



SY-K7VLM-B

Motherboard

AMD[®] Athlon/Duron[™]

Processor supported

VIA VT8364 AGP/PCI Motherboard

200 MHz Front Side Bus supported

Micro-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>".

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K7VLM-B SERIAL

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE
100% POST CONSUMER
RECYCLED PAPER

Table of Contents

| | | |
|------------------|----------------------------------------------|-----------|
| CHAPTER 1 | MOTHERBOARD DESCRIPTION | 1 |
| 1-1 | INTRODUCTION | 1 |
| 1-2 | KEY FEATURES | 1 |
| 1-3 | HANDLING THE MOTHERBOARD | 5 |
| 1-4 | ELECTROSTATIC DISCHARGE PRECAUTIONS | 5 |
| 1-5 | SY-K7VLM-B MOTHERBOARD LAYOUT | 6 |
| 1-6 | SY-K7VLM-B MOTHERBOARD COMPONENTS | 7 |
| 1-7 | MICROPROCESSOR..... | 9 |
| 1-8 | MEMORY | 10 |
| 1-9 | CHIPSET | 12 |
| 1-10 | I/O INTERFACE CONTROLLER | 16 |
| 1-11 | HARDWARE MONITOR..... | 18 |
| 1-12 | WAKE ON LAN TECHNOLOGY | 19 |
| CHAPTER 2 | HARDWARE INSTALLATION..... | 20 |
| 2-1 | PREPARATIONS | 20 |
| 2-2 | UNPACKING THE MOTHERBOARD | 21 |
| 2-3 | INSTALLATION GUIDE | 22 |
| 2-3.1 | <i>CPU Installation.....</i> | <i>23</i> |
| 2-3.2 | <i>SDRAM Memory Module Installation.....</i> | <i>26</i> |
| 2-3.3 | <i>Motherboard Connector.....</i> | <i>28</i> |
| 2-3.4 | <i>CMOS Clearing (JP5).....</i> | <i>42</i> |
| 2-3.5 | <i>Power On.....</i> | <i>43</i> |
| 2-3.6 | <i>Quick BIOS Setup.....</i> | <i>44</i> |
| 2-3.7 | <i>Troubleshooting at First Start</i> | <i>45</i> |
| 2-3.8 | <i>Power Off.....</i> | <i>47</i> |
| CHAPTER 3 | BIOS SETUP UTILITY | 49 |
| 3-1 | STANDARD CMOS SETUP | 52 |
| 3-2 | ADVANCED BIOS FEATURES..... | 55 |

| | | |
|---------------------------------------------|----------------------------------|-----------|
| 3-3 | ADVANCED CHIPSET FEATURES | 59 |
| 3-4 | INTEGRATED PERIPHERALS | 64 |
| 3-5 | POWER MANAGEMENT SETUP | 69 |
| 3-6 | PNP/PCI CONFIGURATION SETUP..... | 73 |
| 3-7 | PC HEALTH STATUS..... | 76 |
| 3-8 | LOAD FAIL-SAFE DEFAULTS..... | 78 |
| 3-9 | LOAD OPTIMIZED DEFAULTS..... | 79 |
| 3-10 | SUPERVISOR PASSWORD..... | 80 |
| 3-11 | USER PASSWORD..... | 81 |
| CHAPTER 4 DRIVERS INSTALLATION | | 82 |

Chapter 1

MOTHERBOARD DESCRIPTION

1-1 INTRODUCTION

The **SY-K7VLM-B** AGP/PCI Motherboard is a high-performance Socket 462 Micro-ATX form-factor system board. The **SY-K7VLM-B** uses VIA Chipset technology and supports Socket 462 class processors. This Motherboard is fully compatible with industry standards and adds many technical enhancements.

1-2 KEY FEATURES

➤ CPU SUPPORT

The SY-K7VLM-B supports a wide range of AMD CPUs:

- AMD® Athlon™ (750MHz~1.2+GHz)
- AMD® Duron™ (600MHz~800+MHz)

New released AMD Socket 462 CPUs will very likely be supported by the SY-K7VLM-B as well.

➤ CPU SETTINGS

The SY-K7VLM-B 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-K7VLM-B supports an incredible wide range of CPU FSB frequency settings:

66, 75, 81, 83, 90, 95, 100, 105, 110, 112, 113, 115, 117, 118, 120, 122, 124, 126, 133, 135, 137, 138, 140, 142, 144, 150 and 155 MHz.

This ensures that the SY-K7VLM-B has an overwhelming overclocking potential.

■ **CPU Multiplier**

The SY-K7VLM-B supports a wide range of multipliers:

2.0x, 2.5x, 3.0x, 3.5x, 4.0x, 4.5x, 5.0x, 5.5x, 6.0x, 6.5x, 7.0x, 7.5x and 8.0x

➤ **EXPANDABILITY**

The SY-K7VLM-B provides all the standard expansion slots, and many more additional expansion features:

◆ **Expansion slots**

- 3 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
- 1x 16550 compatible serial ports
- IrDA compatible infrared port
- 4x USB (Universal Serial Bus) connectors
- PS/2 mouse connector
- PS/2 keyboard connector

➤ **ADVANCED FUNCTIONS**

The SY-K7VLM-B 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-K7VLM-B to support this function*).

■ **Multiple boot**

The SY-K7VLM-B supports booting from devices such as CD-ROM.

■ **Power on by modem or alarm**

If the SY-K7VLM-B 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-K7VLM-B comes with added functionality to make managing the system easy and safe

◆ **Hardware Monitor**

The integrated Winbond 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.

◆ **5VSB Indicator**

This green LED gives an indication of the presence of the 5V Standby voltage. This voltage is always fed into the motherboard and is used for functions such as WOL.

➤ **SOYO Bonus Pack CD-ROM**

➤ **COMPLIANCE**

The SY-K7VLM-B complies with all important industry standards. The following underlines the reliability of the SY-K7VLM-B, a motherboard to trust.

- PC99, ACPI compliant

➤ **USER FRIENDLY**

- SOYO Combo Setup
- Jumperless design
- You can set up the following options through the BIOS setting
 - CPU FSB frequency
 - CPU multiplier
 - CPU Vcore voltage
 - PCI clock
 - SDRAM 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.

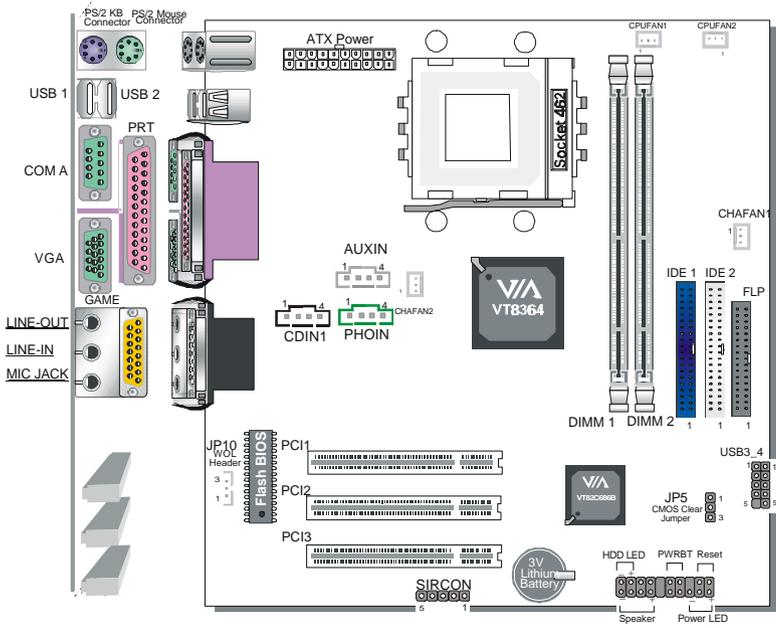
1-4 ELECTROSTATIC DISCHARGE PRECAUTIONS

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.

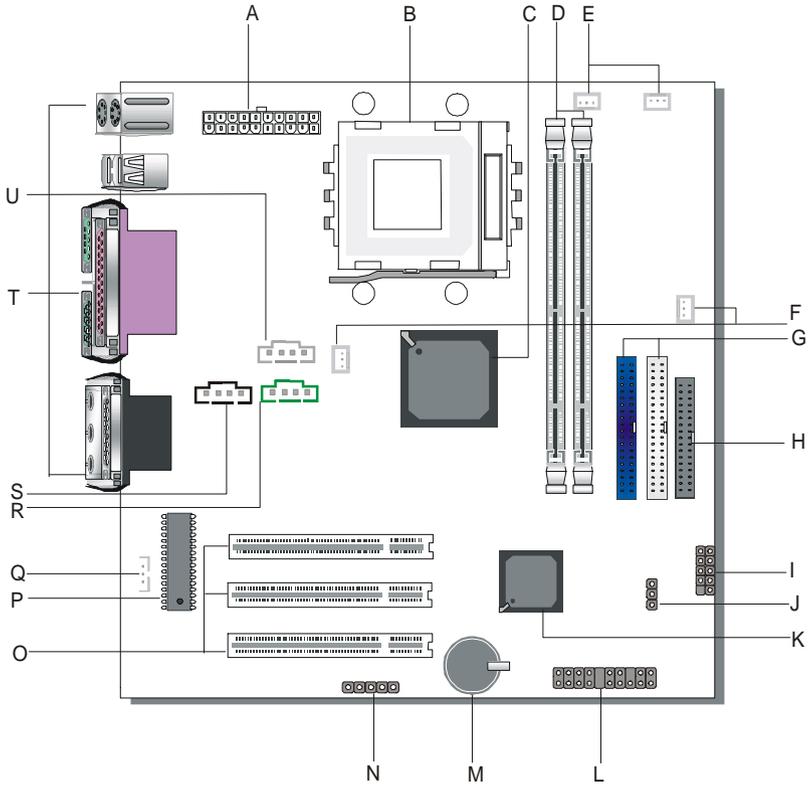
1-5 SY-K7VLM-B MOTHERBOARD LAYOUT



Back Panel

SY-K7VLM-B Platform

1-6 SY-K7VLM-B MOTHERBOARD COMPONENTS



- A ATX Power Supply Connector**
- B Socket 462 Connector**
- C Via VT8364 North Bridge chip**
- D DIMM Banks**
- E CPU Cooling Fan Connector**
- F Chassis Cooling Fan Connector**
- G Bus Mastering e-IDE/ATAPI Ports**
- H Floppy Disk Drive (FDD) Port**
- I USB Port**
- J CMOS Clear Jumper**
- K Via 82C686B South Bridge chip**
- L Front panel connectors**
- M 3V Lithium Battery**
- N Serial Infrared (IrDa) Device Header**
- O 32-bit PCI Mastering Slots**
- P Flash BIOS**
- Q Wake-On-LAN (WOL) Header**
- R Phone In Connector**
- S CD In Connector**
- T Bank panel Connector**
- U Aux In Connector**

1-7 MICROPROCESSOR

The motherboard supports a single Socket 462 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 automatically selected. The motherboard supports all current Socket 462 processor speeds, voltages, and bus frequencies.

1-7.1 Microprocessor Packaging

The CPU is packaged in a 462 pin PGA package. A 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 462 processors that run at higher speeds. When upgrading the processor, use the BIOS configuration mode to change the processor speed.

1-8 MEMORY

1-8.1 Main Memory

The motherboard has two DIMM sockets. SDRAM can be installed in one, two, or sockets. Using the serial presence detect (SPD) data structure, programmed into an E²PROM on the DIMM, the BIOS can determine the SDRAM's size and speed. Minimum DIMM memory size is 8 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 synchronous with host CPU (66/100/133MHz) or AGP (66MHz) for most flexible configuration
- DRAM interface may be faster than CPU by 33 MHz to allow use of PC100 memory modules
- DRAM interface may be slower than CPU by 33 MHz to allow use of older memory modules with newer CPUs
- Concurrent CPU, AGP, and PCI access
- Supports SDRAM and VCM SDRAM memory types
- Different DRAM types may be used in mixed combinations
- Different DRAM timing for each bank
- Dynamic Clock Enable (CKE) control for SDRAM power reduction in high speed system.
- Mixed 1M/2M/4M/8M/16M/32MxN DRAMs
- The K7VLM-B supports 2 DIMMs or 6 banks at 133MHz for 1GB max memory)
- Flexible row and column addresses
- 64-bit data width only
- 3.3V DRAM interface with 5V-tolerant inputs
- Programmable I/O drive capability for MA, command, and MD signals
- Dual copies of MA signals for improved drive
- Optional bank-by-bank ECC (single-bit error correction and multi-bit error detection) or EC(error checking only) for DRAM integrity

- Supports PC100 and PC133 SDRAM
- Independent SDRAM control for each bank
- Seamless DRAM command scheduling for maximum DRAM bus utilization (e.g., precharge other banks while accessing the current bank)
- Four cache lines (16quadwords) 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
- BIOS shadow at 16KB increment
- Decoupled and burst DRAM refresh with staggered RAS timing
- CAS before RAS or self refresh

1-9 CHIPSET

➤ VT8364

The KL133 chip set consists of the VT8364 system controller (552 pin BGA) and the VT82C686B PCI to ISA bridge (352 pin BGA). The system controller provides superior performance between the CPU, DRAM and PCI bus with pipelined, burst, and concurrent operation.

The VT8364 supports six banks of DRAMs up to 1.5GB. The DRAM controller supports standard, Synchronous DRAM (SDRAM) and Virtual Channel SDRAM (VC SDRAM), in a flexible mix / match manner. The Synchronous DRAM interface allows zero wait state bursting between the DRAM and the data buffers at 66/100/133 MHz. The six banks of DRAM can be composed of an arbitrary mixture of 1M/2M/4M/8M/16M/32MxN DRAMs. The DRAM controller can run at either the host CPU bus frequency (66/100/133 MHz) or at the AGP bus frequency (66 MHz) with built-in PLL timing control.

The VT8364 system controller also supports full AGP v2.0 capability for maximum bus utilization including 1x/2x/4x mode transfers, SBA (Side Band Addressing), Flush/Fence commands, and pipelined grants. An eight level request queue plus a four level post-write request queue with thirty-two and sixteen quad words of read and write data FIFO's respectively are included for deep pipelined and split AGP transactions. A single-level GART TLB with 16 full associative entries and flexible CPU/AGP/PCI remapping control is also provided for operation under protected mode operating environments. Both Window 95 VxD and Windows 98 /Windows 2000 mini port drivers are supported for interoperability with major AGP-based 3D and DVD- capable multimedia accelerators.

The VT8364 supports two 32-bit 3.3/5V system buses (one AGP and one PCI) that are synchronous/ pseudo-synchronous to the CPU bus. The chip also contains a built-in bus-to-bus bridge to allow simultaneous concurrent operations on each bus. Five levels (double words) of post write buffers are included to allow for concurrent CPU and PCI operation. For PCI master operation, forty-eight levels (double words) of post write buffers

and sixteen levels (double words) of prefetch buffers are included for concurrent PCI bus and DRAM/cache accesses. The chip also 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 over all system performance.

The 352-pin Ball Grid Array VT82C686B PCI to ISA bridge supports four levels (double words) of line buffers, type F DMA transfers and delay transaction to allow efficient PCI bus utilization The VT82C686B also includes an integrated keyboard controller with PS/2 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 for 33/66 MB/sec transfer rate, integrated USB interface with root Hub and two function ports with built-in physical layer transceivers, Distributed DMA supports, and On Now/ ACPI compliant advanced configuration and power management interface.

For sophisticated power management, the Via 8364 provides independent clock stop control for the CPU/SDRAM, PCI, and AGP buses and 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 VT82C686B south bridge chip, a complete power conscious PC motherboard can be implemented with no external TTLs.

The Via 8364 chipset is ideal for high performance, high quality, high energy efficient and high integration desktop and notebook AGP / PCI / ISA computer systems.

➤ **VT82C686B**

The VT82C686B PSIPC (PCI Super-I/O integrated Peripheral Controller) is a high integration, high performance, power-efficient, and high compatibility device that supports AMD and non-AMD based processor to PCI bus bridge functionality to make a complete Microsoft PC99-compliant PCI/ISA system. In addition to complete ISA extension bus functionality, the VT82C686B includes standard AMD ligent peripheral controllers:

- 1) 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 VT82C686B also supports the UltraDMA-33 standard to allow reliable data transfer rates up to 33MB/sec throughput. The VT82C686B also supports the UltraDMA-66 standard. The IDE controller is SFF-8038I v1.0 and Microsoft Windows-family compliant.
- 2) Universal Serial Bus controller that is USB v1.1 and Universal HCI v1.1 compliant. The VT82C686B includes the root hub with four 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 non-USB-aware operating system environment.
- 3) Keyboard controller with PS2 mouse support.
- 4) 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.
- 5) Hardware monitoring subsystem for managing system/ motherboard voltage levels, temperatures, and fan speeds
- 6) Full System Management Bus (SMBus) interface.

- 7) Two 16550-compatible serial I/O ports with infrared communications port option. A third serial port is available to be dedicated to the IR interface.
- 8) Integrated PCI-mastering dual full-duplex direct-sound AC97-link-compatible sound system. Hardware soundblaster-pro and hardware-assisted FM blocks are included for Windows DOS box and real-mode DOS compatibility. Loopback capability is also implemented for directing mixed audio streams into USB and 1394 speakers for high quality digital audio
- 9) Two game ports and One MIDI port
- 10) ECP/EPP-capable parallel port
- 11) Standard floppy disk drive interface
- 12) Distributed DMA capability for support O ISA legacy DMA over the PCI bus. Serial IRQ is also supported for docking and non-docking application.
- 13) 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 onboard peripherals for Windows family compliance.

The VT82C686B 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 PCI2.2 specification, the VT83C686A 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 VT82C686B 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
 - Two FDDs with drive swap 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 one 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>, 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 direct4d 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-K7VLM-B** 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 462 processor with built-in CPU cooling fan (boxed type).



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

2. DIMM 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:

◆ The SY-K7VLM-B VT8364 AGP/PCI Motherboard



◆ This Quick Start Guide



◆ The Installation CD-ROM



◆ SOYO Bonus Pack CD-ROM



◆ One IDE Device ATA 66 Flat Cable



◆ One Floppy Disk Drive Flat Cable



◆ One Heat Sink Compound



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

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.



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

Your SY-K7VLM-B motherboard comes with a CPU retention set kit. The retention set is used to hold the processor attached to the Socket 462 CPU connector on the motherboard.

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

FSB 200MHz (Athlon/Duron)

Athlon

| | | | |
|---------------------------------------------|-----------------------------------------------|----------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> 750MHz (100 x 7.5) | <input type="checkbox"/> 800MHz (100 x 8.0) | <input type="checkbox"/> 850MHz (100 x 8.5) | <input type="checkbox"/> 900MHz (100 x 9.0) |
| <input type="checkbox"/> 950MHz (100 x 9.5) | <input type="checkbox"/> 1000MHz (100 x 10.0) | <input type="checkbox"/> 1.1GHz (100 x 11.0) | <input type="checkbox"/> |

Duron

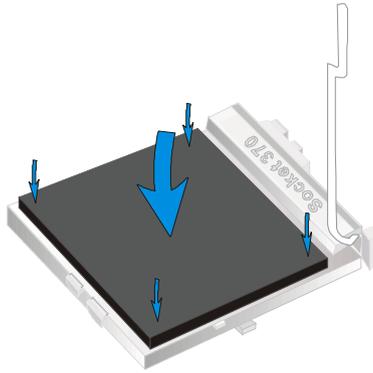
| | | | |
|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> 600MHz (100 x 6.0) | <input type="checkbox"/> 650MHz (100 x 6.5) | <input type="checkbox"/> 700MHz (100 x 7.0) | <input type="checkbox"/> 750MHz (100 x 7.5) |
| <input type="checkbox"/> 800MHz (100 x 8.0) | <input type="checkbox"/> 850MHz (100 x 8.5) | <input type="checkbox"/> | |

Follow these instructions to install your Socket 462 processor correctly.

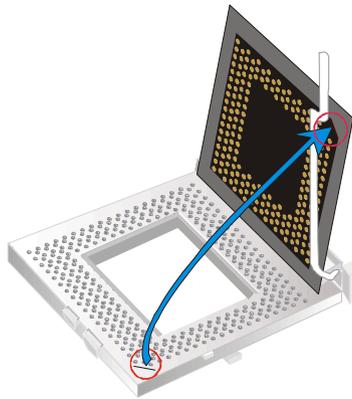
1. Lift the socket handle up to a vertical position.



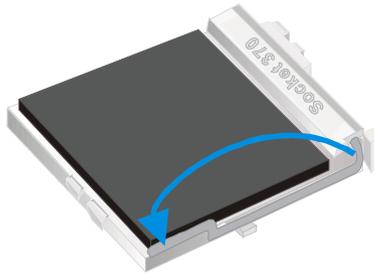
2. Align the blunt edge of the CPU with the matching pinhole distinctive edge on the socket.



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



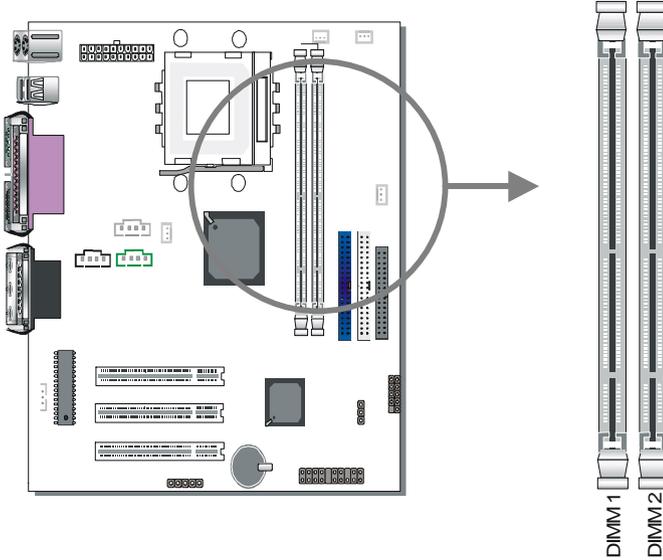
4. Then close the socket handle to secure the CPU in place.



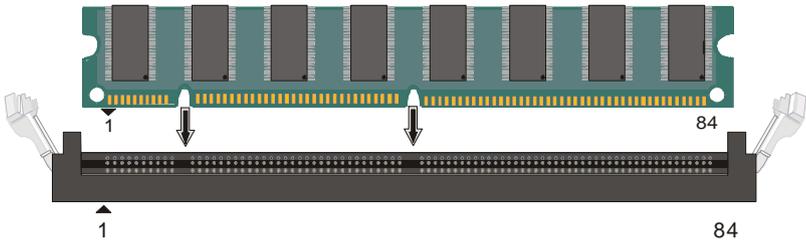
HOT

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.*

2-3.2 SDRAM Memory Module Installation



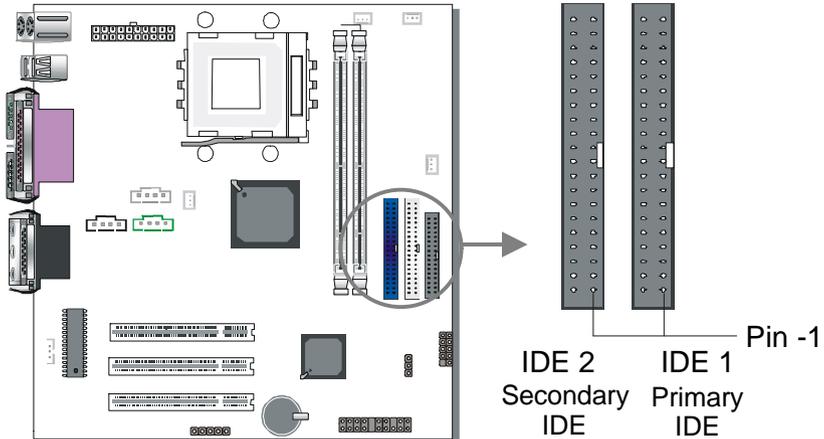
Your board comes with two DIMM sockets, providing support for up to 1GB of main memory using unbuffered and registered DIMM modules from 8MB to 512MB. On this motherboard, DRAM speed can be set independent from the CPU front side bus speed. Depending on the DRAM clock speed setting in the BIOS setup (Chapter 3), appropriate memory modules must be used. For 66MHz DRAM speed, use PC66 memory; for 100MHz DRAM speed, use PC100 memory; for 133MHz DRAM speed, use PC133 memory.



Memory Configuration Table

| | | |
|---------------------------------|---------------------------|---------------|
| Number of Memory Modules | DIMM 1 | DIMM 2 |
| RAM Type | SDRAM | |
| Memory Module Size (MB) | 8/16/32/64/128/256/512 MB | |

2-3.3 Motherboard Connector

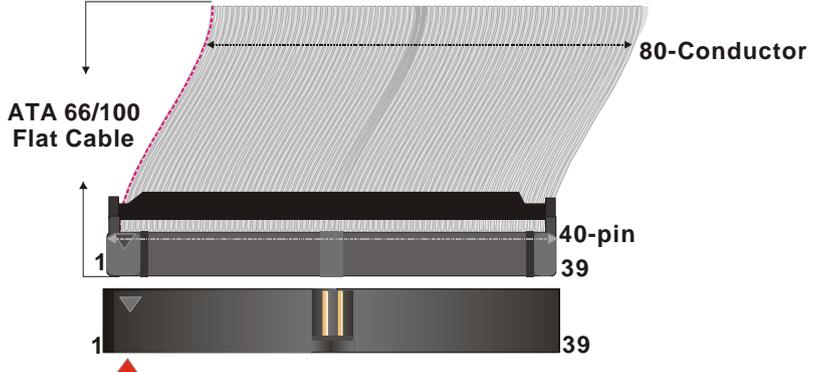


2-3.3.1 IDE Device Installation (HDD, CD-ROM)

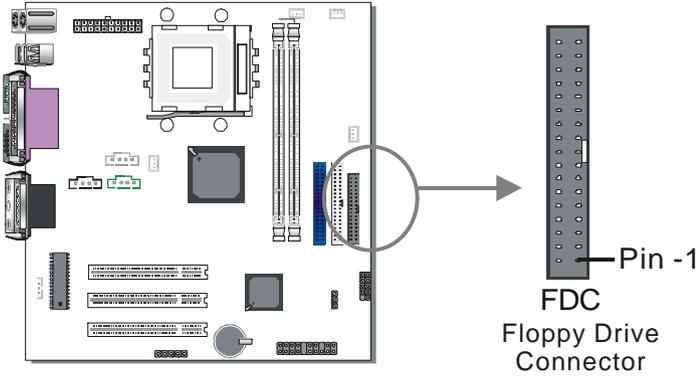
This Motherboard offers two primary and secondary IDE device connectors (IDE1, IDE2). It can support up to four high-speed Ultra DMA 33/66/100HDD or CD-ROM.

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 four HDDs.



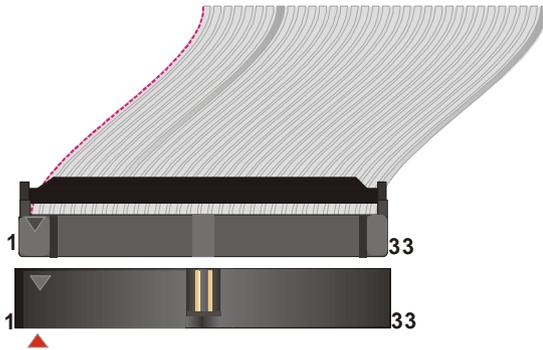
2-3.3.2 Floppy Drive Installation



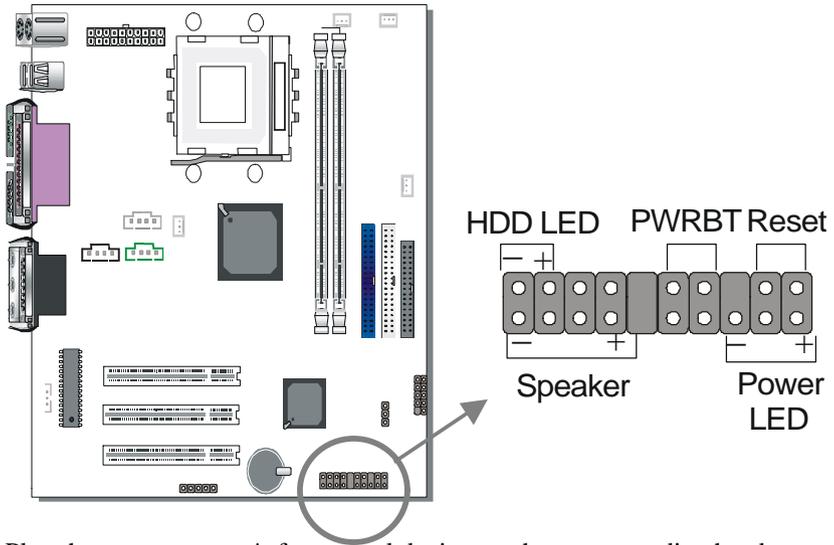
The system supports 5 possible floppy drive types: 720 KB, 1.2 MB, 1.44 MB, 2.88 MB, and LS-120.

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 2 floppy drives.



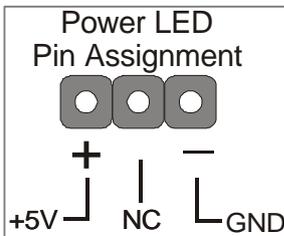
2-3.3.3 Front Panel Connections



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

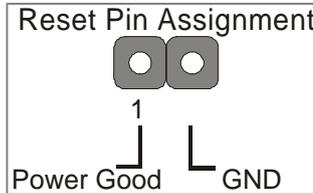
1. Power LED

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



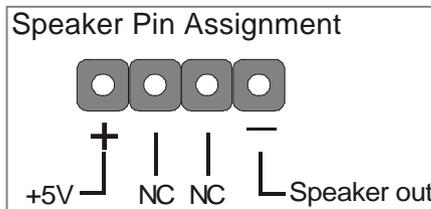
2. Reset

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.



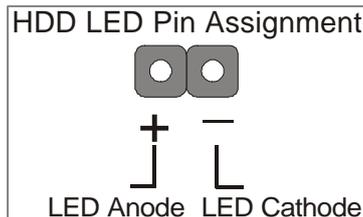
3. Speaker

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



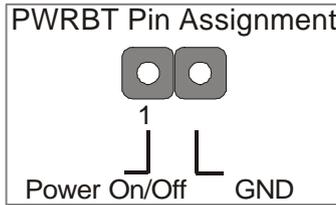
4. IDE LED

Attach the 2-pin IDE device LED cable to the corresponding IDE LED header on the Motherboard. This will cause the LED to light up 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.

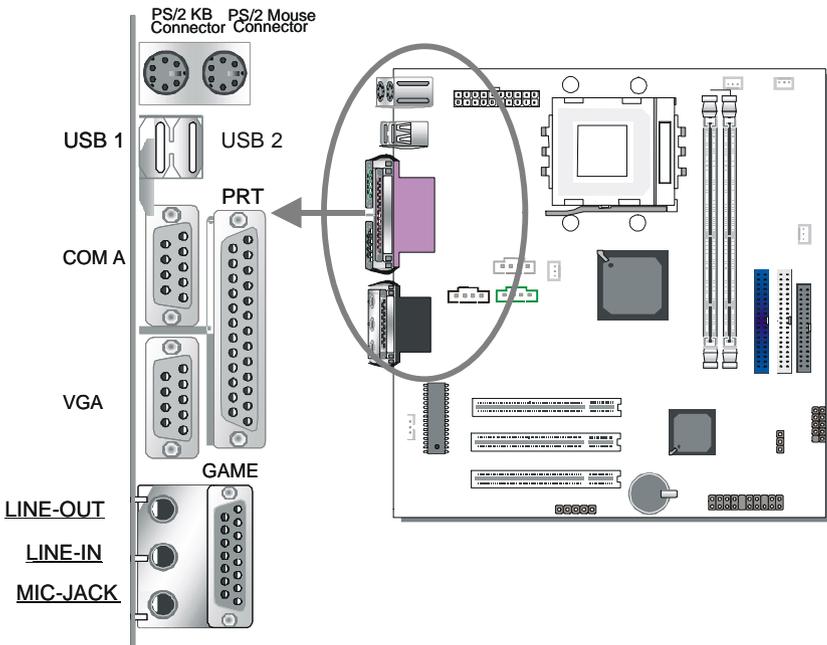


2-3.3.4 Back Panel Connections

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 COM1

External peripherals that use serial transmission scheme include:

- serial mouse,
- and modem.

Plug the serial device cables directly into the COM1 9-pin male connectors located at the rear panel of the Motherboard.

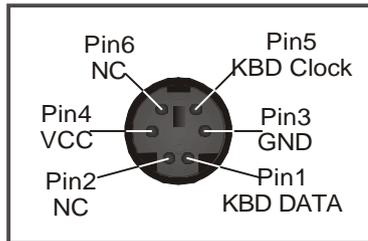
2. Parallel Port PRT

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.

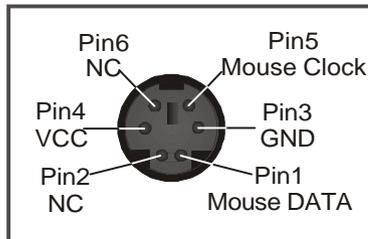
3. PS/2 Keyboard

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.

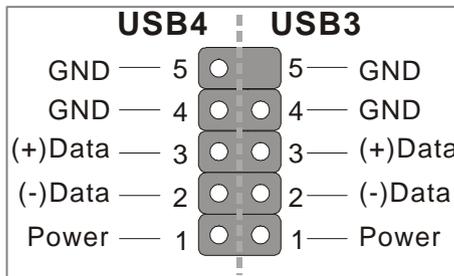


5. Universal Serial Bus USB1/USB2/(USB3, USB4)

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 and 4 are available. To make use of these USB ports, purchase a USB cable from your dealer. The lay-out of USB3 and 4 is as follows:



6. Onboard Game port/audio

This Motherboard provides Game port and audio.

- Attach the Game 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.

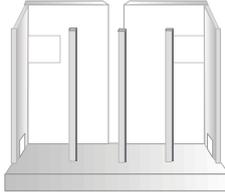
7. VGA monitor connector

Plug the monitor cable into the 15-pin female VGA connector located at the real panel of the motherboard.

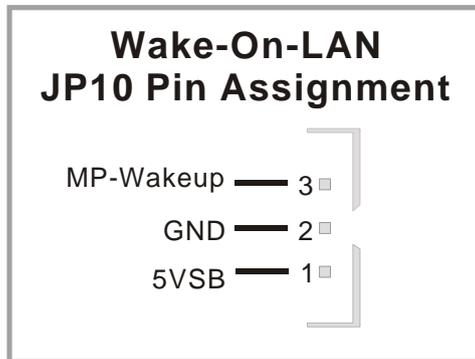
2-3.3.5 Other Connections

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:

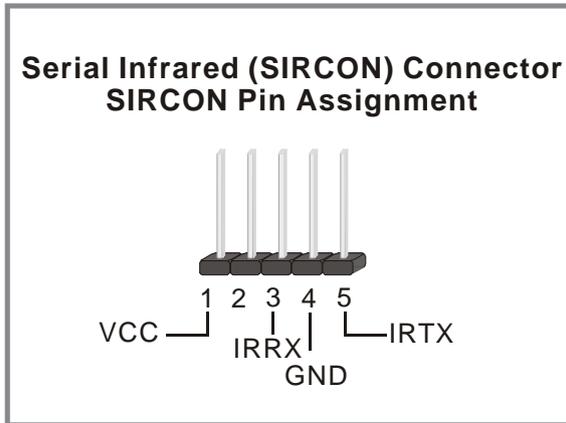


2. Infrared (SIRCON)

Plug the 5-pin infrared device cable to the SIRCON header. This will enable the infrared transfer function. This Motherboard meets both the ASKIR and HPSIR specifications.



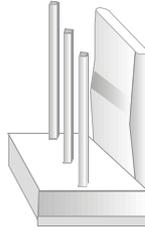
Please install according to the following pin assignment:



3. Other Display Cards

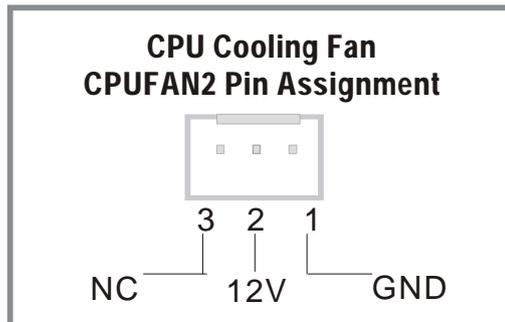
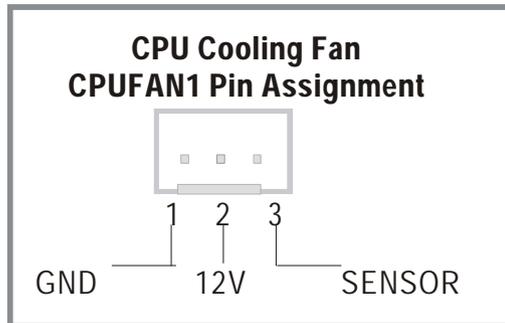
Insert other types of VGA cards into the PCI or ISA expansion slots according to card specifications.

4. Cooling Fan Installation



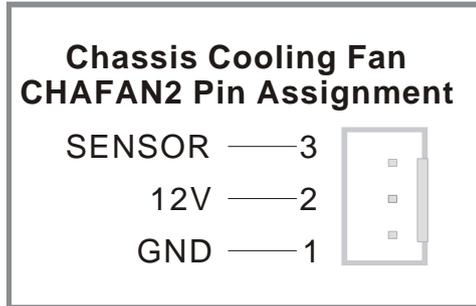
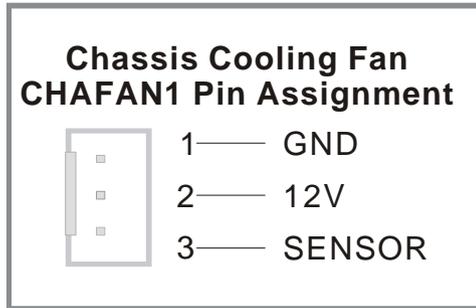
(1) CPU Cooling Fan

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

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:

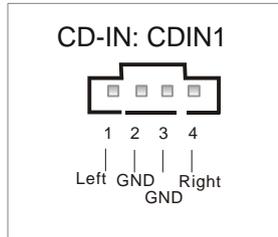


Note: CPUFAN must be installed for this Motherboard, CHAFAN is optional.

5. CD Line-in (CDIN1)

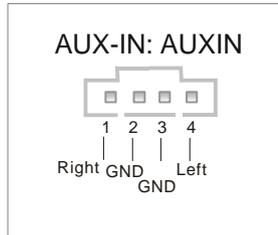
This Motherboard provides two CD-Line in connectors. Please connect the 4-pin audio cable from your CD-ROM drive to either CDIN1. (It fits in only one, depending on the cable that came with your CD-ROM drive)

Please install according to the following pin assignment:



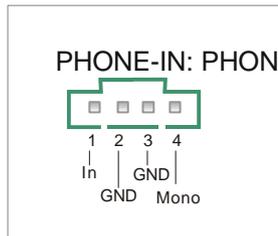
6. Aux-in (AUXIN)

For Auxiliary Audio devices (1.0Vrms typ.).



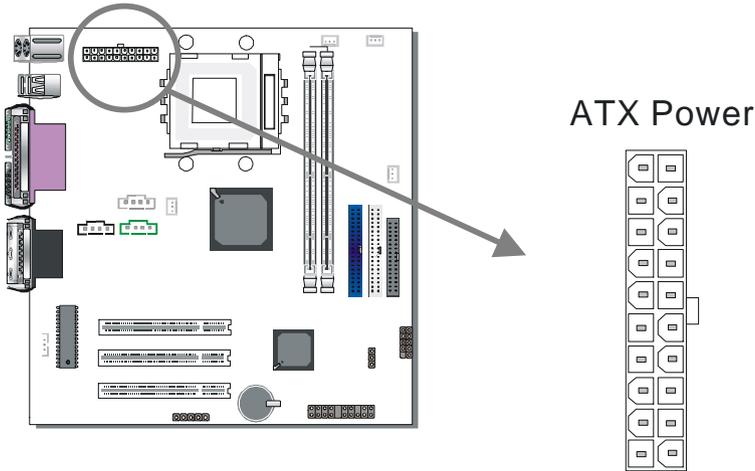
7. Phone-in (PHON)

Connect to modem sound connector.



2-3.3.6 ATX Power Supply

Plug the connector from the power directly into the 20-pin male ATX PW connector on the Motherboard, as shown in the following figure.



Warning: Follow these precautions to preserve your Motherboard from any remnant currents when connecting to ATX power supply:

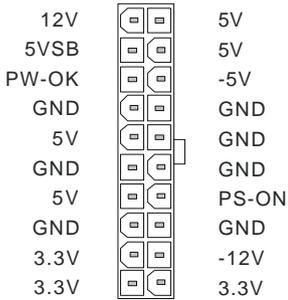
Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.

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 least 720 mA * 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

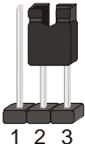
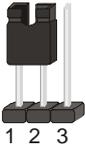


➤ **Pay special care to the directionality.**

2-3.4 CMOS Clearing (JP5)

After you have turned off your computer, clear the CMOS memory by momentarily shorting pins 2-3 on jumper JP5, for a few seconds. Then restore JP5 to the initial 1-2 jumper setting in order to recover and retain the default settings.

Jumper JP5 can be easily identified by its white colored cap.

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

2-3.5 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 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 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:

| CMOS Setup Utility – Copyright (C) 1984-2000 Award Software | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status | <ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Optimized Defaults Load Fail - Safe Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving |
| Esc : Quit F10 : Save & Exit Setup | ↑↓→← : Select Item |
| Change CPU's Clock & Voltage | |

2-3.6 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 SETUP]. The [SOYO COMBO SETUP] menu 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 key during the system diagnostic checks to enter the Award BIOS Setup program. The CMOS SETUP UTILITY will display on screen. 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 SETUP DEFAULT]

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

Step 3. Select [SAVE & EXIT SETUP]

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

2-3.7 Troubleshooting at First Start

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 beeps mean 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 you 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.

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), 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 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 south bridge driver from the SOYO CD, this is because Windows does not properly recognize relatively new chipsets.

Audio Issues

I do not get any sound from my sound card. What could be wrong?

Please make sure the speaker is connected to the speaker out port on your sound card.

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 'south bridge' 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 setup 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. If you are running a Cyrix CPU, make sure the 'linear burst function' is enabled in the bios.

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>

2-3.8 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 Phoenixnet 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.

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CMOS Setup Utility – Copyright (C) 1984-2000 Award Software | |
| <ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status | <ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Fail - Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving |
| Esc : Quit F10 : Save & Exit Setup | |
| ↑↓→← : Select Item | |
| Change CPU's Clock & Voltage | |

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

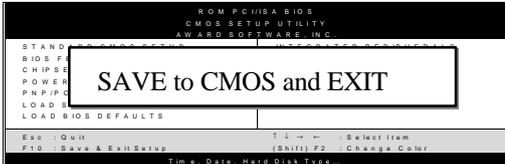
- Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

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

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

SAVE AND EXIT SETUP

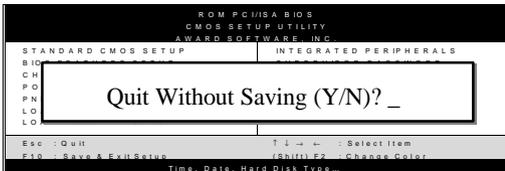
Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.



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 STANDARD CMOS SETUP

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

CMOS Setup Utility – Copyright (C) 1984-2000 Award Software
Standard CMOS Features

| | | |
|------------------------|------------------|--------------|
| Date (mm:dd:yy) | Fri, Jan 1 2000 | Item Help |
| Time (hh:mm:ss) | 1 : 22 : 12 | |
| ▶ IDE Primary Master | None | Menu Level ▶ |
| ▶ IDE Primary Slave | None | |
| ▶ IDE Secondary Master | None | |
| ▶ IDE Secondary Slave | None | |
| Drive A | [1.44M, 3.5 in.] | |
| Drive B | [None] | |
| Floppy 3 Mode Support | [Disabled] | |
| Video | [EGA/VGA] | |
| Halt On | [All Errors] | |
| Base Memory | 640K | |
| Extended Memory | 30720K | |
| Total Memory | 31744K | |

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

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.

3-1.1 Date & Time

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

3-1.2 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 |
|--------------------------------------|-------------|-------------------------------------------------------|---------|
| IDE HDD Auto-Detection | Press Enter | To auto-detect the HDD's size, head ..on this channel | |
| | Auto | BIOS detects hard disk type automatically. | Default |
| IDE Primary Slave (User Type) | User | User defines the type of hard disk. | |
| | None | | |
| | | | |
| Access Mode | 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.

3-1.3 Floppy Drives

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

3-1.4 Others Optional

| | Setting | Description | Note |
|----------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------|---------|
| Video | EGA/VGA | Select the video mode. | Default |
| | CGA 40 | | |
| | CGA 80 | | |
| | MONO (Monochrome) | | |
| Halt On | 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 | | |

3-2 ADVANCED BIOS FEATURES

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

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 Advanced BIOS Features

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Virus Warning [Disabled] CPU Internal Cache [Enabled] External Cache [Enabled] CPU L2 Cache ECC Checking [Enabled] Quick Power On Self Test [Enabled] First Boot Device [Floppy] Second Boot Device [HDD-0] Third Boot Device [LS120] Boot Other Device [Enabled] Swap Floppy Drive [Disabled] Boot Up Floppy Seek [Enabled] Boot Up NumLock Status [On] Gate A20 Option [Fast] Typematic Rate Setting [Disabled] x Typematic Rate (Chars/Sec) 6 x Typematic Delay (Msec) 250 Security Option [Setup] OS Select For DRAM > 64MB [Non-OS2] HDD S.M.A.R.T. Capability [Disabled] Video BIOS Shadow [Enabled] C8000-CBFFF Shadow [Disabled] CC000-CFFFF Shadow [Disabled] D0000-D3FFF Shadow [Disabled] D4000-D7FFF Shadow [Disabled] D8000-DBFFF Shadow [Disabled] DC000-DFFFF Shadow [Disabled] | 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] key and follow the instructions on your screen to save your settings or exit without saving.

3-2.1 Virus Warning

| | Setting | Description | Note |
|-------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Virus Protection | Disabled | If set to enabled, the Paragon Anti-Virus. Function will scan your boot drive for boot viruses. If a boot virus is detected, the BIOS will display a warning message. | Default |
| | Enabled | | |

3-2.2 Cache Memory Options

| | Setting | Description | Note |
|---------------------------|----------|-----------------------------------|---------|
| CPU Internal Cache | Disabled | | |
| | Enabled | Enables the CPU's internal cache. | Default |
| External Cache | Disabled | | |
| | Enabled | Enables the external memory. | Default |

3-2.3 Floppy Driver Settings

| | Setting | Description | Note |
|--------------------------|----------|-----------------------------------------|---------|
| Swap Floppy Drive | Disabled | | Default |
| | Enabled | Changes the sequence of A and B drives. | |

3-2.4 Boot Up Floppy Seek

| | Setting | Description | Note |
|----------------------------|----------|-------------------------------------------------------------|---------|
| Boot Up Floppy Seek | Disabled | Seeks disk drives during boot up. Disabling speeds boot up. | |
| | Enabled | | Default |

3-2.5 Boot Up NumLock Status

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

3-2.6 Gate A20 Options

| | Setting | Description | Note |
|-------------------------|---------|----------------------------------------------------|---------|
| Gate A20 Options | Normal | Lets chipset control GateA20. | |
| | Fast | A pin in the keyboard controller controls GateA20. | Default |

3-2.7 Typematic Settings

| Typematic Settings | Setting | Description | Note |
|-----------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------|---------|
| Typematic Rate Setting | Disabled | Keystrokes repeat at a rate determined by the keyboard. | Default |
| | Enabled | When enables , 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] | | | |
| Typematic Rate | 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 Delay | 250 (msec) | Choose how long after you press a key down the character begins repeating. | Default |
| | 500 (msec) | | |
| | 750 (msec) | | |
| | 1000 (msec) | | |

3-2.8 Security Option

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

| Security Option | Setting | Description |
|-----------------|---------|----------------------------------------------------------------------------------------------------------|
| | 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. |

3-2.9 Other Control Options

| Other Control Options | Setting | Description | Note |
|-----------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| OS Select for DRAM>64MB | OS2 | When using an OS2 operating system. | |
| | Non-OS2 | When using another, non-OS2 operating system. | Default |
| Video BIOS Shadow | Disabled | | |
| | Enabled | 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 |

3-3 ADVANCED CHIPSET FEATURES



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.

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Advanced Chipset Features

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| DRAM Timing By SPD [Enabled] ▲ x DRAM Clock 100M x SDRAM Cycle Length 3 x Bank Interleave 4 Bank Memory Hole [Disabled] PCI Master Pipeline Req [Enabled] P2C/C2P Concurrency [Disabled] Fast R-W Turn Around [Enabled] System BIOS Cacheable [Disabled] Video RAM Cacheable [Disabled] Frame Buffer Size [16M] AGP Aperture Size [64M] AGP Fast Write [Disabled] OnChip USB [Enabled] OnChip Sound [Auto] USB Keyboard Support [Disabled] CPU to PCI Write Buffer [Enabled] OnChip Sound [Auto] CPU to PCI Write Buffer [Enabled] PCI Dynamic Bursting [Enabled] PCI Master 0 WS Write [Enabled] PCI Delay Transaction [Disabled] PCI#2 Access #1 Retry [Enabled] AGP Master 1 WS Write [Disabled] AGP Master 1 WS Read [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.

3-3.1 CHIPSET FEATURES SETUP

| CHIPSET FEATURES | Setting | Description | Note |
|--------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| DRAM Timing By SPD | Enabled | If enable the DRAM will auto detect the DRAM timing. | Default |
| | Disabled | | |
| DRAM Clock | 133M | This item allows you to control the DRAM speed. | default |
| | 100M | | |
| SDRAM Cycle Length | 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 | | |
| Bank Interleave | 4 Bank | Increase DRAM performance. | Default |
| | Disabled | | |
| | 2 Bank | | |
| PCI Master Pipeline Req | Disabled | Disabled/Enabled PCI Master Pipeline Req. | Default |
| | Enabled | | |
| Memory Hole | Disabled | Some interface cards will map their ROM address to this area. If this occurs, select [Enabled] in this field. | Default |
| | Enabled | | |
| P2C/C2P Concurrency | Disabled | This item allows you to enable/disable the PCI to CPU, CPU to PCI concurrency | Default |
| | Enabled | | |

| CHIPSET FEATURES | Setting | Description | Note |
|-----------------------------|----------------|------------------------------------------------------------------------------------------------------|-------------|
| Fast R-W Turn Around | Disabled | This item controls the DRAM timing. It allows you to enable/disable the fast read/write turn around. | |
| | Enabled | | Default |

CHIPSET FEATURES SETUP (Continued)

| CHIPSET FEATURES | Setting | Description | Note |
|------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| System BIOS Cacheable | Disabled | The ROM area F0000H-FFFFFFH is cacheable. | Default |
| | Enabled | | |
| Video RAM Cacheable | Disabled | 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 |
| | Enabled | | |
| Frame Buffer Size | 8M | | |
| | 16M | | Default |
| | 32M | | |
| AGP Aperture Size | 64M | 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, 128M. | | |
| AGP Fast Write | Disabled | The VIA chipset will use fast write to AGP if this item is enabled. Not all AGP cards support fast write. | Default |
| | Enabled | | |
| OnChip USB | 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. | |
| | Enabled | | Default |

CHIPSET FEATURES SETUP (Continued)

| CHIPSET FEATURES | Setting | Description | Note |
|--------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| USB Keyboard Support | Disabled | | Default |
| | Enabled | Select <i>Enabled</i> if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. | |
| On Chip Sound | Auto | This item allows you to control the onboard AC 97 audio. | Default |
| | Disabled | | |
| CPU to PCI Write Buffer | Disabled | When this field is <i>Enabled</i> , writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When <i>Disabled</i> , the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle. | Default |
| | Enabled | | |
| PCI Dynamic Bursting | Disabled | When <i>Enabled</i> , every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and nonburstable transactions don't. | Default |
| | Enabled | | |
| PCI Master 0 WS Write | Disabled | When <i>Enabled</i> , writes to the PCI bus are executed with zero wait states. | Default |
| | Enabled | | |
| PCI Delay Transaction | 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 | | |

| CHIPSET FEATURES | Setting | Description | Note |
|-----------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| PCI#2 Access #1 Retry | Disabled | When disabled, PCI#2 will not be disconnected until access finishes (default). When enabled, PCI#2 will be disconnected if max retries are attempted without success. | |
| | Enabled | | Default |

CHIPSET FEATURES SETUP (Continued)

| CHIPSET FEATURES | Setting | Description | Note |
|-----------------------|----------|-------------------------------------------------------------------------------------------------------|---------|
| AGP Master 1 WS Write | Disabled | | Default |
| | Enabled | When <i>Enabled</i> , writes to the AGP(Accelerated Graphics Port) are executed with one wait states. | |
| AGP Master 1 WS Read | Disabled | | Default |
| | Enabled | When <i>Enabled</i> , read to the AGP (Accelerated Graphics Port) are executed with one wait states. | |

3-4 INTEGRATED PERIPHERALS



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.

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 Integrated Peripherals

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| OnChip IDE Channel0 [Enabled] OnChip IDE Channel1 [Enabled] IDE Prefetch Mode [Enabled] 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] Init Display First [PCI Slot] IDE HDD Block Mode [Enabled] Onboard FDD Controller [Enabled] Onboard Serial Port 1 [3F8/IRQ4] Onboard Serial Port 2 [2F8/IRQ3] UART 2 Mode [Standard] x IR Function Duplex Half x TX,RX inverting enable No, Yes Onboard Parallel Port [378/IRQ7] Onboard Parallel Mode [Normal] ECP Mode Use DMA [3] Parallel Port EPP Type [EPP1.9] Onboard Legacy Audio [Enabled] Sound Blaster [Disabled] SB I/O Base Address [220H] SB IRQ Select [IRQ 5] SB DMA Select [DMA 1] MPU-401 [Disabled] MPU-401 I/O Address [330-333H] Game Port (200-207H) [Enabled] | Item Help 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

The following tables describe each field in the INTEGRATED PERIPHERALS Menu and provide instructions on how to configure the IDE controls, FDC controls, and the onboard serial and parallel ports.

3-4.1 IDE Device Controls

| IDE Controls | Setting | Description | Note |
|--------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------|---------|
| On-Chip PCI IDE ➤ Primary ➤ Secondary | Disabled | Turn off the on-board IDE | |
| | Enabled | Use the on-board IDE | Default |
| IDE ➤ Primary Master PIO ➤ Primary Slave PIO ➤ Secondary Master PIO ➤ Secondary Slave PIO | 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 |
| IDE ➤Primary Master UDMA ➤Primary Slave UDMA ➤Secondary Master UDMA ➤Secondary Slave UDMA | Disabled | | |
| | Auto | Select Auto to enable Ultra DMA Mode support. | Default |

3-4.2 Keyboard Controls

| Keyboard Controls | Setting | Description | Note |
|---------------------------|----------|-----------------------------------------------------|---------|
| Init Display First | PCI Slot | Choose which card – AGP | Default |
| | AGP | Display card or PCI VGA card – to initialize first. | |

3-4.3 IDE HDD Block Mode

| | Setting | Description | Note |
|---------------------------|----------|-------------------------------------------------------------------------------------------------------|---------|
| IDE HDD Block Mode | Disabled | | |
| | Enabled | Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function. | Default |

3-4.4 FDC Controls

| FDC Controls | Setting | Description | Note |
|------------------------|----------|-----------------------------------------|---------|
| Onboard FDC controller | Disabled | Turn off the on-board floppy controller | |
| | Enabled | Use the on-board floppy controller | Default |

3-4.5 Onboard Serial Ports

| Onboard Serial Ports | Setting | Description | Note |
|------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Onboard Serial Port 1 / Serial Port 2 | 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 | Default (port 2) |
| | 3E8/IRQ4 | Disabled or Auto. | |
| | 2E8/IRQ3 | | |
| | Auto | | |
| UART 2 Mode | Standard | The second serial port offers these InfraRed interface | Default |
| | HPSIR | modes. | |
| | ASKIR | | |
| If [UART Mode Select] is set to [IrDA]/[ASKIR] | | | |
| IR Function Duplex | 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 | | |
| TX,RX inverting enable | No,Yes | This item allow you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system | Default |
| | No, No/ | | |
| | Yes, No/ Yes, Yes. | | |

3-4.6 Onboard Parallel Ports

| Onboard Parallel Ports | Setting | Description | Note |
|----------------------------------------------|----------|----------------------------------------------------------------------|---------|
| Onboard Parallel Port | Disabled | Choose the printer I/O address. | Default |
| | 378/IRQ7 | | |
| | 3BC/IRQ7 | | |
| | 278/IRQ5 | | |
| Parallel Port Mode | Normal | 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] mode | | | |
| ECP Mode use DMA | 3 | Choose DMA3 | Default |
| | 1 | Choose DMA1 | |
| If [Parallel Port Mode] is set to [EPP] mode | | | |
| Parallel Port EPP TYPE | EPP 1.9 | Select EPP port type 1.9 | Default |
| | EPP 1.7 | Select EPP port type 1.7 | |

3-4.7 Onboard Legacy Audio

This field controls the onboard legacy audio.

| | Setting | Description | Note |
|-----------------------------|----------|-------------------------------------------------------------------------------------------------|---------|
| Onboard Legacy Audio | Disabled | Set this item to Enabled if using software (like DOS games) that needs a 'legacy' audio device. | Default |
| | Enabled | | |
| Sound Blaster | Disabled | Set this item to enabled if your on-board audio-chip is sound Blaster compatible. | Default |
| | Enabled | | |
| SB I/O Base Address | 220H | Select the base address for your sound Blaster (SB) compatible Audio IC. | Default |
| | | | |
| SB IRQ Select | IRQ 5 | Select the IRQ your SB Audio IC uses. | Default |
| | | | |
| SB DMA Select | DMA1 | Select the DMA channel your SB Audio IC uses. | Default |
| | | | |

Onboard Legacy Audio (Continued)

This field controls the onboard legacy audio.

| | Setting | Description | Note |
|-----------------------------|----------|--------------------------------------------------------|---------|
| MPU-401 | Disabled | Set this item to enabled to make use of MIPI. | Default |
| | Enabled | | |
| MPU-401 I/O Address | 330-333H | Select the I/O address for your MIDI functionality. | Default |
| | 330-303H | | |
| | 310-313H | | |
| | 320-323H | | |
| Game Port (200-207H) | Disabled | Set this item to enabled to make use of the game port. | |
| | Enabled | | Default |

3-5 POWER MANAGEMENT SETUP

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

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Power Management Setup

| | | |
|---------------------------|------------------|--------------|
| ▶ Power Management | [Press Enter] | Item Help |
| ACPI Suspend Type | [S1 (POS)] | Menu Level ▶ |
| PM Control by APM | [Yes] | |
| 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] | |
| ▶ Wake Up Events | [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



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Wake Up Events

| | | |
|----------------------------|---------------|--------------|
| VGA | [OFF] | Item Help |
| LPT & COM | [LPT/COM] | Menu Level ▶ |
| HDD & FDD | [ON] | |
| PCI Master | [OFF] | |
| PowerOn by PCI Card | [Disabled] | |
| Modem Ring Resume | [Disabled] | |
| RTC Alarm Resume | [Disabled] | |
| Primary INTR | [ON] | |
| ▶ 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.

3-5.1 Power Management Controls

| Power Management Controls | Setting | Description | Note |
|---------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ACPI Suspend Type | S1(POS) | The system will enter the S1 state during suspend. (Low latency wake up) | Default |
| | | | |
| PM Control by APM | Yes | When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings. | Default |
| | NO | | |
| Video Off Option | Suspend --> Off | When enabled, this feature allows the VGA adapter to operate in a power saving mode. | Default |
| | Always On All Modes --> Off | | |
| Video Off Method | V/H Sync+Blank | Selects the method by which the monitor is blanked. | Default |
| | Blank screen | | |
| | DPMS | | |

Power Management Controls (Continued)

| Power Management Controls | Setting | Description | Note |
|-----------------------------|--------------|----------------------------------------------------------------------------------------------------------------|---------|
| MODEM Use IRQ | 3 | Assigns an IRQ# to the modem device. | Default |
| | 3-11, NA | | |
| Soft-Off by PWR-BTTN | Instant-off | Turns off the system power 4 seconds after pushing the power button. | Default |
| | Delay 4 Sec. | | |
| Wake Up Events | Press Enter | Select items that will wake up your system when in one of sleep modes. Press enter to go the select item page. | |

| Wake Up Events | Setting | Description | Note |
|----------------------|----------------|-------------------------------------------------------------------------------------------------------------------------|---------|
| VGA | OFF | You can set the VGA awakens the system. | Default |
| | ON | | |
| LPT & COM | LPT/COM | When <i>On of</i> LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system. | Default |
| | NONE, LPT, COM | | |
| HDD & FDD | OFF | When <i>On of</i> HDD & FDD, any activity from one of the listed system peripheral devices wakes up the system. | Default |
| | ON | | |
| PCI Master | OFF | When <i>On of</i> PCI Master, any activity from one of the listed system peripheral devices wakes up the system | Default |
| | ON | | |

| Wake Up Events | Setting | Description | Note |
|-----------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| PowerOn by PCI Card | Disabled | If enabled any PCI interrupt will wake up the system. | Default |
| | Enabled | | |
| Modem Ring Resume | Disabled | An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state. | Default |
| | Enabled | | |
| Resume by Alarm | 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. | |
| Primary INTR | ON | When set to <i>On</i> , any event occurring at will awaken a system which has been powered down. | Default |
| | OFF | | |
| IRQs Activity Monitoring (Press Enter) | Primary | IRQ3(COM2), IRQ4(COM1), IRQ5(LPT2), IRQ6(Floppy Disk), IRQ7(LPT1), IRQ12(PS/2 mouse), IRQ13(Coprocessor), IRQ14(HardDisk) | |
| | Secondary | IRQ9(IRQ2 Redir), IRQ10(Reserved), IRQ11(Reserved) | |
| | Disabled | IRQ8 (RTC Alarm), IRQ15 (Reserved) | |

3-6 PNP/PCI CONFIGURATION SETUP

This option sets the Motherboard's PCI Slots.

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 PnP/PCI Configurations

| | | |
|--------------------------|---------------|--------------|
| PNP OS Installed | [NO] | Item Help |
| Reset Configuration Data | [Disabled] | |
| Resources Controlled By | [Auto (ESCD)] | Menu Level ▶ |
| x IRQ Resources | Press Enter | |
| x DMA Resources | Press Enter | |
| PCI/VGA Palette Snoop | [Disabled] | |
| Assign IRQ For VGA | [Enabled] | |
| Assign IRQ For USB | [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.

3-6.1 PNP/PCI Configuration Controls

| PNP/PCI Controls | Setting | Description | Note |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| PnP OS Installed | 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]) |
| Reset Configuration Data | Disabled | Retain PnP configuration data in BIOS. | Default |
| | Enabled | Reset PnP configuration data in BIOS. | |
| Resources Controlled By | Manual | BIOS does not manage PCI/ISA PnP card IRQ assignment. Requires to assign IRQ-# and DMA-# 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] | | | |
| IRQ-# and DMA-# assigned to: | PCI/ISA PnP | Choose IRQ-# and DMA-# assigned to PCI/ISA PnP card. | IRQ-3,4,5,7,9,10,11,12,14,15 DMA-0,1,3,5,6,7 |
| | Legacy ISA | Choose IRQ-# and DMA-# assigned to Legacy ISA card. | IRQ-3,4,5,7,9,10,11,12,14,15 DMA-0,1,3,5,6,7 |
| 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: | | | |
| <ol style="list-style-type: none"> 1. IRQs 0, 1, 2, 6, 8, 13 can NOT be assigned, because they are fixed. 2. IRQs 5, 9, 10, 11 are available 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: | | | |

PNP/PCI Configuration Setup (Continued)

| 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: PCI / ISA PnP | On-Chip Secondary PCI IDE: | disabled |
| IRQ 14 | IRQ 14: PCI / ISA PnP | On-Chip Primary PCI IDE: | disabled |
| IRQ 12 | IRQ 12: PCI / ISA PnP | <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: PCI / ISA PnP | Onboard parallel port: | disabled |
| IRQ 4 | IRQ 4: PCI / ISA PnP | Onboard Serial port 1: | disabled |
| IRQ 3 | IRQ 3: PCI / ISA PnP | Onboard Serial port 2: | disabled |
| 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. | | | |
| Assign IRQ For VGA/USB | Disabled | BIOS will assign IRQ for VGA/USB port. | |
| | Enabled | BIOS won't assign IRQ for VGA/USB port. | Default |
| 5. 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. | | | |
| INT Pin 1/2/3/4 Assignment | Auto | Set to Auto the BIOS will using IRQs Automatically. | Default |

3-6.2 MULTI I/O ADDRESSES

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

| Port | I/O Address | IRQ | Status |
|------|-------------|-----|---------|
| LPT1 | 378H | 7 | ECP/EPP |
| COM1 | 3F8H | 4 | |
| COM2 | 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)

3-7 PC HEALTH STATUS

This option sets the Motherboard's PC Health Status.

CMOS Setup Utility – Copyright (C) 1984-2000 Award Software
 PC Health Status

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Shutdown Temperature [Disabled] Current CPU Temperature 45 °C / 113 °F Current Sys Temperature 26°C / 78°F Current CPUFAN Speed 0 RPM Current CHAFAN Speed 4748 RPM Vcore 1.66V 2.5V 2.58V 3.3V 3.27V 5V 4.97V 12V 12.18V Protect CPU Overheating [Enabled] | Item Help 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



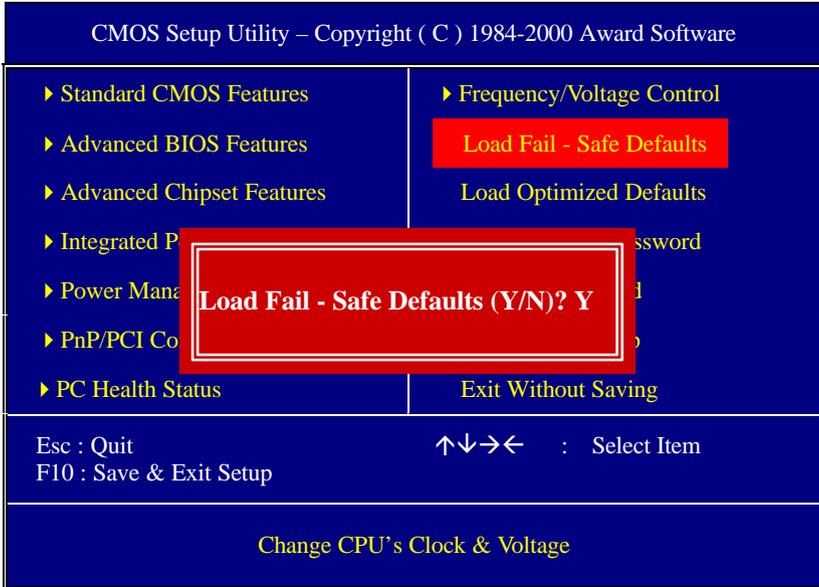
Note: Starred (*) items will disappear when the [Resources Controlled By] option is set to [Auto].

3-7.1 CPU Device Monitoring

| CPU Device Monitoring | Setting | Description | Note |
|-------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Shutdown Temperature | Disabled | Set the maximum allowable CPU temperature, before the system shutdown. | Default |
| | 60°C/140°F | | |
| | 65°C/149°F | | |
| | 70°C/158°F | | |
| Current CPU Temp. | 75°C/167°F | | |
| | °C/°F | Show the current status of CPU temperature. | |
| | | | |
| | | | |
| Current System Temp. | °C/°F | Show the current status of the system temperature. | |
| | | | |
| Current CPUFAN Speed | °C/°F | Show the current status of CPU Fan | |
| | | | |
| Current CHSFAN Speed | °C/°F | Show the current status of the chassis Fan | |
| | | | |
| Vcore, 2.5V, 3.3V, +5V, +12V | V | Show the current voltage status. | |
| | | | |
| Protect CPU Overheating | Enabled | If enable, this function protect user's CPU from overheating in an event there's a problem with the CPU FAN. The user should also plug the CPU FAN power on the CPU FAN1 pin. The system will auto shutdown if the power is plug in CPU FAN2 pin. | Default |
| | Disabled | | |

3-8 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.



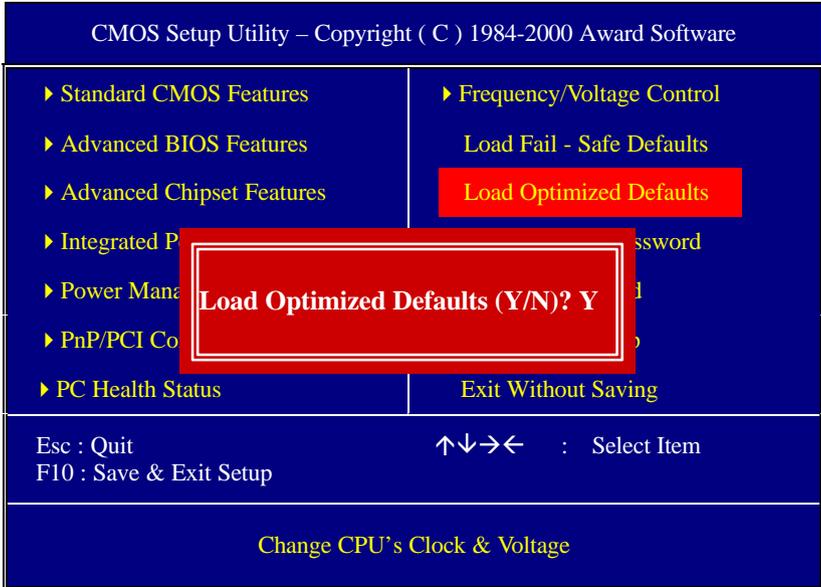
Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.



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

3-9 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 SETUP DEFAULTS for stable performance.

3-10 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.



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

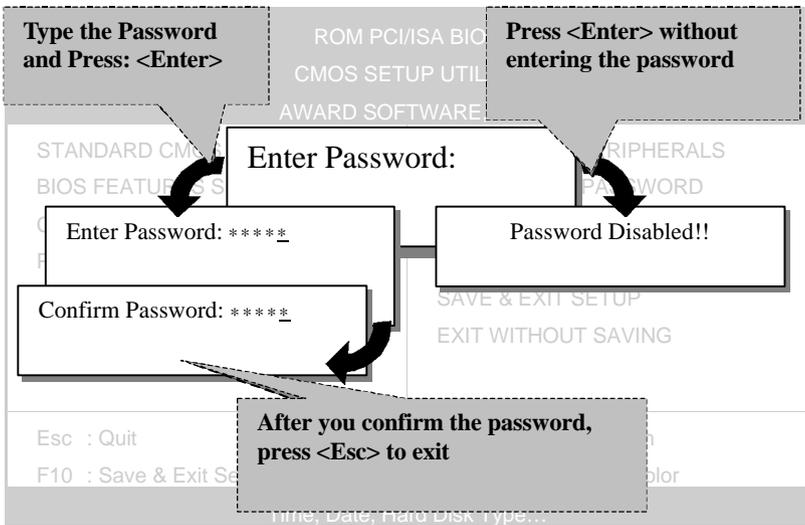
Password Disabled!!

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:



3-11 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).

Chapter 4

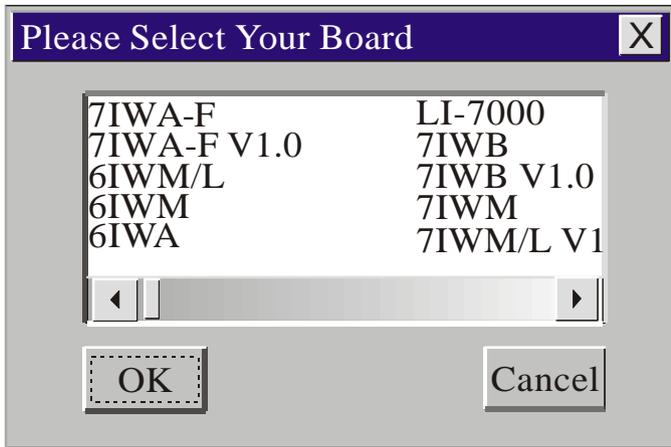
DRIVERS INSTALLATION

Your SY-K7VLM-B Motherboard comes with a CD-ROM labeled "SOYO CD." The SOYO CD contains the user's manual file for your new Motherboard, the drivers software available for installation, and a database in HTML format with information on SOYO Motherboards and other products.

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

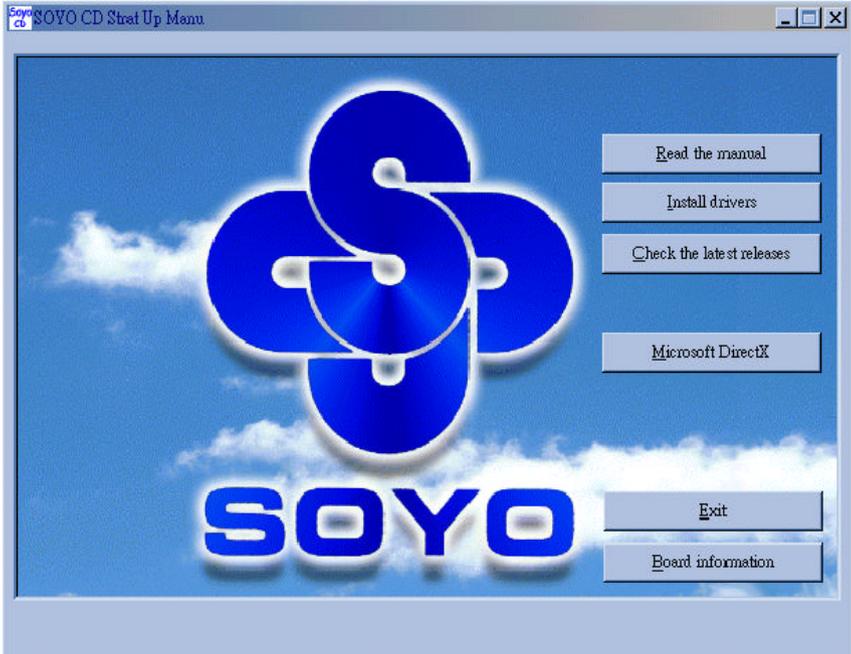
The SOYO CD will auto-run, and the SOYO CD Start Up Menu will be as shown.

If you use Windows 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 or 98, 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

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/NT

The 4 in 1 driver package includes all drivers your motherboard needs. After selecting this driver package, one driver will be installed automatically (the IRQ remapping utility), the other three are installed if selected. By default all three drivers are selected. A description of the 4 drivers follows:

—Bus Master PCI IDE Driver

This driver will speed up the data-transfer rate to and from the harddisk.

—VxD Driver

This driver must be installed in order to be able to make use of the on-board AGP Video functionality.

—**VIA Chipset Functions Registry**

This driver will make the necessary changes to the Windows registry, in order to make sure that Windows has no problems recognizing your VIA chipset.

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

This utility will remap the IRQ lines to make sure that everything functions properly under Windows.

➤ **VIA8365 Pro Savage Display Driver for Win 9x/Me**

In order to be able to make use of the integrated VGA function in your VIA S3 chipset, you will need to install this driver first. For Win 9x/Me only.

➤ **VIA8365 Pro Savage Display Driver for Win 2000**

In order to be able to make use of the integrated VGA function in your VIA S3 chipset, you will need to install this driver first. For Win 2000 only.

➤ **VIA8365 Pro Savage Display Driver for Win NT4.0**

In order to be able to make use of the integrated VGA function in your VIA S3 chipset, you will need to install this driver first. For Win NT4.0 only.

➤ **VIA Ac97 Codec Driver for Win 9x/NT/2000**

You have to install the drivers before installing any application for the Ac97 codec. Please refer to the back of the manual for installation information for other operating

➤ **VIA hardware monitor(R) for (Win 95/98)**

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.

Step 3. Select which driver you want to install and click OK

Notice 1: 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.

Notice 2: You may click *Cancel* to abort the driver installation and return to the main menu.

Step 4. 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.

