	Disabled	This item allows you to Disabled / Enabled the spread spectrum modulate.	Default
	Enabled		

### CPU Vcore Select

	Setting	Description	Note
<b>CPU Vcore Select</b>	Default	This function adjust the CPU voltage.	Default
	1.100V, 1.125V, 1.150V, 1.175V, 1.200V, 1.225V, 1.250V, 1.275V, 1.300V, 1.325V, 1.350V, 1.375V, 1.400V, 1.425V, 1.450V, 1.475V, 1.500V, 1.525V, 1.550V, 1.575V, 1.600V, 1.625V, 1.650V, 1.675V, 1.700V, 1.725V, 1.750V, 1.775V, 1.800V, 1.825V, 1.850V		

### Quick Power On Self Test

	Setting	Description	Note
<b>Quick Power On Self Test</b>	Disabled		
	Enabled	Provides a fast POST at boot-up.	Default

### System Boot Control Settings

	Setting	Description	Note
<b>First /Second/Third Boot Device</b>	Floppy	Select Your Boot Device Priority	
	LS/ZIP		
	HDD-0		
	SCSI		
	CDROM		
	HDD-1		
	HDD-2		
	HDD-3		
	LAN		
	Disabled		
<b>Boot Other Device</b>	Disabled	Select Your Boot Device Priority	Default
	Enabled		

### AC97 Audio Control Setting

	Setting	Description	Note
<b>AC97 Audio</b>	Disabled	This item allows you to decide to auto/disable the VIA chipset family to support AC97 Audio.	Default
	Auto		

### 3-2 STANDARD CMOS SETUP

Select the [STANDARD CMOS SETUP] option from the Main Menu and press [Enter] key.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software Standard CMOS Features		
Date (mm:dd:yy) Time (hh:mm:ss)	Mon, Jan 1 2001 1 : 1 : 8	Item Help
▶ IDE Primary Master ▶ IDE Primary Slave ▶ IDE Secondary Master ▶ IDE Secondary Slave	Maxtor 52049H3 None LTN485S None	Menu Level ▶ Change the day, month, year and century.
Drive A Floppy 3 Mode Support	1.44M, 3.5 in. Disabled	
Video Halt On	EGA/VGA All Errors	
Base Memory Extended Memory Total Memory	640K 130048K 131072K	
↑↓→ Move	Enter:Select	+/-/PU/PD:Value
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults
F10:Save	ESC:Exit	F1:General Help

This screen allows you to modify the basic CMOS settings. After you have completed the changes, press [Esc] key to return to the Main Menu.

This Main Menu function automatically detects the hard disk type and configures the [Standard CMOS Features] accordingly.

**CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software**  
**IDE Primary Master**

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level ▶
Capacity	0 MB	
Access Mode	Auto	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

↑↓→:Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			



**Note:** This function is only valid for IDE type of hard disk drives.

### Date & Time

	Display	Setting	Please Note
<b>Date</b>	mm/dd/yyyy	Type the current date	You can also the PUp/PDn keys to toggle
<b>Time</b>	hh:mm:ss	Type the current time	24-hour clock format 3:15 PM is displayed as 15:15:00

## Hard Disks Type & Mode

Choose the type and mode for the hard disks that you have already installed.

Primary (Secondary) Master & Slave	Setting	Description	Note
<b>IDE HDD Auto-Detection</b>	Press Enter	To auto-detect the HDD's size, head... on this channel	
<b>IDE Primary Slave (User Type)</b>	Auto	BIOS detects hard disk type automatically.	Default
	User	User defines the type of hard disk.	
	None		
<b>Access Mode</b>	Auto	BIOS detects hard disk mode automatically.	Default
	Normal	Normal IDE hard disk	<528MB
	LBA	Enhanced IDE hard disk	>528MB
	Large	Large IDE hard disk (for certain hard disk)	



**Note:** If you have any questions on your hard disk type or mode, ask your hard disk provider or previous user for details.

## Floppy Drives

Floppy Drives	Setting	Description	Note
<b>Drives A</b>	360KB, 5.25 in.		Default
	1.2MB, 5.25 in.		
	720KB, 3.5 in.		
	1.44MB, 3.5 in.		
	2.88MB, 3.5 in.		
	None	Not installed	
<b>Floppy 3-Mode Support</b>	Disabled		Default
	Drive A	Supports 3-mode floppy diskette: 740KB/1.2MB/ 1.44MB on selected disk drive.	Special disk drive commonly used in Japan

**Others Optional**

	Setting	Description	Note
<b>Video</b>	EGA/VGA	Select the video mode.	Default
	CGA 40		
	CGA 80		
	MONO (Monochrome)		
<b>Halt On</b>	ALL Errors	When the BIOS detects system errors, this function will stop the system. Select which type of error will cause the system halt.	Default
	No Errors		
	All, But Keyboard		
	All, But Diskette		
	All, But Disk/Key		

### 3-3 ADVANCED BIOS FEATURES

Select the [Advanced BIOS Features] option from the Main Menu and press [Enter] key.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
Advanced BIOS Features

Virus Warning CPU L1 & L2 Cache Boot Up Floppy Seek Boot Up NumLock Status Typematic Rate Setting x Typematic Rate (Chars/Sec) x Typematic Delay (Msec) Security Option OS Select For DRAM > 64MB HDD S.M.A.R.T. Capability Video BIOS Shadow EPA LOGO SELECT Small Logo (EPA) Show	Disabled Enabled Enabled On Disabled 6 250 Setup Non-OS2 Disabled Enabled LOGO-0 Enabled	Item Help <hr/> Menu Level ▶ Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.
---	--	--

↑↓→ Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			

After you have completed the changes, press [Esc] key and follow the instructions on your screen to save your settings or exit without saving.

#### Virus Warning

	Setting	Description	Note
<b>Virus Warning</b>	Disabled	If set to enabled, the Paragon Anti-Virus. Function will scan your boot drive for boot virusses. If a boot virus is detected, the BIOS will display a warning message.	Default
	Enabled		



## Cache Memory Options

	Setting	Description	Note
<b>CPU L1 &amp; L2 Cache</b>	Disabled		
	Enabled	Enables the CPU's L1 & L2 cache.	Default

## Boot Up Floppy Seek

	Setting	Description	Note
<b>Boot Up Floppy Seek</b>	Disabled	Seeks disk drives during boot up. Disabling speeds boot up.	
	Enabled		Default

## Boot Up NumLock Status

	Setting	Description	Note
<b>Boot Up NumLock Status</b>	On	Puts numeric keypad in NumLock mode at boot-up.	Default
	Off	Puts numeric keypad in arrow key mode at boot-up.	

## Typematic Settings

Typematic Settings	Setting	Description	Note
<b>Typematic Rate Setting</b>	Disabled	Keystrokes repeat at a rate determined by the keyboard.	Default
	Enabled	When enabled, the typematic rate and typematic delay can be selected.	
The following [Typematic Rate] and [Typematic Delay] fields are active only if [Typematic Rate Setting] is set to [Enabled]			
<b>Typematic Rate</b>	6 (Char/sec)	Choose the rate at which a character is repeated when holding down a key.	Default
	8 (Char/sec)		
	10 (Char/sec)		
	12 (Char/sec)		
	15 (Char/sec)		
	20 (Char/sec)		
	24 (Char/sec)		
	30 (Char/sec)		

## Typematic Settings (Continue)

Typematic Settings	Setting	Description	Note
<b>Typematic Delay</b>	250 (msec)	Choose how long after you press a key down the character begins repeating.	Default
	500 (msec)		
	750 (msec)		
	1000 (msec)		

## Security Option

Use this feature to prevent unauthorized system boot-up or use of BIOS Setup. The following table describes the security settings.

	Setting	Description	Note
<b>Security Option</b>	System	Each time the system is booted, the password prompt appears.	
	Setup	If a password is set, the password prompt only appears when you attempt to enter the BIOS Setup program.	Default

## Other Control Options

	Setting	Description	Note
<b>OS Select for DRAM&gt;64MB</b>	OS2	When using an OS2 operating system.	
	Non-OS2	When using another, non-OS2 operating system.	Default
<b>HDD S.M.A.R.T Capability</b>	Disabled	Enable this field when your HDD supports the S.M.A.R.T. function. Consult your HDD provider for details.	Default
	Enabled		
<b>Video BIOS Shadow</b>	Disabled	The BIOS is shadowed in a 16K segment if it is enabled and if it has BIOS present. These 16 segments can be shadowed from ROM to RAM. BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.	Default
	Enabled		

**Other Control Options (Continue)**

	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>EPA LOGO SELECT</b>	LOGO-0	Allows user to display SOYO logo or own logo. Logo-0 Shows SOYO logo. Logo-1 Shows user logo (Default Blank).	Default
	LOGO-1		
<b>Small Logo(EPA) Show</b>	Disabled	Set Enabled to Show Logo(EPA).	
	Enabled		Default

### 3-4 ADVANCED CHIPSET FEATURES

Select the [Advanced Chipset Features] option from the Main Menu and press [Enter] key.



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [Advanced Chipset Features] option changes the values of the chipset registers. These registers control the system options in the computer.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 Advanced Chipset Features

▶ DRAM Clock/Driver Control ▶ AGP & P2P Bridge Control ▶ CPU & PCI Bus Control System BIOS Cacheable Video RAM Cacheable	Press Enter Press Enter Press Enter Disabled Disabled	Item Help <hr/> Menu Level ▶
--	---	---------------------------------

↑↓→Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values		F6:Fail-Safe Defaults		F7: Optimized Defaults	

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving. The following table describes each field in the Advanced Chipset Features Menu and how to configure each parameter.

#### CHIPSET FEATURES SETUP

	Setting	Description	Note
<b>System BIOS Cacheable</b>	Disabled		
	Enabled	The ROM area F0000H-FFFFFFH is cacheable.	Default
<b>Video RAM Cacheable</b>	Disabled		Default
	Enabled	When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer	

### 3-4.1 DRAM Clock/Drive Control



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [DRAM Clock/Drive Control] option changes the values of the chipset registers. These registers control the system options in the computer.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software DRAM Clock/Drive Control		
Current FSB Frequency	100 MHz	Item Help Menu Level ▶
Current DRAM Frequency	133 MHz	
DRAM Clock	100	
DRAM Timing	Manual	
SDRAM Cycle Length	3	
Bank Interleave	Disabled	
Precharge to Active(Trp)	3T	
Active to Precharge	6T	
Active to CMD(Trcd)	3T	
DRAM Burst Len	4	
DRAM Command Rate	2T Command	
↑↓→:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help F5:Previous Values    F6:Fail-Safe Defaults    F7: Optimized Defaults		

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

## DRAM Clock/Drive Control

	Setting	Description	Note
<b>DRAM Clock</b>	100	This item allows you to control the DRAM speed.	
	133		
<b>DRAM Timing</b>	By SPD	If enable the DRAM will auto detect the DRAM timing.	
	Manual		Default
<b>SDRAM Cycle Length</b>	3	When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.	Default
	2		
<b>Bank Interleave</b>	Disabled	Increase DRAM performance.	Default
	2 Bank		
	4 Bank		
<b>Precharge to Active(Trp)</b>	2T	Increase DRAM performance.	
	3T		Default
<b>Active to Precharge</b>	6T	Increase DRAM performance.	Default
	5T		
<b>Active to CMD(Trcd)</b>	3T	Increase DRAM performance.	Default
	2T		
<b>DRAM Burst Len</b>	4	Increase DRAM performance.	Default
	8		
<b>DRAM Command Rate</b>	1T Command	Increase DRAM performance.	
	2T Command		Default

### 3-4.2 AGP & P2P Bridge Control



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [AGP & P2P Bridge Control] option changes the values of the chipset registers. These registers control the system options in the computer.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 AGP & P2P Bridge Control

AGP Aperture Size AGP Mode AGP Driving Control x AGP Driving Value AGP Fast Write AGP Master 1 WS Write AGP Master 1 WS Read	128M 4X Auto DA Disabled Disabled Disabled	Item Help <hr/> Menu Level ▶
--	--	---------------------------------

↑↓→:Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

#### AGP & P2P Bridge Control

	Setting	Description	Note
<b>AGP Aperture Size</b>	128M	Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.	Default
	4M, 8M, 16M, 32M, 64M, 256M.		
<b>AGP Mode</b>	1X	This item allows you to enable / disable the AGP-4X Mode.	
	2X		
	4X		Default

## AGP & P2P Bridge Control (Continue)

	Setting	Description	Note
<b>AGP Driving Control</b>	Auto	This item allows you to adjust the AGP driving force. Choose <i>Manual</i> to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system.	Default
	Manual		
<b>AGP Driving Value</b>	Min=0000 ~ Max=00FF	This item allows you to adjust the AGP driving force.	
<b>AGP Fast Write</b>	Disabled	The VIA chipset will use fast write to AGP if this item is enabled. Not all AGP cards support fast write.	Default
	Enabled		
<b>AGP Master 1 WS Write</b>	Disabled	When <i>Enabled</i> , writes to the AGP(Accelerated Graphics Port) are executed with one wait states.	Default
	Enabled		
<b>AGP Master 1 WS Read</b>	Disabled	When <i>Enabled</i> , read to the AGP (Accelerated Graphics Port) are executed with one wait states.	Default
	Enabled		



### 3-4.3 CPU & PCI Bus Control



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [CPU & PCI Bus Control] option changes the values of the chipset registers. These registers control the system options in the computer.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 CPU & PCI Bus Control

CPU to PCI Write Buffer PCI Master 0 WS Write PCI Delay Transaction	Enabled Enabled Disabled	Item Help <hr/> Menu Level ▶
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↑↓→:Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

#### CPU & PCI Bus Control

	Setting	Description	Note
<b>CPU to PCI Write Buffer</b>	Disabled		
	Enabled	Enabled the CPU to PCI Write Buffer.	Default
<b>PCI Master 0 WS Write</b>	Disabled	This item allows you to	
	Enabled	enabled/disabled the PCI post write.	Default
<b>PCI Delay Transaction</b>	Disabled	The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select <i>Enabled</i> to support compliance with PCI specification version 2.1.	Default
	Enabled		

### 3-5 INTEGRATED PERIPHERALS

Select the [Integrated Peripherals] option from the Main Menu and press [Enter] key.



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [INTEGRATED PERIPHERALS] option changes the values of the chipset registers. These registers control the system options in the computer. The following screen shows setup default settings.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 Integrated Peripherals

<ul style="list-style-type: none"> <li>▶ VIA OnChip IDE Device</li> <li>▶ SuperIO Device</li> <li>Init Display First</li> <li>OnChip USB Controller</li> <li>USB Keyboard Support</li> <li>IDE HDD Block Mode</li> </ul>	Press Enter Press Enter AGP 1 USB Port Disabled Enabled	Item Help <hr/> Menu Level ▶
--	--	---------------------------------

↑↓→ Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults	F7: Optimized Defaults			

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

### INTEGRATED PERIPHERALS

	Setting	Description	Note
<b>Init Display First</b>	PCI Slot	Choose which card – AGP	
	AGP	Display card or PCI VGA card – to initialize first.	Default

**INTEGRATED PERIPHERALS**

	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>OnChip USB Controller</b>	All Disabled	This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature. Port 1 means USB1&2 Port 2 means USB3&4 Port 3 means USB5&6	Default
	All Enabled		
	1&2 USB Port		
	2&3 USB Port		
	3&1 USB Port		
<b>USB Keyboard Support</b>	1 USB Port		
	2 USB Port		
	3 USB Port		
<b>USB Keyboard Support</b>	Disabled	Select <i>Enabled</i> if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.	Default
	Enabled		
<b>IDE HDD Block Mode</b>	Disabled	Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.	Default
	Enabled		

### 3-5.1 VIA OnChip IDE Device



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [VIA OnChip IDE Device] option changes the values of the chipset registers. These registers control the system options in the computer.

The following screen shows setup default settings.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software VIA OnChip IDE Device			
OnChip IDE Channel0		Enabled	Item Help
OnChip IDE Channel1		Enabled	
IDE Prefetch Mode		Enabled	Menu Level ▶
Primary Master	PIO	Auto	
Primary Slave	PIO	Auto	
Secondary Master	PIO	Auto	
Secondary Slave	PIO	Auto	
Primary Master	UDMA	Auto	
Primary Slave	UDMA	Auto	
Secondary Master	UDMA	Auto	
Secondary Slave	UDMA	Auto	

↑↓→:Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values		F6:Fail-Safe Defaults		F7: Optimized Defaults	

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

**VIA OnChip IDE Device**

	Setting	Description	Note
<b>On-Chip PCI IDE</b> ➤ <b>Primary</b> ➤ <b>Secondary</b>	Disabled	Turn off the on-board IDE	
	Enabled	Use the on-board IDE	Default
<b>IDE</b> ➤ <b>Primary Master PIO</b> ➤ <b>Primary Slave PIO</b> ➤ <b>Secondary Master PIO</b> ➤ <b>Secondary Slave PIO</b>	mode 0-4	0 is the slowest speed 4 is the fastest speed	
	Auto	For better performance and stability, we suggest you use the Auto setting to set the HDD control timing.	Default
<b>IDE</b> ➤ <b>Primary Master UDMA</b> ➤ <b>Primary Slave UDMA</b> ➤ <b>Secondary Master UDMA</b> ➤ <b>Secondary Slave UDMA</b>	Disabled		
	Auto	Select Auto to enable Ultra DMA Mode support.	Default

### 3-5.2 SuperIO Device



**Caution:** Change these settings only if you are already familiar with the Chipset.

The [SuperIO Device] option changes the values of the chipset registers. These registers control the system options in the computer. The following screen shows setup default settings.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 SuperIO Device

Onboard FDD Controller Onboard Serial Port 1 Onboard Serial Port 2 UART Mode Select x UR2 Duplex Mode Onboard Parallel Port Parallel Port Mode x ECP Mode Use DMA Game Port Address Midi Port Address Midi Port IRQ	Enabled 3F8/IRQ4 2F8/IRQ3 Normal Half 378/IRQ7 SPP 3 201 330 10	Item Help <hr/> Menu Level ▶
---	---	---------------------------------

↑↓→:Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults				F7: Optimized Defaults

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

#### SuperIO Device

	Setting	Description	Note
<b>Onboard FDD controller</b>	Disabled	Turn off the on-board floppy controller	
	Enabled	Use the on-board floppy controller	Default

**SuperIO Device (Continue)**

	Setting	Description	Note
<b>Onboard Serial Port 1 / Serial Port 2</b>	Disabled		
	3F8/IRQ4	Choose serial port 1 & 2's I/O address.	Default (port 1)
	2F8/IRQ3	Do not set port 1 & 2 to the same address except for Disabled or Auto.	Default (port 2)
	3E8/IRQ4		
	2E8/IRQ3		
	Auto		
<b>UART Mode</b>	IrDA	The second serial port offers these InfraRed interface modes.	
	ASKIR		
	Normal		Default
	SCR	SCR mean Smart Card Reader.	
If [UART Mode Select] is set to [IrDA]/[ASKIR]			
<b>UR2 Function Duplex</b>	Half	Choose [Half] or [Duplex] to set UR2 in half duplex mode or full duplex mode respectively. Refer to your IR device specifications to select the suitable mode.	Default
	Full		
<b>Onboard Parallel Port</b>	Disabled	Choose the printer I/O address.	
	378/IRQ7		Default
	278/IRQ5		
	3BC/IRQ7		
<b>Parallel Port Mode</b>	SPP	The mode depends on your external device that connects to this port.	Default
	EPP		
	ECP		
	ECP+EPP		
If [Parallel Port Mode] is set to [ECP] or [ECP+EPP] mode			
<b>ECP Mode use DMA</b>	3	Choose DMA3	Default
	1	Choose DMA1	

## Others Optional

	Setting	Description	Note
<b>Game Port Address</b>	Disabled	Set the I/O base address for the ON board game port under this item.	
	201		Default
	209		
<b>Midi Port Address</b>	Disabled	Set the I/O address for the on board Midi port here.	
	330		Default
	300		
If [Midi Port Address] is set to [330]/[300] mode			
<b>Midi Port IRQ</b>	5	Select the IRQ that the Midi port uses under this them.	
	10		Default



### 3-6 POWER MANAGEMENT SETUP

The [POWER MANAGEMENT SETUP] sets the system's power saving functions.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
Power Management Setup

▶ ACPI Suspend Type	S1 (POS)	Item Help Menu Level ▶
Power Management Option	User Define	
HDD Power Down	Disable	
Suspend Mode	Disable	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODE Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	Off	
▶ IRQ/Event Activity Detect	Press Enter	

↑↓→ Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help  
 F5:Previous Values    F6:Fail-Safe Defaults    F7: Optimized Defaults

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
IRQ/Event Activity Detect

PS2KB Wakeup Select	Hot key	Item Help Menu Level ▶
PS2KB Wakeup from S3/S4/S5	Disabled	
VGA	OFF	
LPT & COM	LPT/COM	
HDD & FDD	ON	
PCI Master	OFF	
PowerOn by PCI Card	Disabled	
Wake Up On LAN/Ring	Disabled	
RTC Alarm Resume	Disabled	
x Date (of Month)	0	
x Resume Time (hh:mm:ss)	0 : 0 : 0	
▶ IRQs Activity Monitoring	Press Enter	

↑↓→ Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help  
 F5:Previous Values    F6:Fail-Safe Defaults    F7: Optimized Defaults

After you have completed the Power Management Setup, press [Esc] to return to the Main Menu.

## Power Management Controls

	Setting	Description	Note
<b>ACPI Suspend Type</b>	S1(POS)	The system will enter the S1 state during suspend. (Low latency wake up)	Default
	S3(STR)		
<b>Power Management Option</b>	User Define	Lets you define the system power down times.	Default
	Min Saving		15 Min
	Max Saving		1 Min
<b>HDD Power Down</b>	Disabled	Lets you define the system power down times.	Default
	1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min, 10Min, 11Min, 12Min, 13Min, 14Min, 15Min		
<b>Suspend Mode</b>	Disabled	Lets you define the system power down times.	Default
	1Min, 2Min, 4Min, 6Min, 8Min, 10Min, 20Min, 30Min, 40Min, 1Hour,		
<b>Video Off Option</b>	Suspend --> Off	When enabled, this feature allows the VGA adapter to operate in a power saving mode.	Default
	Always On		
	All Modes --> Off		
<b>Video Off Method</b>	V/H Sync+Blank	Selects the method by which the monitor is blanked.	Default
	Blank screen		
	DPMS Support		

## Power Management Controls (Continue)

	Setting	Description	Note
<b>MODEM Use IRQ</b>	3	Assigns an IRQ# to the modem device.	Default
	3-11, NA		
<b>Soft-Off by PWR-BTTN</b>	Instant-off	Turns off the system power 4 seconds after pushing the power button.	Default
	Delay 4 Sec.		
<b>State After Power Failure</b>	On	The system will switch on when power comes back after a power failure.	
	Off	The system will remain off when power comes back after a power failure.	Default
	Auto	The system will return to the state it was in before the power failure when power returns. (i.e: If the system was on, it will switch on again, if it was off, it will remain off)	
<b>IRQ/Event Activity Detect</b>	Press Enter	Select items that will wake up your system when in one of sleep modes. Press enter to go the select item page.	

## IRQ/Event Activity Detect

	Setting	Description	Note
<b>PS2KB Wakeup Select</b>	Hot key	You can select the PS2KB Hotkey or Password to wake up system.	Default
	Password		
<b>PS2KB Wakeup from S3/S4/S5</b>	Disabled	You can set the PS2KB Hotkey to Wakeup system.	Default
	Ctrl+F1~F12		
	Power		
	Wake		
	Any Key		

**IRQ/Event Activity Detect (Continue)**

	Setting	Description	Note
<b>VGA</b>	ON	When <i>On of VGA</i> , any activity from one of the listed system peripheral devices or IRQs wakes up the system.	Default
	OFF		
<b>LPT &amp; COM</b>	LPT/COM	When <i>On of LPT &amp; COM</i> , any activity from one of the listed system peripheral devices or IRQs wakes up the system.	Default
	NONE, LPT, COM		
<b>HDD &amp; FDD</b>	OFF	When <i>On of HDD &amp; FDD</i> , any activity from one of the listed system peripheral devices wakes up the system.	Default
	ON		
<b>PCI Master</b>	OFF	When <i>On of PCI Master</i> , any activity from one of the listed system peripheral devices wakes up the system	Default
	ON		
<b>PowerOn by PCI Card</b>	Disabled	If enabled any PCI interrupt will wake up the system.	Default
	Enabled		
<b>Wake Up On LAN/Ring</b>	Disabled	An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem/LAN) awakens the system from a soft off state.	Default
	Enabled		
<b>RTC Alarm Resume</b>	Disabled	The system ignores the alarm.	Default
	Enabled	Set alarm to power on the system by the date (1-31) or time (hh:mm:ss). If the date is set to [0], the system will self-power on by alarm everyday at the set time.	

### 3-6.1 IRQs Activity Monitoring

This option sets the IRQs Activity Monitoring.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software		
IRQs Activity Monitoring		
Primary INTR	ON	Item Help  Menu Level ▶
IRQ3 (COM 2)	Disabled	
IRQ4 (COM 1)	Enabled	
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Reserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Enabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	

↑↓→ Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values		F6:Fail-Safe Defaults		F7: Optimized Defaults	

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

## IRQs Activity Monitoring

Wake Up Events	Setting	Description	Note
<b>Primary INTR</b>	ON	When set to <i>On</i> , any event occurring at will awaken a system which has been powered down.	Default
	OFF		
<b>IRQs Activity Monitoring (Press Enter)</b>	Enabled	IRQ3(COM2), IRQ4(COM1), IRQ5(LPT2), IRQ6(Floppy Disk), IRQ7(LPT1), IRQ12(PS/2 mouse), IRQ13(Coprocessor), IRQ14(HardDisk)	
	Disabled	IRQ8 (RTC Alarm), IRQ9(IRQ2 Redir), IRQ10( Reserved), IRQ11(Reserved), IRQ15 (Reserved)	

### 3-7 PNP/PCI CONFIGURATIONS

This option sets the Motherboard's PCI Slots.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 PNP/PCI Configurations

PNP OS Installed Reset Configuration Data	NO Disabled	Item Help <hr/> Menu Level ▶ Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices.
Resources Controlled By * IRQ Resources	Auto (ESCD) Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA Assign IRQ For USB	Enabled Enabled	

↑↓→ Move	Enter: Select	+/-/PU/PD: Value	F10: Save	ESC: Exit	F1: General Help
F5: Previous Values	F6: Fail-Safe Defaults		F7: Optimized Defaults		



**Note:** Starred (\*) items will disappear when the [Resources Controlled By] option is set to [Auto].

After you have completed the PCI Slot Configuration, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

### PNP/PCI Configuration Controls

PNP/PCI Controls	Setting	Description	Note
<b>PnP OS Installed</b>	Yes	Set this field to [Yes] if you are running Windows 95, which is PnP compatible.	
	No	If the OS you are running does not support PnP configuration.	Default (If there is any doubt, set this field to [No])
<b>Reset Configuration Data</b>	Disabled	Retain PnP configuration data in BIOS.	Default
	Enabled	Reset PnP configuration data in BIOS.	
<b>Resources Controlled By</b>	Manual	BIOS does not manage PCI/ISA PnP card IRQ assignment. Requires to assign IRQ-# to PCI or ISA PnP manually. IRQ-3,4,5,7,9,10,11,12,14,15 assigned to: _ DMA-0,1,3,5,6,7 assigned to: _	
	Auto (ESCD)	The Plug-and-Play BIOS auto manages PCI/ISA PnP card IRQ assignment automatically.	Recommended
If [Resources Controlled By] is set to [Manual]			
<b>IRQ Resource (Press Enter)</b>	PCI Device	Choose IRQ-# assigned to PCI/ISA PnP card.	IRQ-3,4,5,7,9,10,11,12,14,15
	Reserved	Choose IRQ-# assigned to Legacy ISA card.	IRQ-3,4,5,7,9,10,11,12,14,15
<p>Under this item the user can assign an IRQ to a PCI slot. However, there under some conditions the IRQ will not be assigned as selected under this item:</p> <ol style="list-style-type: none"> <li>1. IRQs 0, 1, 2, 6, 8, 13 can NOT be assigned, because they are fixed.</li> <li>2. IRQs 5, 9, 10, 11 are available</li> <li>3. IRQs 3,4,7,12,14 and 15 will only be assigned if they are free. See the table below on how to free them:</li> </ol>			



## PNP/PCI Configuration Setup (Continue)

PNP/PCI Setup	Setting	Description	Note
Interrupt Line	How to set the BIOS to release the IRQ to the PnP Interrupt pool:		
	PnP / PCI configuration	Integrated Peripherals	
IRQ 15	IRQ 15: <b>PCI / ISA PnP</b>	On-Chip Secondary PCI IDE:	<b>disabled</b>
IRQ 14	IRQ 14: <b>PCI / ISA PnP</b>	On-Chip Primary PCI IDE:	<b>disabled</b>
IRQ 12	IRQ 12: <b>PCI / ISA PnP</b>	<i>Interrupt 12 will be released by the PnP BIOS automatically if the PS/2 Mouse Port is not used.</i>	
IRQ 7	IRQ 7: <b>PCI / ISA PnP</b>	Onboard parallel port:	<b>disabled</b>
IRQ 4	IRQ 4: <b>PCI / ISA PnP</b>	Onboard Serial port 1:	<b>disabled</b>
IRQ 3	IRQ 3: <b>PCI / ISA PnP</b>	Onboard Serial port 2:	<b>disabled</b>
4. Your OS may reassign another interrupt to a PCI slot after BIOS passes control to the OS, especially if you use Windows 95, 98 or NT.			
<b>Assign IRQ For VGA/USB</b>	Disabled	BIOS will assign IRQ for VGA/USB port.	
	Enabled	BIOS won't assign IRQ for VGA/USB port.	Default

## MULTI I/O ADDRESSES

Default settings for multi-I/O addresses are as follows:

Port	I/O Address	IRQ	Status
<b>LPT1</b>	378H	7	ECP/EPP
<b>COM1</b>	3F8H	4	
<b>COM2</b>	2F8H	3	



**Warning:** If a default I/O address conflicts with other I/O cards such as sound card, you must change one of the I/O addresses to remedy to this address conflict. (I/O addresses can be adjusted from the BIOS Setup Utility)

### 3-8 PC HEALTH STATUS

This option sets the Motherboard's PC Health Status.

CMOS Setup Utility – Copyright ( C ) 1984-2001 Award Software  
 PC Health Status

<b>Shutdown Temperature</b>	<b>Disabled</b>	Item Help
Vcore	1.77 V	Menu Level ▶
VCC 2.5V	2.46 V	
3.3 V	3.32 V	
+ 5 V	4.94 V	
+ 12 V	12.16 V	
Current CPU Temp.	44 °C	
Current SYS Temp.	37 °C	
CPUFAN1 Speed	4440 RPM	
CHAFAN1 Speed	0 RPM	

↑↓→ Move	Enter:Select	+/-/PU/PD:Value	F10:Save	ESC:Exit	F1:General Help
F5:Previous Values	F6:Fail-Safe Defaults		F7: Optimized Defaults		

After you have completed the changes, press [Esc] key and follow the instructions on your screen to save your settings or exit without saving.

### CPU Device Monitoring

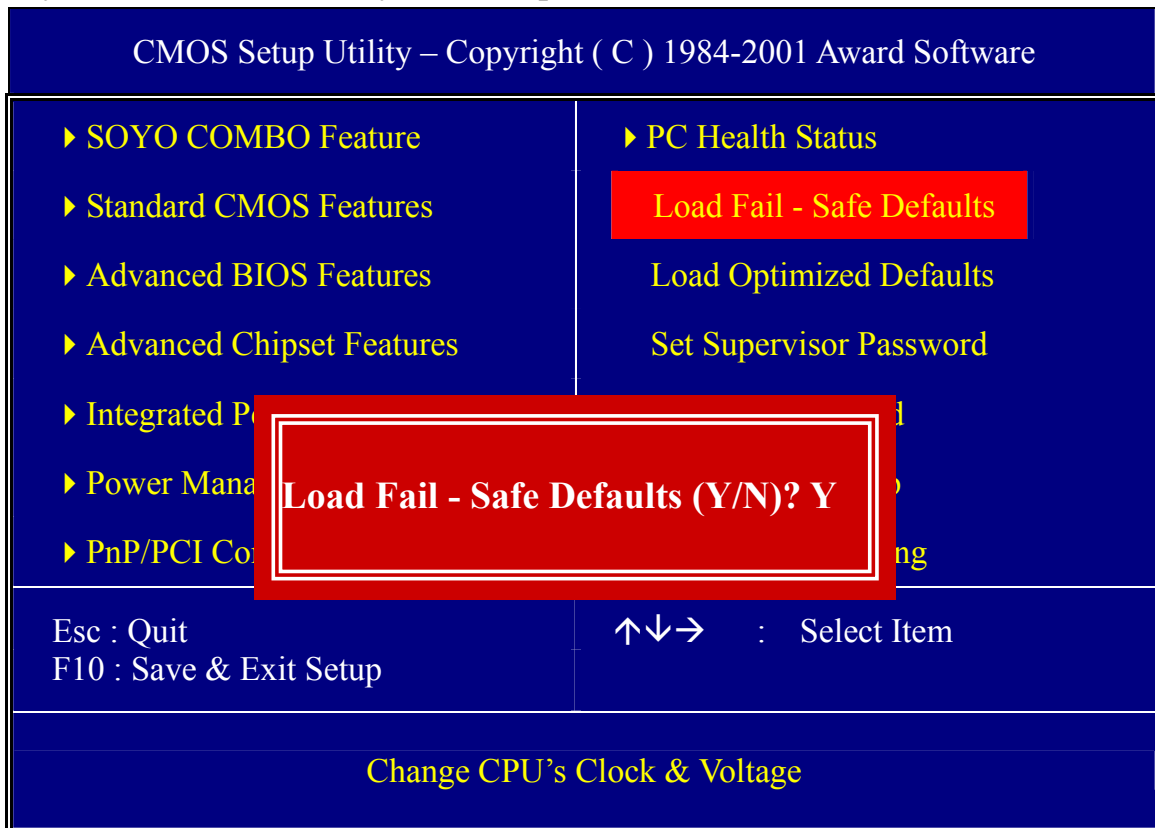
	Setting	Description	Note
<b>Shutdown Temperature</b>	Disabled	This item allows you to set up the CPU shutdown Temperature. This item only effective under Windows 98 ACPI mode.	Default
	30°C/86°F,		
	35°C/95°F,		
	40°C/104°F,		
	45°C/113°F,		
	50°C/122°F,		
	55°C/131°F,		
	60°C/140°F,		
65°C/149°F,			
70°C/158°F			

**CPU Device Monitoring (Continue)**

	Setting	Description	Note
<b>Vcore Vcc 2.5V, 3.3V, +5V, +12V</b>	V	Show the current voltage status.	
<b>Current CPU Temp.</b>	°C/°F	Show the current status of CPU temperature.	
<b>Current SYS Temp.</b>	°C/°F	Show the current status of the System temperature.	
<b>CPUFAN1/ CHAFAN1 Speed</b>	RPM	Show the current status of CPU/CHA Fan.	

### 3-9 LOAD FAIL-SAFE DEFAULTS

Select the [Load Fail-Safe Defaults] option from the Main Menu to load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve the old values.



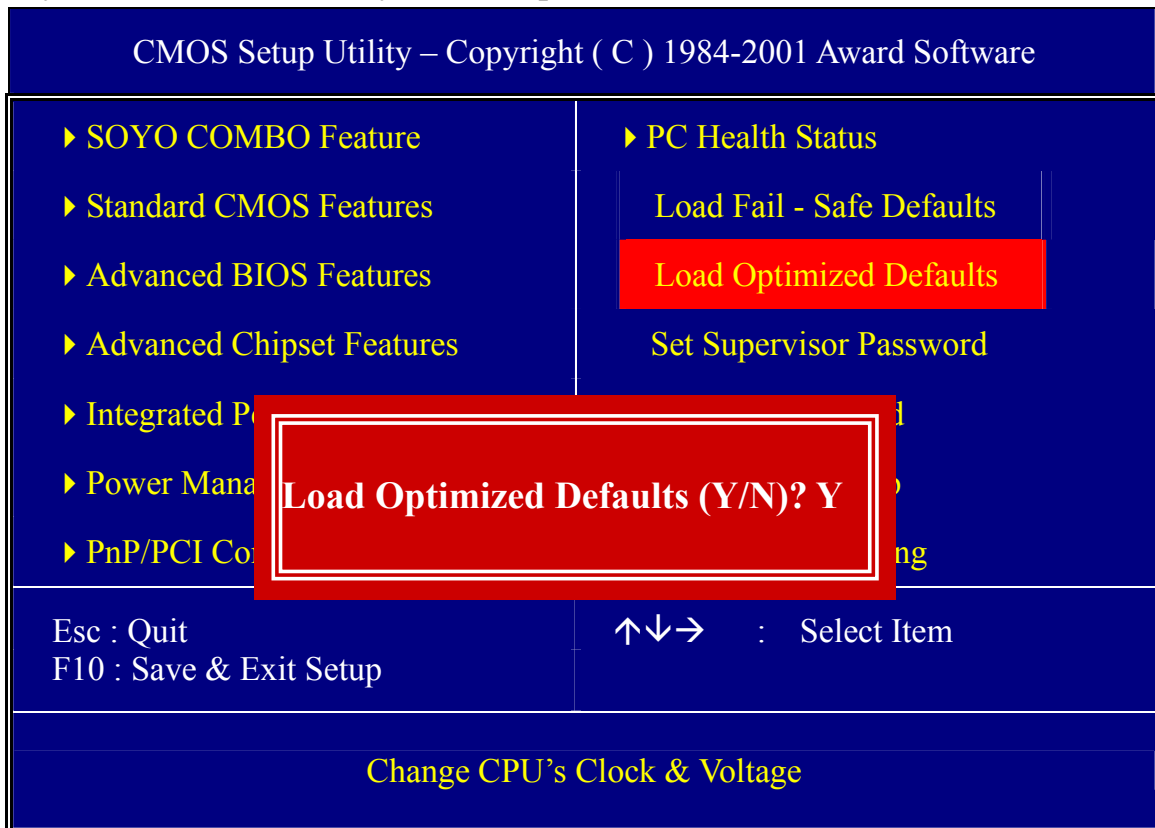
Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.



**Warning:** If you run into any problem after changing the BIOS configuration, please load the Fail-Safe Defaults for stable performance.

### 3-10 LOAD OPTIMIZED DEFAULTS

Select the [Load Optimized Defaults] option from the Main Menu to load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve the old values.



Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.



**Warning:** If you run into any problem after changing the BIOS configuration, please load the optimized Defaults for stable performance.

### 3-11 SET SUPERVISOR PASSWORD

Based on the setting you have made in the [Security Option] of the [BIOS FEATURES SETUP] section, the password prevents access to the system or the setup program by unauthorized users. Follow this procedure to set a new password or disable the password:

1. Choose [BIOS FEATURES SETUP] in the Main Menu and press [Enter]. Select the [Security Options] item and set the field to:
  - a. [System]: The password is required every time the system is booted. This means only a person who knows the password can use this computer.
  - b. [Setup]: The password is required only when you attempt to enter the BIOS Setup program.
2. Choose [SUPERVISOR PASSWORD] from the Main Menu and press [Enter]. The following prompt appear:

Enter Password:



---

**Warning:** If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.

---



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**Note:** If you do not wish to use the password function, press [Enter] directly and the following message appears:

Password Disabled!!

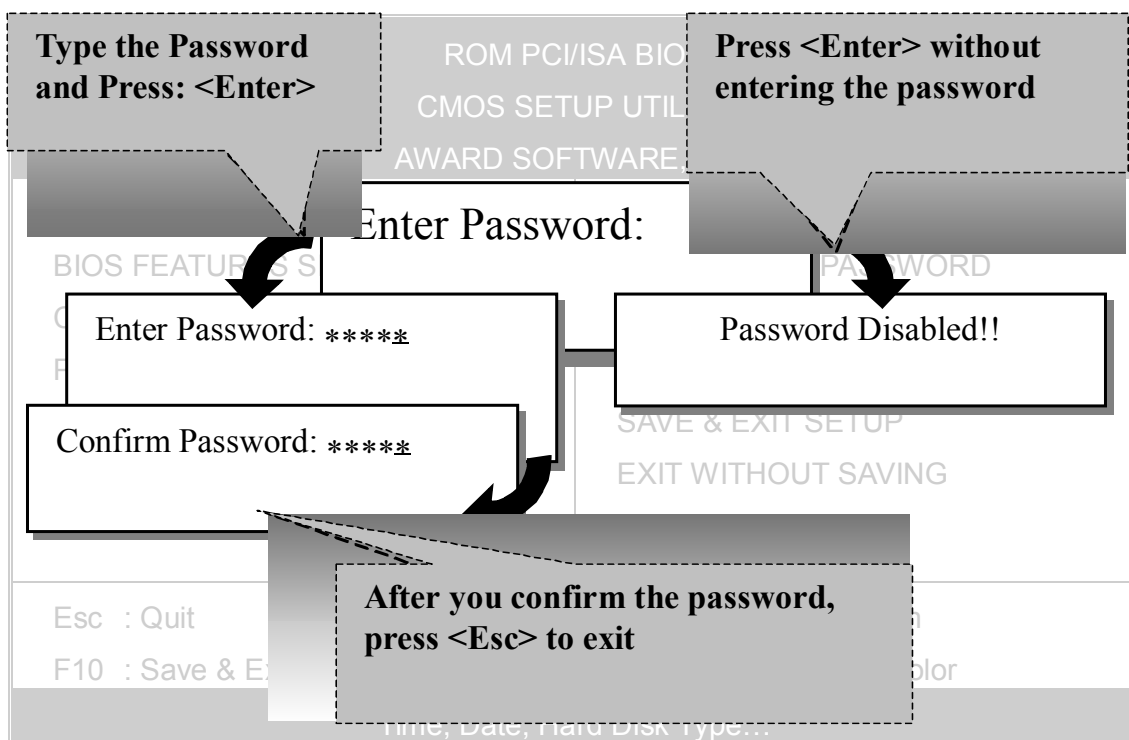
---

3. Enter your new password and press [Enter]. The following message appears, prompting to confirm the new password:

Confirm Password:

4. Re-enter your password and then press [Enter] to exit to the Main Menu.

This diagram outlines the password selection procedure:



### 3-12 SET USER PASSWORD

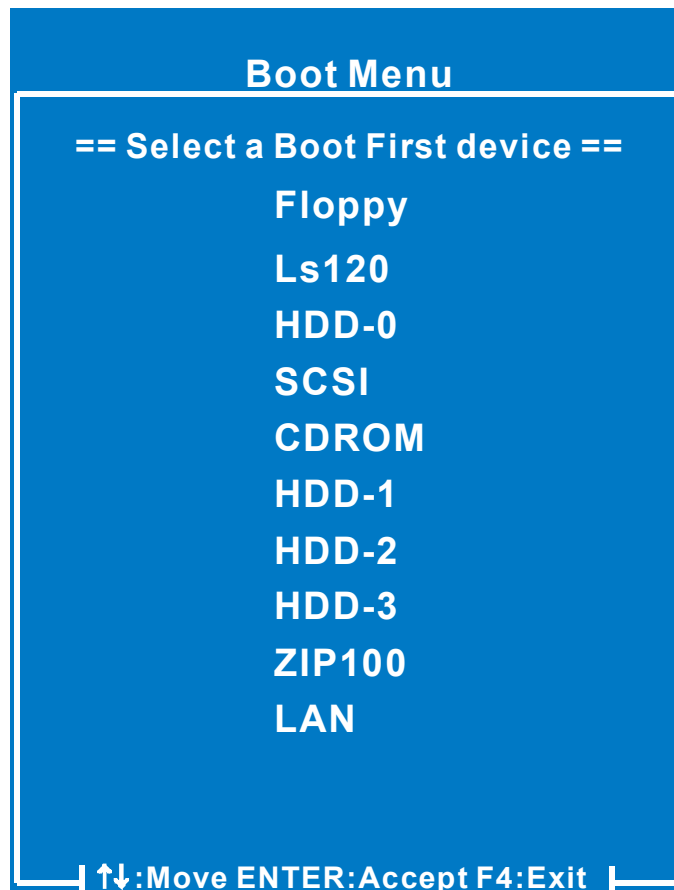
When the user password option is on, you are not allowed to change any setting in the [CMOS SETUP UTILITY] except for changing the user's password.

The password setting procedure is similar to that for the [SUPERVISOR PASSWORD] (Refer to section 3-9).

## Boot Menu

Boot Menu enables user to boot-up on different boot device without going into the BIOS setup.

*To enable boot Menu, press “ESC” after memory initialization, user will see a device menu, in which user can choose the device they wish to boot from.*





## Chapter 4

### DRIVERS INSTALLATION

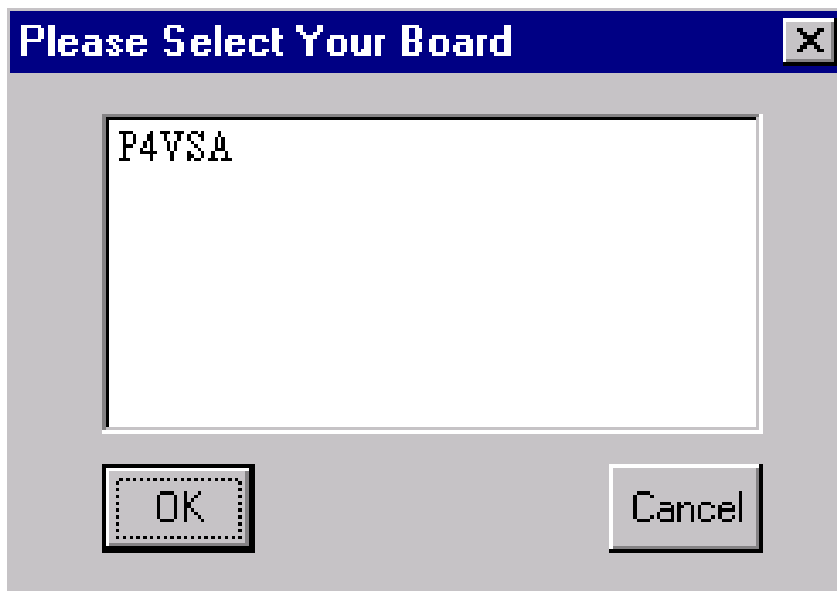


**The SOYO-CD will NOT autorun if you use it on an Operating System other than Windows 95/98/98SE/ME.**

Your SY-P4VSA Motherboard comes with a CD-ROM labeled "SOYO CD." The SOYO CD contains (1) the user's manual file for your new Motherboard, (2) the drivers software available for installation, and (3) a database in HTML format with information on SOYO Motherboards and other products.

**Step 1. Insert the SOYO CD into the CD-ROM drive**

If you use Windows 2000 or NT, the SOYO-CD will not detect your motherboard type. In that case the following dialog will pop up, please choose your motherboard and press OK. Now the SOYO-CD Start Up Menu will be shown.



**(SOYO CD Start Up Program Menu)**

If you use Windows 95/98/98SE/ME, the SOYO CD Start Up Program automatically detects which SOYO Motherboard you own and displays the corresponding model name.



The user's manual files included on the SOYO CD are in PDF (Postscript Document) format. In order to read a PDF file, the appropriate Acrobat Reader software must be installed in your system.

**Note:** The Start Up program automatically detects if the Acrobat Reader utility is already present in your system, and otherwise prompts you on whether or not you want to install it. You must install the Acrobat Reader utility to be able to read the user's manual file. Follow the instructions on your screen during installation, then once the installation is completed, restart your system and re-run the SOYO CD.

## Step 2. Install Drivers and Utilities

Click the **Install Drivers** button to display the list of drivers software that can be installed with your Motherboard. The Start Up program displays the drivers available for the particular model of Motherboard you own. We recommend that you only install those drivers.



### (Driver Installation Menu)

A short description of all available drivers follows:

➤ **VIA 4in1 Driver Package for Win 9x/ME/NT/2k**

VIA 4 In 1 driver includes four system drivers to improve the performance and maintain the stability of systems using VIA chipsets. These four drivers are:

VIA Registry (INF) Driver, VIA AGP VxD driver, VIA ATAPI Vendor Support Driver and VIA PCI IRQ Miniport Driver. For Windows NT users, the VIA IDE Bus Mastering driver is the only driver to be installed in your system.

A description of 4 drivers followa:

—**Bus Master PCI IDE Driver**

The ATAPI IDE driver enables the performance enhancing bus mastering functions on ATA-capable Hard Disk Drives and ensures IDE device compatibility.

—**AGP VxD Driver**

VIA AGP VxD Driver is to be installed if you are using an AGP VGA device. VIAGART.VXD will provide service routines to your VGA driver and interface directly to hardware, providing fast graphical access.

—**VIA Chipset Functions Registry**

VIA Registry (INF) Driver is to be installed under Windows. The driver will enable the VIA Power Management function.

—**IRQ remapping utility (This driver is installed automatically)**

VIA PCI IRQ Miniport Driver is to be installed under Windows 98 only, it sets the system's PCI IRQ routing sequence.

➤ **Avance Onboard Audio Driver for Win 95**

This Onboard Audio sound driver for Windows 95.

➤ **Avance Onboard Audio Driver for Win 98/98SE/ME/2000**

This Onboard Audio sound drivers for Windows 98/98SE/ME/2000.

➤ **Avance Onboard Audio Driver for Win NT4.0**

This Onboard Audio sound driver for Windows NT4.0.

➤ **Avance Onboard Audio Applications for Win 9x/ME/2000/NT**

The Application support file formats including .MP3, .CDA, .MIDI, .WAV & .WMA. Make sure to install it after installing the Avance drivers for your OS.

➤ **P4VSA ITE hardware doctor for Win 9x/ME/2000/NT**

Your motherboard comes with a hardware monitoring IC. By installing this utility Temperature, Fan speed and Voltages can be monitored. It is also possible to set alarms when current system values exceed or fall below pre-set values.

➤ **P4VSA ITE SIM card reader driver for Win 9x/ME/2000/NT (english)**

If you have reader card, it must be installed.

Select which driver you want to install and click **OK**, or click **Cancel** to abort the driver installation and return to the main menu.

**Note:** Once you have selected a driver, the system will automatically exit the SOYO CD to begin the driver installation program. When the installation is complete, most drivers require to restart your system before they can become active.

**Step 3. Check the Latest Releases**

Click the 'Check the latest Releases' button to go the SOYO Website to automatically find the latest BIOS, manual and driver releases for your motherboard. This button will only work if your computer is connected to the internet through a network or modem connection. Make sure to get your modem connection up before clicking this button.

