SY-K7AIA Motherboard

****

AMD ™K7

Processor supported

AMD 750 AGP/PCI Motherboard

100 MHz Front Side Bus supported

ATX Form Factor

****

User's Manual

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

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

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Version 1.0
K7AIA SERIAL

FC Tested To Comply With FCC Standards
FOR HOME OR OFFICE USE

100% POST CONSUMER RECYCLED PAPER

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Chapter 1

MOTHERBOARD DESCRIPTION

1-1 INTRODUCTION

The **SY-K7AIA** AGP/PCI Motherboard is a high-performance Slot A supported ATX form-factor system board. **SY-K7AIA** uses the AMD 750 Chipset technology and supports Slot A class processors. This Motherboard is fully compatible with industry standards and adds many technical enhancements.

1-2 KEY FEATURES

➢ CPU SUPPORT

The SY-K7AIA supports a wide range of AMD ™CPUs:

- AMD ™(500~750+) MHz

New released Intel Slot A CPUs will very likely be supported by the SY-K7AIA as well.

➢ CPU SETTINGS

The SY-K7AIA provides the user with a very complete and convenient CPU setting environment. The CPU settings are auto detected and set automatically, therefore rendering the use of jumpers obsolete.

- **CPU FSB Frequency**

The SY-K7AIA supports a wide range of CPU FSB frequency settings: 500,550,600,650,700,750,750+

- **CPU Multiplier**

The SY-K7AIA supports a wide range of multipliers:
5.0,5.5,6.0,6.5,7.0,7.5.

- **CPU Core Voltage**

The CPU Core voltage is set automatically according to CPU needs. This makes the use of voltage jumpers unnecessary.

➢ EXPANDABILITY

The SY-K7AIA provides all the standard expansion slots, and many more additional expansion features:

◆ **Expansion slots**

- 1 x 32-bit bus mastering AGP slot
- 5 x 32-bit bus mastering PCI slots
- 2 x 16-bit ISA slots

◆ **Enhanced IO**

- Floppy disk controller
- 2x EIDE controllers with support for up to 4 Ultra DMA 33/66 devices
- Standard/EPP/ECP parallel port
- 2x 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-K7AIA supports advanced functions such as:

- ATA 66 IDE Ports

  In addition to the original two ATA33 (Ultra DMA/33) IDE ports, the SY-K7AIA supports two ATA66 (Ultra DMA/66) IDE ports that is capable of transferring data up to 66 Mbytes/sec (IDE DMA Mode 4).

➢ Wake-On-LAN

Supports Wake-On-LAN *(Some advanced network cards can wake the system up over the network, the WOL connector are provided by the SY-K7AIA to support this function)*.

- Multiple boot

The SY-K7AIA supports booting from devices such as CD-ROM.

- Power on by modem or alarm

If the SY-K7AIA 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-K7AIA 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 the monitor system voltages, temperatures and FAN speeds. This makes sure that the user is full control of the system

➢ NORTON SOFTWARE PACK

- Antivirus
- Ghost
- Virtual Drive

➢ COMPLIANCE

The SY-K7AIA complies with all important industry standards. The following underlines the reliability of the SY-K7AIA, a motherboard to trust.

- Year 2000 compliant
- PC99 compliant
- FCC/CE complaint

➢ USER FRIENDLY

- SOYO Combo Setup
- Jumperless design
- You can set up the following options trough the BIOS setting
  - CPU FSB frequency (auto detect)
  - CPU multiplier (auto detect)
  - PCI clock
  - AGP 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.

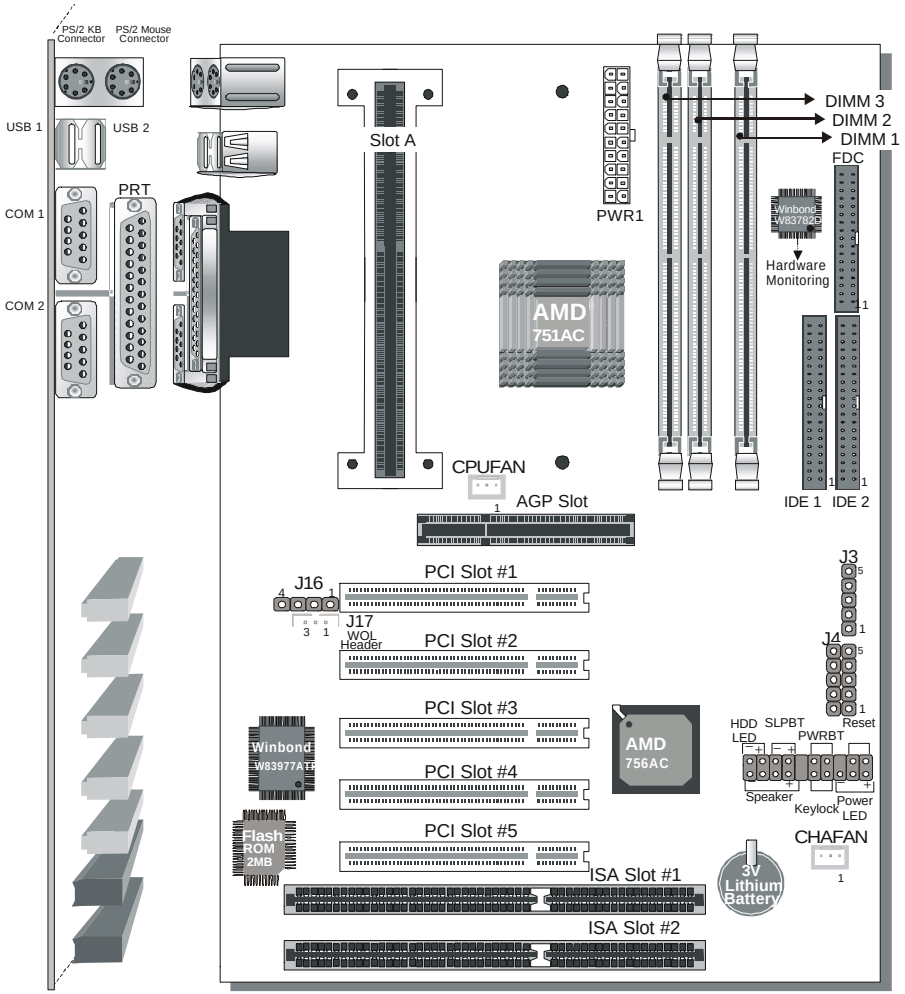
1-4 ELECTROSTATIC DISCHARGE PRECAUTIONS

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:

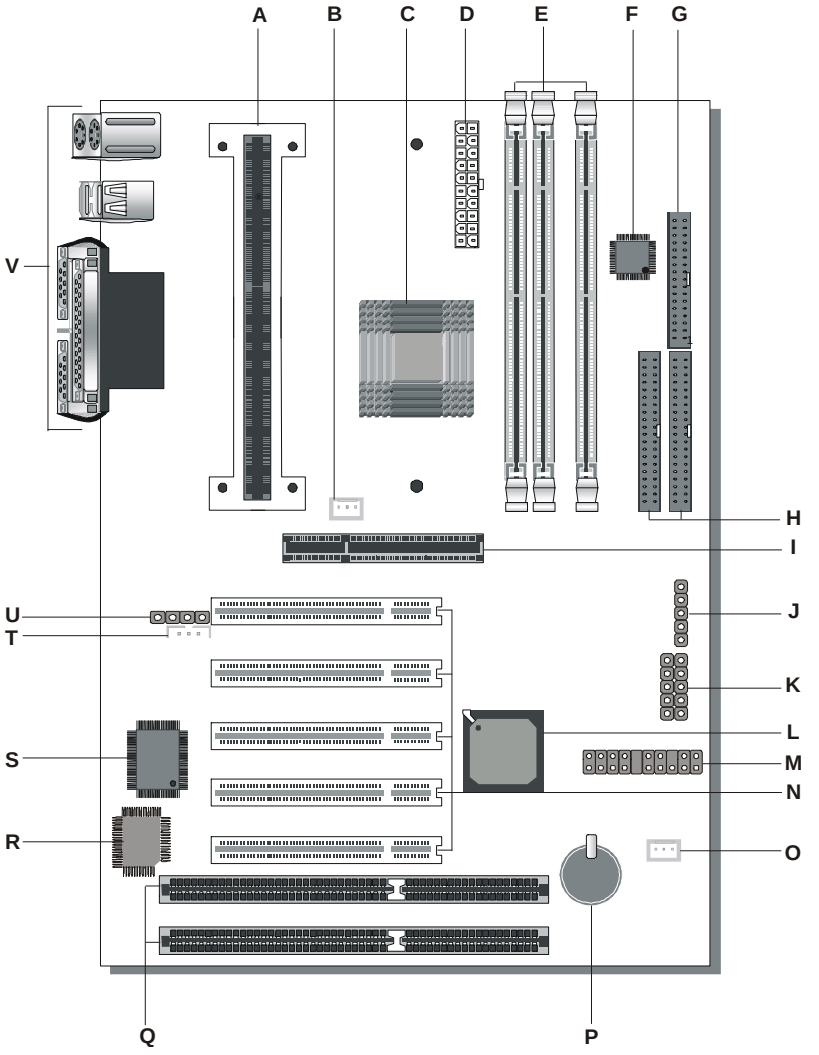
- Do not remove the anti-static packaging until you are ready to install.
- Ground yourself before removing any system component from its protective anti-static packaging. (To ground yourself, grasp the expansion slot covers or other unpainted portions of the computer chassis.)
- Frequently ground yourself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

1-5 SY-K7AIA MOTHERBOARD LAYOUT



Back Panel **SY-K7AIA Platform**

1-6 SY-K7AIA MOTHERBOARD COMPONENTS



A	Slot A Connector
B	CPU Cooling Fan Connector
C	AMD 751AC Chipset
D	ATX Power Supply Connector
E	DIMM Banks
F	Winboand W83782M hardware monitoring
G	Floppy Disk Drive (FDD) Port
H	Bus Mastering E-IDE/ATAPI Ports
I	32-bit AGP Slot
J	Serial Infrared (IrDA) Device Header
K	USB Ports
L	AMD 756AC Chipset
M	Front panel connectors
N	32-bit PCI Mastering Slots
O	Chassis Cooling Fan Connector
P	3V Lithium Battery
Q	16-bit ISA Slots
R	Flash ROM 2MB
S	Winbond W83977ATF I/O Chipset
T	Wake-On-LAN (WOL) Header
U	Wake-On-Modem Header
V	Back panel Connectors

1-7 MICROPROCESSOR

The motherboard supports a single Slot A 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 (66 MHz and 100 MHz) is automatically selected. The motherboard supports all (available at time of publication) Slot A processor speeds, voltages, and bus frequencies.

1-7.1 Microprocessor Packaging

The processor is packaged in a Single Edge Contact Cartridge (SECC or SECC2) or Single Edge Processor Package (S.E.P.P). The cartridge includes the processor core, second-level cache subsystem, thermal plate, and back cover.

The processor connects to the motherboard through the SlotA connector, a 242-pin edge connector. When mounted in SlotA, the processor is secured by a retention mechanism attached to the motherboard. A passive heatsink is stabilized by the heatsink supports.

1-7.2 Second Level Cache

The second-level cache is located on the substrate of the CPU package. The cache includes 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 Slot A processors that run at higher speeds.

1-8 MEMORY

1-8.1 Main Memory

The motherboard has four DIMM sockets. SDRAM can be installed in one, two, three, or four 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 256MB. Memory size and speed can vary between sockets.

The motherboard supports the following memory features:

- 168-pin DIMMs with gold-plated contacts
- 66/100/133 MHz SDRAM
- Non-ECC (64-bit) and ECC (72-bit) memory
- 3.3V memory only
- Supports 8/16/32/64/128/256 MB DIMM Modules
- Supports unbuffered single- or double-sided DIMMs

1-8.2 SDRAM

SDRAM improves memory performance through memory access that is synchronous with the front-side bus clock. Burst transfer rates at x-1-1-1 timing can be achieved using SDRAM, while asynchronous memory subsystem are typically limited at x-2-2-2 transfer rates.

Note

All memory components and DIMMs used with the SY-K7AIA motherboard must comply with the PC SDRAM specifications. These include: the PC SDRAM Specification (memory component specific), the PC Unbuffered DIMM Specification, and the PC Serial Presence Detect Specification.

1-8.3 ECC Memory

ECC memory detects multiple-bit errors and corrects single-bit errors. When ECC memory is installed, the BIOS supports both ECC and non-ECC mode. ECC mode is enabled in the Setup program. The BIOS

automatically detects if ECC memory is installed and provides the Setup option for selecting ECC mode. If any non-ECC memory is installed, the Setup option for ECC configuration does not appear and ECC operation is not available.

1-9 CHIPSET

The AMD-K7 ™processor powers the next generation in computing platforms, delivering the ultimate performance for cutting-edge applications and an unprecedented computing experience.

The AMD-750 ™Chipset is a highly integrated system logic solution that delivers maximum performance for the AMD-K7 processor and other S2K interface-compatible processors. The AMD-750 chipset consists of the uniprocessor AMD-751 ™system controller in a 492-pin plastic ball-grid array (PBGA) package and the AMD-756 ™peripheral bus controller. The AMD-751 system controller features the S2K interface, system memory controller, accelerated graphics port (AGP) controller, and peripheral component interconnect (PCI) bus controller.

The AMD-751 system controller is designed with the following features:

- The S2K interface supports a 100-MHz clock and double-data-rate (DDR) transfers
- The 33-MHz 32-bit PCI 2.2-compliant bus interface supports up to six masters
- The 66-MHz AGP 2.0-compliant interface supports 2x data transfer mode
- High-speed memory – The AMD-751 system controller is designed to support a 100-MHz PC-100 SDRAM DIMMs

1-9.1 S2K interface

The S2K interface has the following fetures:

- High-performance point-to-point bus
- HSTL-like 1.5 V high-speed transceiver logic signal levels
- Independent address, data, and snoop interfaces
- Double-data-rate transfers on address and data buses
- Data Buffers:

- Memory write FIFO (MWF)
- Memory read FIFO (MRF)
- PCI/APCI (AGP-PJCI) write buffer
- PCI/APCI read buffer

- Transaction Queues:
  - Command queue (CQ)
  - Memory write queue (MWQ)
  - Memory read queue (MRQ)
  - Probe (snoop) queue (PQ)

1-9.2 Integrated memory controller

The integrated memory controller has the following features:

- Memory Request Organizer (MRO) – Serves as a data crossbar, determines request dependencies, and optimizes scheduling of memory requests.
- The AMD-751 system controller supports the following concurrences:
  - Processor-to-main-memory with PCI-to-Main-memory
  - Processor-to-main-memory with AGP-to-Main-memory
  - Processor-to-=PCI with PCI-to-Main-memory or AGP-to-main-memory
- Memory error correcting code (ECC) support
- Supports the following DRAM:
  - Up to three non-buffered PC-100 SDRAM DIMMs using 16-Mbit, 64Mbit-, and 128Mbit technology
  - 64-bit data width, plus 8-bit ECC paths
  - Flexible row and column addressing
- Supports up to 768 Mbytes of memory
- Four open pages within one CS (device selected by chip select) for one quadword
- Default two-page leapfrog policy for eight quadword requests
- BIOS-configurable memory-timing parameters and configuration

parameters

- 3.3-V memory interface operation with no external buffers
- Four cache lines (32 quadwords) of processor-to-DRAM posted write buffers with full read-around capability
- Concurrent DRAM write back and read-around-write
- Burst read and write transactions
- Decoupled and burst DRAM refresh with staggered CS timing
- Provides the following refresh options:
  - — Programmable refresh rate
  - — CAS-before-RAS
  - — Populated banks only
  - — Chipset powerdown via SDRAM automatic refresh command
  - — Automatic refresh of idle slots – improves bus availability for memory access by the processor or system

1-9.3 PCI Bus Controller

The PCI bus controller has the following features:

- Compliance with *PCI Local Bus Specification, Revision 2.2*
- Supports six PCI masters
- 32-bit interface, compatible with 3.3-V and 5-V PCI I/O
- Synchronous PCI bus operation up to 33 MHz
- PCI-initiator peer concurrence
- Automatic processor-to-PCI burst cycle detection
- Four-entry, 64-bit PCI master (processor or AGP) write FIFO
- Extensive utilization of FIFOs
- Zero wait-state PCI initiator and target burst transfers
- PCI-to-DRAM data streaming up to 132 Mbytes per second
- Enhanced PCI command optimization, such as memory read line (MRL), memory read multiple (MRM), and memory-write-and-invalidate (MWI)
- Timer-enforced fair arbitration between PCI initiators
- Supports advanced concurrency
- Supports retry disconnect for improved bus utilization

- PCI read buffer keeps track of each master
- PCI target request queue

1-9.4 AGP Features

The AGP features include the following:

- Bus Features
  - Compliance with AGP 2.0 specification
  - Synchronous 66-MHz 1x and 2x data-transfer modes
  - Multiplexed and demultiplexed transfers
  - Up to four pipelined grants
  - Support of side band address (BA) bus
- Request Queue Features
  - Separate read-request and write-request queues
  - Reordering of high-priority requests over low-priority requests in queue
  - Simultaneous issuing of requests form both the write queue and read 2queue
  - Selects next request to optimize bus utilization
- Transaction Queues
  - Memory-to-AGP and processor-to-AGP transaction queues
- FIFO Features
  - 16-entry (64-bit) AGP-to-memory write FIFO
  - 64-entry (64-bit) memory-to9-AGP read FIFO
- Secondary PCI Bus Features
  - Pipelined burst reads and writes
  - Extensive utilization of FIFOs
- GART (graphics address remapping table) Features
  - Conventional (two-level) GART scheme
  - Eight-entry, fully-associative GART table cache (GTC)
  - Three fully-associative GART directory caches (GDC)
    - One 4-entry for PCI
    - One 8-entry for the processor
    - One 16-entry for AGP

1-9.5 Power management

The power management features include the following:

- Full-compliance support for both ACPI and Microsoft ® PC 98 power management
- AMD-751 system controller supports the following three power states:
- Full-on – Fully operational
  - Halt/Stop Grant – The AMD-7851 disconnects the processor and, in the Stop Grant state, the SDRAMs are put into self-refresh.

1-10 I/O INTERFACE CONTROLLER

The motherboard uses the Winbond W83977ATF I/O controller which features:

- Single diskette drive interface
- Two serial ports
- FIFO supports on both serial and diskette interfaces
- One parallel port with Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) support
- PS/2 style mouse and keyboard interfaces
- PCI PME interface
- Intelligent auto power management, including:
  - Shadowed write-only registers for ACPI compliance
  - Programmable wake-up event interface

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

1-10.1 Serial Ports

The NS16C5450-compatible UARTs support data transfers at speeds up to 115.2 Kbits/sec with BIOS support.

1-10.2 Parallel Port

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 Keyboard and Mouse Interface

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.

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

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

1-10.5 Infrared Support

The IR connection can be used to transfer files to or from portable devices like laptops, PDAs, and printers.

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 connectors
- 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 technology connector. The NIC monitors network traffic at the MII interface; upon detecting a Magic Packet, the NIC asserts a wakeup signal that powers up the computer. To access this feature uses the Wake on LAN technology connector.

☛CAUTION

For Wake on LAN, the 5-V standby line for the power supply must be capable of delivering +5V ±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-K7AIA** 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. Slot A 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
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-K7AIA AMD 750 AGP/PCI Motherboard

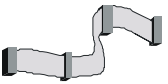
- The Quick Start Guide

- The Installation CD-ROM

- SOYO 3-in-1 Bonus Pack CD-ROM (Norton AntiVirus, Ghost and Virtual Drive)

- The CPU Retention Set

- One IDE Device ATA 66 Flat Cable



- One Floppy Disk Drive Flat Cable

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-K7AIA motherboard comes with a CPU retention set kit. The retention set is used to hold the processor attached to the Slot A 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 100MHz

❑ 500MHz (100 x 5.0)	❑ 550 MHz (100 x 5.5)	❑ 600 MHz (100 x 6.0)
❑ 650MHz (100 x 5.0)	❑ 700 MHz (100 x 5.5)	❑ 750 MHz (100 x 6.0)

Follow these instructions to install your Slot A processor correctly.

➢ Retention Module

1. Open the two sides by folding them up.

2. Push the locks on top of the CPU inward.

3. Insert the CPU into the retention module. The CPU fits in the CPU slot in only ONE way, do not try to force it in.

4. After completely inserting the CPU, push the two locks on top of the CPU outward. Now your CPU is ready for use.

To remove the CPU, press the two notches on top of the CPU inward. Now press the two slides on the retention module down and remove the CPU.

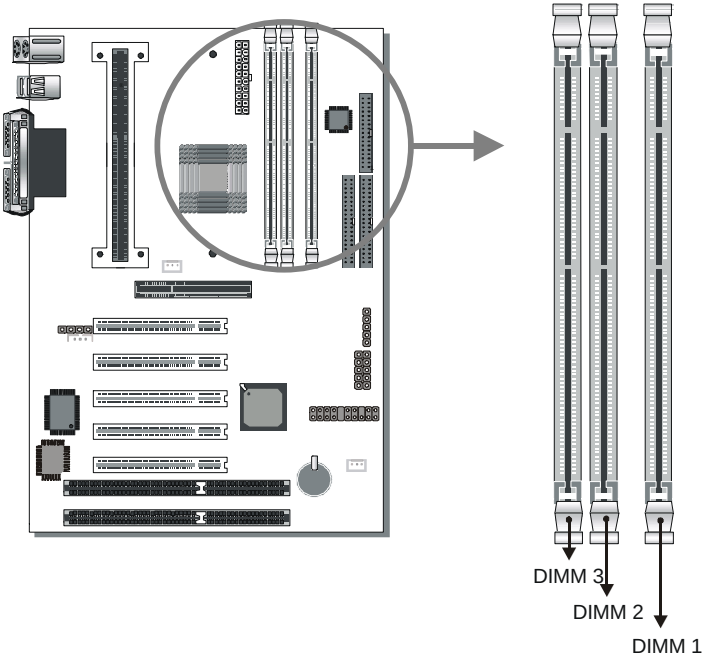
Note: Installing a heat sink and cooling fan on top of your CPU is necessary for proper heat dissipation. Failing to install these items may result in overheating and possible burn-out of your CPU.

2-3.1.1 CPU Fan Installation

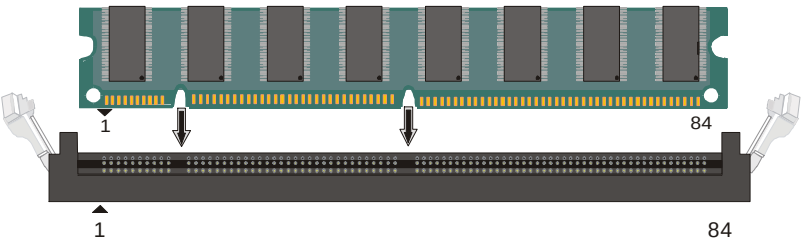
Your Slot A processor kit comes with a cooling fan. Mount the fan on the processor according to the instructions provided by the manufacturer. The fan is a key component that will ensure system stability. The fan prevents overheating, therefore prolonging the life of your CPU.

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

2-3.2 SDRAM Memory Module Installation



Your board comes with three DIMM sockets, providing support for up to 768MB of main memory using unbuffered DIMM modules from 8MB to 256MB. PC100 DIMM module is required on this motherboard.

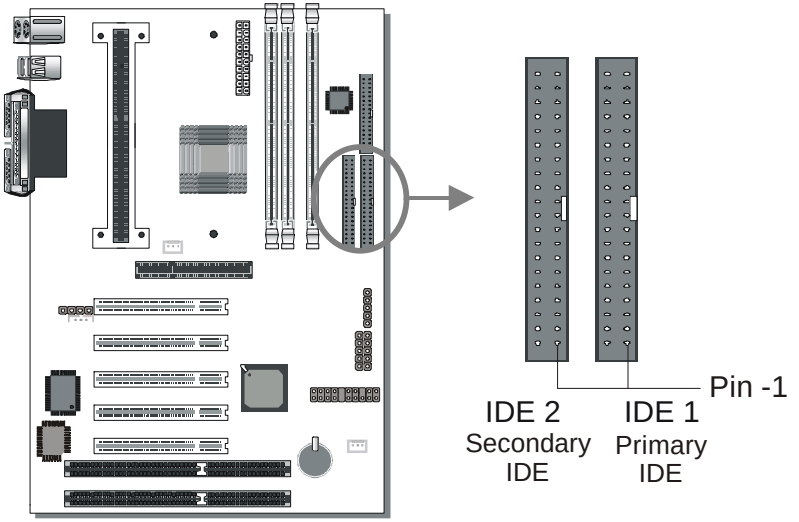


Memory Configuration Table

Memory Configuration	DIMM Banks		
	DIMM 1	**DIMM 2**	**DIMM 3**
RAM Type	SDRAM	SDRAM	SDRAM
RAM Module Size (MB)	8/16/32/64/128/256	8/16/32/64/128/256	8/16/32/64/128/256

Note: No support for registered memory modules.

2-3.3 Motherboard Connector

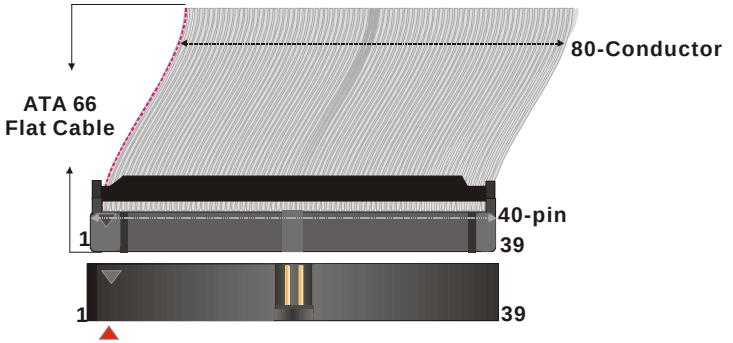


2-3.3.1 IDE Device Installation (HDD, CD-ROM)

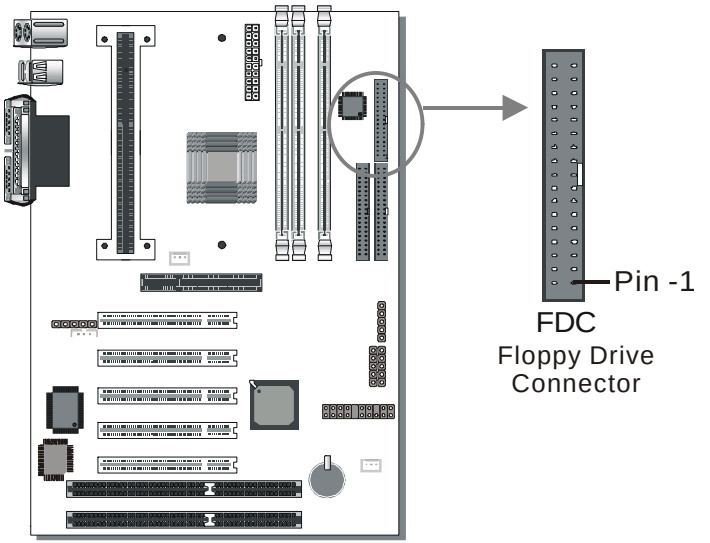
This Motherboard offers two primary and secondary IDE device connectors (IDE1, IDE2.) It can support up to four high-speed HDDs or CD-ROMs.

Connect one side of the 40-pin (ATA-33 or below) / 80-pin (ATA-66) 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.

This Motherboard can support up to four ATA 33/66 IDE devices.



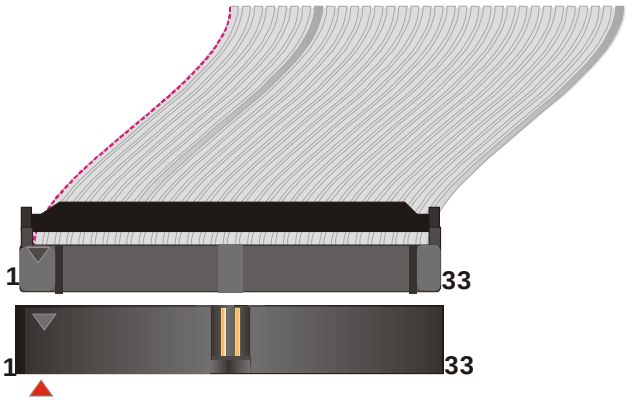
2-3.3.2 Floppy Drive Installation



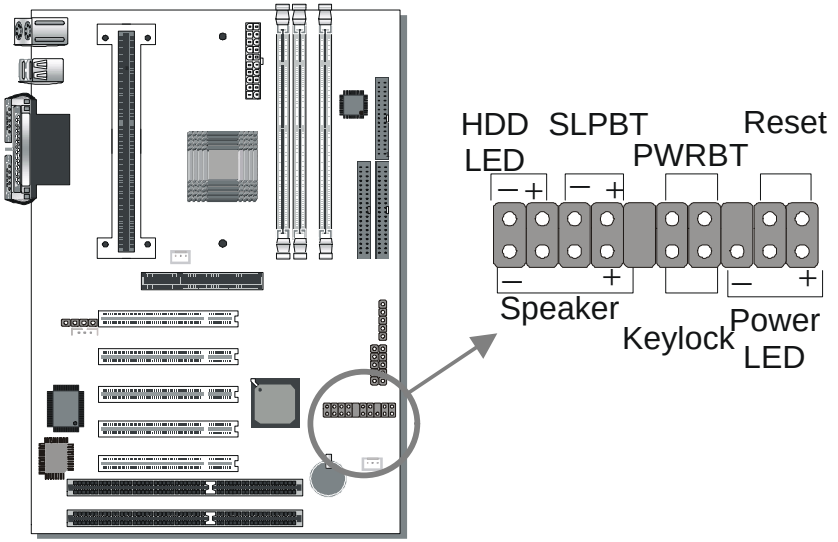
The system supports 5 possible floppy drive types: 720 KB, 1.2 MB, 1.44 MB, 2.88 MB, and LS-120.

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



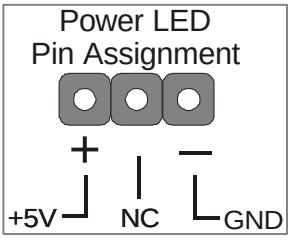
Plug the computer case's front panel devices to the corresponding headers on the Motherboard.

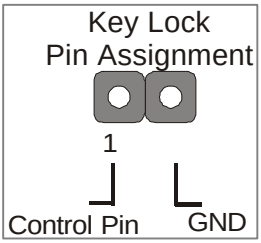
1. Power LED & KeyLock

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

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

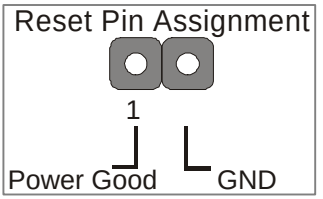
Please install according to the following pin assignment: pin 1,3 are for Power LED and pin 4,5 are for Keylock.





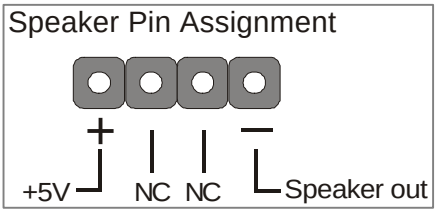
2. Reset

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

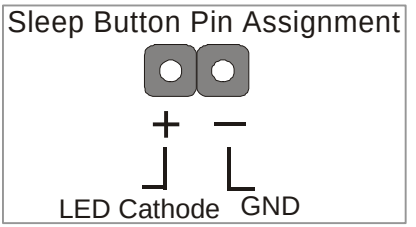


3. Speaker

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

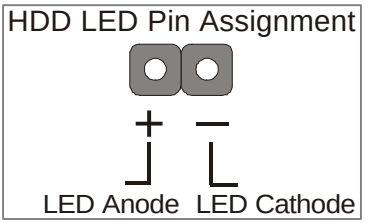


4. Sleep Button



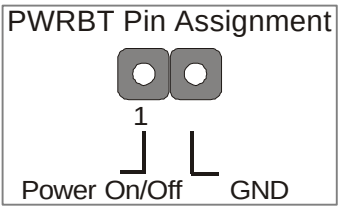
5. IDE LED

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



6. 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.

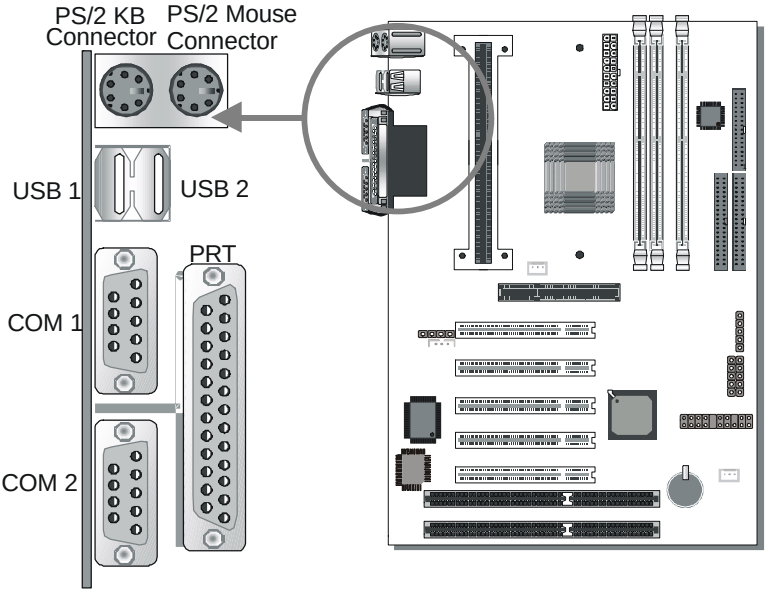


2-3.3.4 Back Panel Connections

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/COM2

External peripherals that use serial transmission scheme include:

- serial mouse,
- and modem.

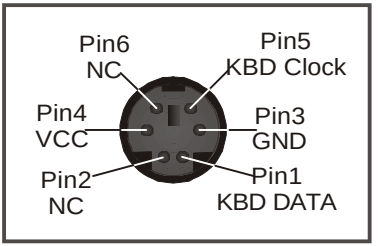
Plug the serial device cables directly into the COM1/COM2 9-pin male connectors located at the rear panel of the Motherboard.

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.

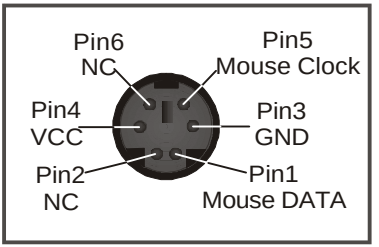
3. PS/2 Keyboard

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.

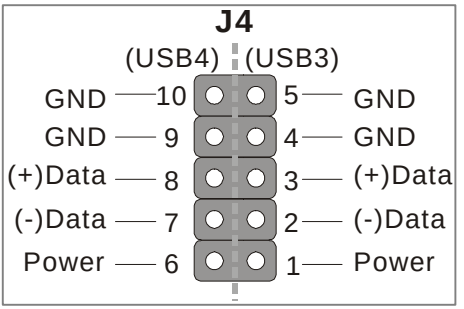


5. Universal Serial Bus USB1/USB2/J4(USB3, USB4)

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.

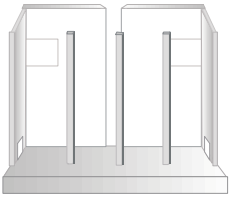
USB3 and 4 are available through JP4. To make use of these USB ports, purchase a USB cable from your dealer. The lay-out of JP4 is as follow:



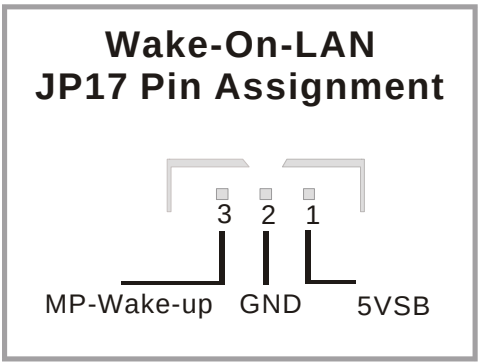
2-3.3.5 Other Connections

1. Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function to the J17 header on the Motherboard. This WOL function lets users wake up the connected computer through the LAN card.



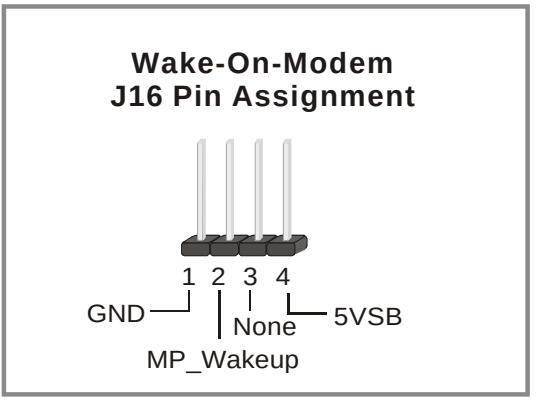
Please install according to the following pin assignment:



2. Wake-On-Modem (J16)

Attach the 4-pin connector from the modem card which supports the Wake-On-Modem function to the J16 header on the Motherboard. This Wake-On-Modem function lets users wake up the connected computer through the Modem card.

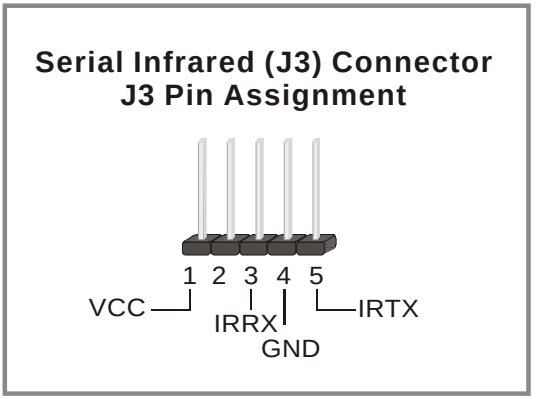
Please install according to the following pin assignment:



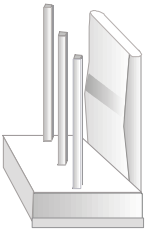
3. Infrared (J3)

Plug the 5-pin infrared device cable to the J3 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:

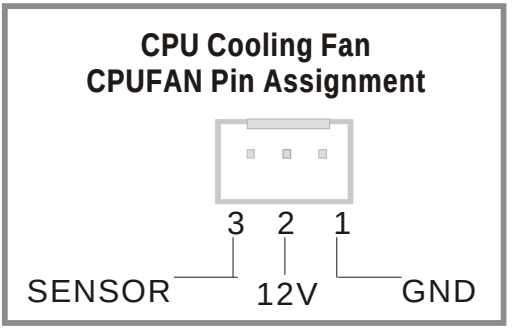


4. Cooling Fan Installation



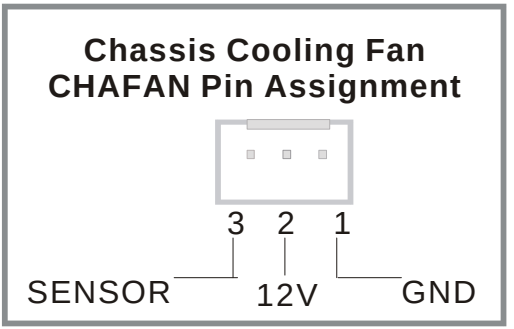
(1) CPU Cooling Fan

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.

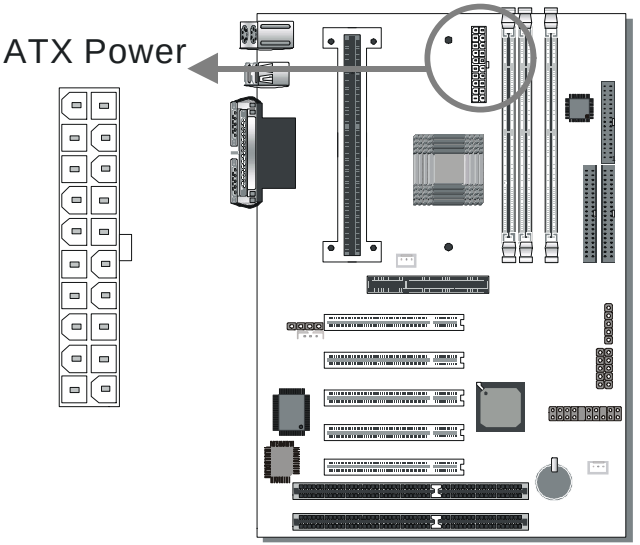
2-3.3.6 AGP VGA Card

Insert the AGP VGA card into the AGP slot. Then connect the monitor information cable to the AGP card back plane external connector. Follow the manufacturer's instructions to perform the AGP VGA drivers installation.

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

2-3.3.7 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.



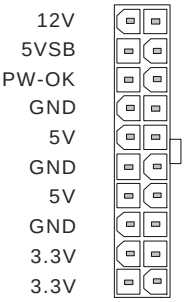
Warning: Follow these precautions to preserve your Motherboard from any remnant currents when connecting to power supply:

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

This motherboard requires a power supply, that meets the ATX 2.03 specifications. Make sure the power supply can support at least 720mA on the 5V Standby lead.

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

ATX Power



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

2-3.4 Power On

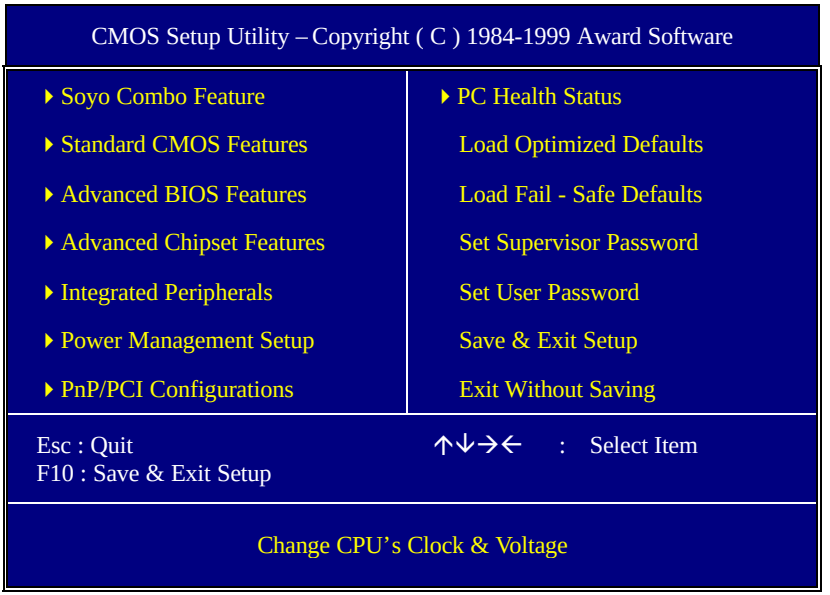
You have now completed the hardware installation of your Motherboard successfully.

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

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

Repeat this operation until you get the following screen.

3. The BIOS Setup screen appears:



2-3.5 Quick BIOS Setup

This Motherboard does not use any hardware jumpers to set the CPU frequency. Instead, CPU settings are auto detected and set automatically. 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 <DEL> 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.

SETUP UTILITY will display on screen. Then, follow these steps to configure the CPU settings.

Step 1. Select [STANDARD CMOS SETUP]

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

Step 2. Select [LOAD SETUP DEFAULT]

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

Step 3. Select [SOYO COMBO SETUP]

Move the cursor to the **[CPU Frequency]** field to see the CPU frequency.

Available [CPU Frequency] settings on your SY-K7AIA Motherboard are detailed in the following table.

CPU Frequency (MHz)		
❑ 500MHz (100 x 5.0)	❑ 550MHz (100 x 5.5)	❑ 600MHz (100 x 6.0)
❑ 650MHz (100 x 6.5)	❑ 700MHz (100 x 7.0)	❑ 750MHz (100 x 7.0)

***Note**: This is auto detect function. You can see your CPU clock and Ratio, but that is not adjustable.*

Step 4. Select [SAVE & EXIT SETUP]

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

2-3.6 Troubleshooting at First Start

- ***What should I do if the Motherboard refuses to start?***

1. Check that all DIMM memory modules are inserted completely. Sometimes a DIMM that is not inserted properly can cause boot problems.
2. Check whether all Add-on cards have been inserted properly. Re-insert the Add-on cards to make sure that they make proper contact with the slots. Try removing all Add-on cards one by one to see whether or not one of them is causing problems. (Switch the system off before removing any of the cards.
3. Verify that speed settings are not exceeding specifications. This applies to the PCI bus, that is specified to run at 33 MHz. Also check the speed setting for the memory, make sure conservative setting is used. If the CPU is overclocked the system may not start up, read the section below.
4. Make sure that the Harddisk IDE cables are attached properly, if not the system will not boot. In case of doubt try reversing the IDE connector on one end of the cable.
5. Verify that the 110/220V switch on the back of the power supply is set correctly.
6. Go through the jumper setting section again to make sure that all jumpers are set correctly.

2-3.7 Power Off

There are two possible ways to turn off the system:

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

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

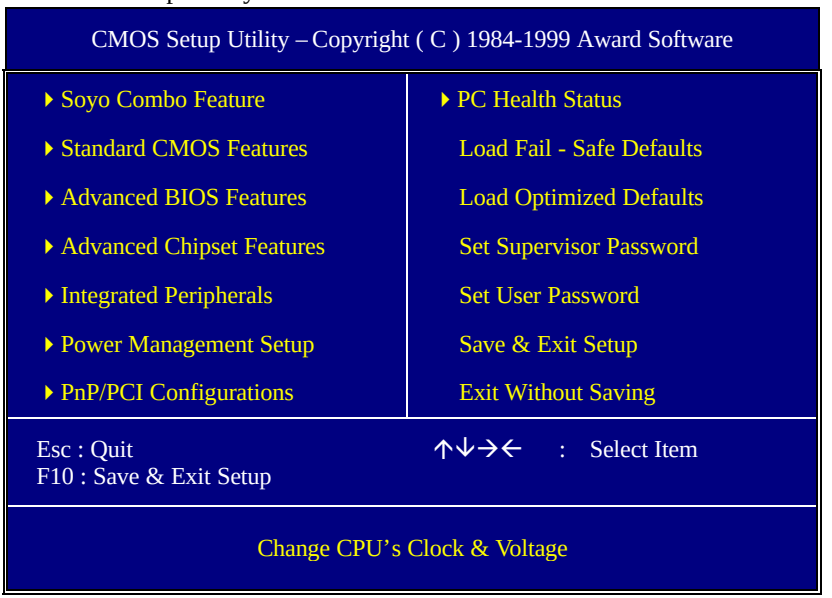
Chapter 3

BIOS SETUP UTILITY

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

To enter the Award BIOS program's Main Menu:

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



Selecting items

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

Modifying selected items

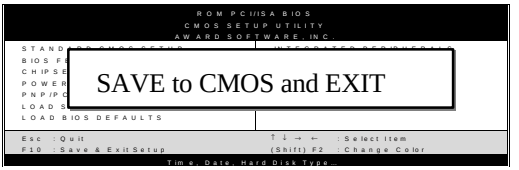
- Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

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

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

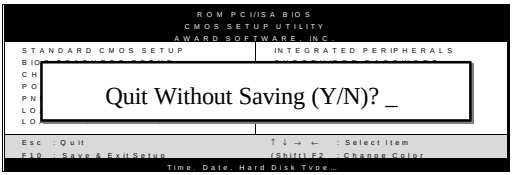
Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.



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.

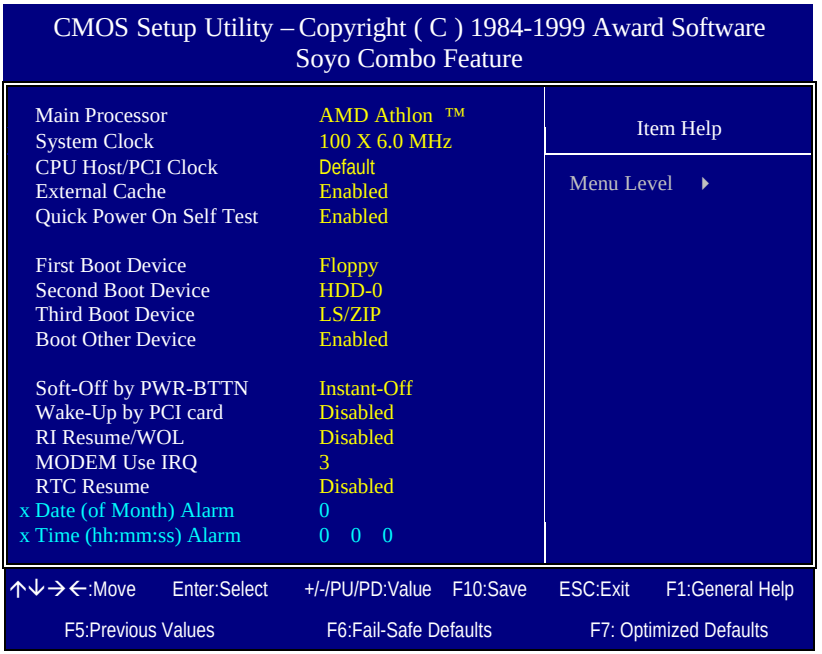


Type [Y] to abandon changes and exit or [N] to return to the Main Menu and keep current values.

3-1 SOYO COMBO SETUP

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

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



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

3-1.1 Quick CPU Frequency Setup

Quick CPU Frequency Setup	Setting	Description	Note
Main Processor	This item lists the CPU type, it is a read only item.		
System Clock	The CPU settings are autodetected: list CPU multiplier here: [5.0, 5.5,6.0,6.5,7.0,7.5]. The CPU frequency is then defined as [host clock freq.]x[multiplier], and should the working frequency of your AMD Athlon™ processor.		
CPU Host/PCI clock	Default	This item lists the CPU host clock and the PCI bus clock. It is a read only item.	Default
	133/33 MHz		
	100/33 MHz		

3-1.2 Cache Memory Options

	Setting	Description	Note
External Cache	Disabled		
	Enabled	Enables the external memory.	Default

3-1.3 Quick Power On Self Test

	Setting	Description	Note
Quick Power On Self Test	Disabled		
	Enabled	Provides a fast POTS at boot-up.	Default

3-1.4 System Boot Control Settings

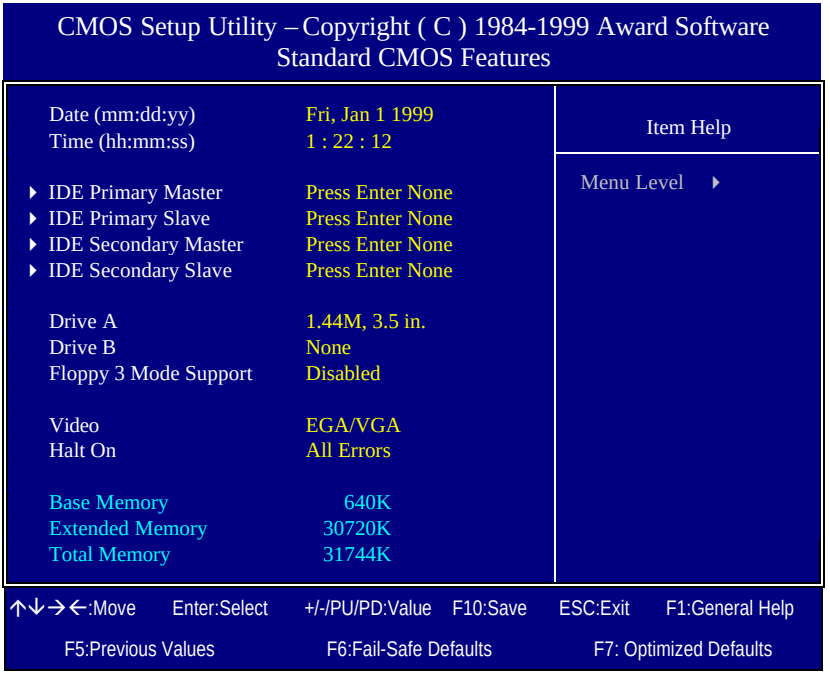
System Boot Control Settings	Setting	Description	Note
First /Second/Third Boot Device	Floppy	Select Your Boot Device Priority	
	LS/ZIP		
	HDD-0		
	SCSI		
	CDROM		
	HDD-1		
	HDD-2		
	HDD-3		
	LAN		
	Disabled		
Boot Other Device	Disabled	Select Your Boot Device Priority	
	Enabled		Default

3-1.5 Others Optional

	Setting	Description	Note
Soft-Off by PWR-BTTN	Instant-off		Default
	Delay 4 Sec.	Turns off the system power 4 seconds after pushing the power button.	
Wake-Up by PCI card	Disabled	If enabled any PCI interrupt will wake up the system.	Default
	Enabled		
R1 Resume/ WOL	Disabled	To allow your system to make use of the WOL (Wake On Lan) function, this option must be set to enabled.	Default
	Enabled		
MODEM Use IRQ	3		Default
	3,4,5,7,9,10,11,NA	Assigns an IRQ# to the modem device.	
RTC Resume	Disabled	The system ignores the alarm.	Default
	Enabled	Set alarm to power on the system by the date (1-31) or time (hh:mm:ss). If the date is set to [0], the system will self-power on by alarm everyday at the set time.	

3-2 STANDARD CMOS SETUP

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



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.

3-2.1 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

3-2.2 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	
IDE Primary Slave (User Type)	Auto	BIOS detects hard disk type automatically.	Default
	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.

3-2.3 Floppy Drives

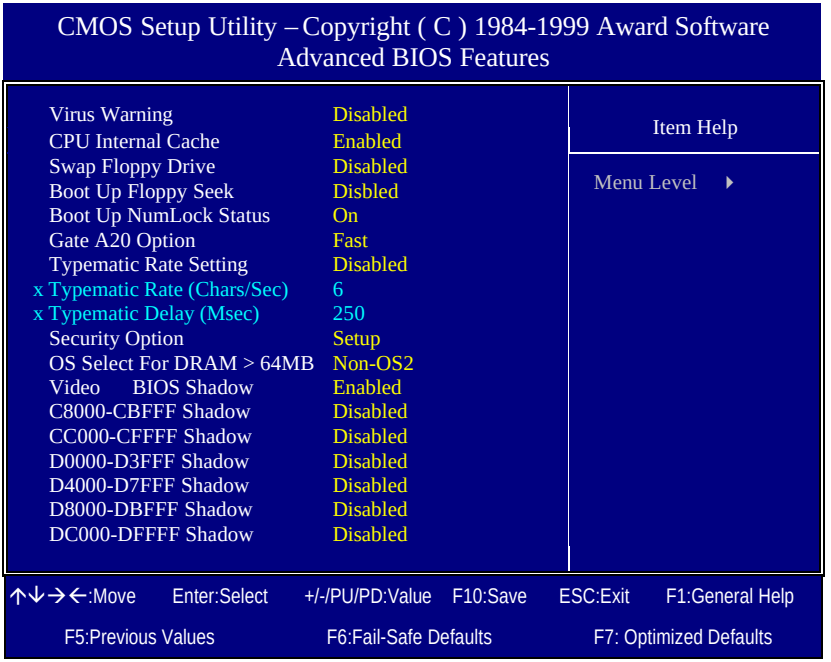
Floppy Drives	Setting	Description	Note
Drives A & B	360KB, 5.25 in.		
	1.2MB, 5.25 in.		
	720KB, 3.5 in.		
	1.44MB, 3.5 in.		Default
	2.88MB, 3.5 in.		
	None	Not installed	
Floppy 3-Mode Support	Disabled		Default
	Drive A Drive B Both	Supports 3-mode floppy diskette: 740KB/1.2MB/ 1.44MB on selected disk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

3-2.4 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		

3-3 ADVANCED BIOS FEATURES

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



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

3-3.1 Virus Warning

	Setting	Description	Note
Virus Warning	Disabled		
	Enabled	Enable this option to protect the boot sectors and partition tables of your hard disk. Any attempt to write to them will the system to halt and display a warning message..	Default

3-3.2 CPU Internal Cache Settings

	Setting	Description	Note
CPU Internal Cache	Disabled		
	Enabled	Enables the CPU's internal cache.	Default

3-3.3 Floppy Driver Settings

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

3-3.4 Boot Up Floppy Seek

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

3-3.5 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.	

3-3.6 Gate A20 Options

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

3-3.7 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 (Chars/Sec)	6 (Char/sec) 8 (Char/sec) 10 (Char/sec) 12 (Char/sec) 15 (Char/sec) 20 (Char/sec) 24 (Char/sec) 30 (Char/sec)	Choose the rate at which a character is repeated when holding down a key.	Default
Typematic Delay (Msec)	250 (msec) 500 (msec) 750 (msec) 1000 (msec)	Choose how long after you press a key down the character begins repeating.	Default

3-3.8 Security Option

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

	Setting	Description
Security Option	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.

3-3.9 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 or Adapter BIOS Shadow	Disabled		
	Enabled		Default
	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.		

3-4 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.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software
Advanced Chipset Features

System BIOS Cacheable	Disabled	Item Help
Video BIOS Cacheable	Disabled	
Memory Hole AT 15M- 16M	Disabled	Menu Level ▸
AGP Aperture Size (MB)	128	
AGP ISA Aliasing	Enabled	
K7 CLK_CTL Select	Optimal	
SDRAM ECC Setting	Disabled	
SDRAM Timing setting by	Manual	
SDRAM PH Limit	32 Cycle	
SDRAM Idle Limit	8 Cycle	
SDRAM Trc Timing Value	8 Cycle	
x SDRAM Trp Timing Value	3 Cycle	
x SDRAM Tras Timing Value	5 Cycle	
x SDRAM CAS Latency	3 Cycle	
x SDRAM Trcd Timing Value	2 Cycle	
Spread Spectrum Modulated	1.0% (Down)	

↑↓→←: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.

3-4.1 CHIPSET FEATURES SETUP

CHIPSET FEATURES	Setting	Description	Note
System BIOS Cacheable	Disabled		
	Enabled	The ROM area F0000H-FFFFFH is cacheable.	Default
Video BIOS Cacheable	Disabled		
	Enabled	The video BIOS C0000H-C7FFFH is cacheable.	Default
Memory Hole At 15M-16M	Disabled		Default
	Enabled	Some interface cards will map their ROM address to this area. If this occurs, select [Enabled] in this field.	
AGP Aperture Size (MB)	128	This option specifies the following AGP aperture sizes.	
	32,64,128,256		
AGP ISA Aliasing	Disabled	Set this item to enabled for better compatibility with ISA VGA.	
	Enabled		Default
K7 CLK_CTL Select	Optimal	The Clock Control register (Clk_Ctl) specifies how the processor will ramp up the processor clock during low power modes	Default
	Default		
SDRAM ECC Setting	Disabled	When this option is enabled, the SDRAM is configured to support single-bit correction/double-bit detection codes (ECC) for checking the integrity of transactions with system memory.	Default
	Enabled		
SDRAM Timing setting by	Auto	If this item is set to manual, the items concerning memory performance and speed are released for change by the user. Only experienced users should change these items. If set to auto, the memory items will be set automatically.	
	Manual		

CHIPSET FEATURES SETUP (Continued)

CHIPSET FEATURES	Setting	Description	Note
SDRAM PH Limit	32 1,4,32,64	This option specifies the number of consecutive Page-Hit requests to allow before choosing a non-Page-Hit request.	
SDRAM Idle Limit	8 0,8,12,16, 24,32,48	This option specifies the number of idle cycles to wait before precharging an idle bank.	
SDRAM Trc Timing Value	8 3,4,5,6,7, 8	This option specifies the minimum time from activate to activate of the same bank.	
SDRAM Trp Timing Value	3 2,3	This option specifies the delay from precharge command to activate command.	
SDRAM Tras Timing Value	5 2,3,4,5,6, 7	This option specifies the minimum bank (SRAS[2:0]#) active time.	
SDRAM CAS Latency	3 2,3	This option specifies the delay from JSCAS [2:0]# to data valid.	
SDRAM Trcd Timing Value	2 1,2,3,4	This option specifies the delay from the activation of a bank to the time that a read or write command is accepted.	
Spread Spectrum Modulated	10% (Down) -0.5% (Down)	When using Spread Spectrum Modulated 10% (Down) or -0.5% (Down) for FCC or DOC testing.	Default

3-5 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.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software
Integrated Peripherals

IDE Read/Write Prefetch	Disabled	Item Help
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	Menu Level ▸
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
On-Chip Primary PCI IDE	Enabled	
On-Chip Secondary PCI IDE	Enabled	
USB Host Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
Onboard IR Controller	Disabled	
x IR Address Select	2E8H	
x IR Mode	IrDA	
x IR Transmittiion delay	Enabled	
x IR IRQ Select	IRQ10	
x IR Mode Use DMA	Disbled	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
x ECP Mode Use DMA	3	
x EPP Mode Select	EPP1.9	

↑↓→←: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.

3-5.1 IDE Device Controls

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

3-5.2 Keyboard Controls

Keyboard Controls	Setting	Description	Note
USB Host Controller	Disabled		
	Enabled	Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.	Default
USB Keyboard Support	Disabled	Turn off the on-board IDE	Default
	Enabled	Use a USB keyboard	
Init Display First	PCI Slot	Choose which card – AGP Display card or PCI VGA card – to initialize first.	Default
	AGP		

3-5.3 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

3-5.4 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

3-5.5 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. Do not set port 1 & 2 to the same address except for Disabled or Auto.	Default (port 1)
	2F8/IRQ3		Default (port 2)
	3E8/IRQ4		
	2E8/IRQ3		
	Auto		
Onboard IR Controller	Disabled		Default
	Enabled	Select *Enabled* if your system contains a InfraRed and you have InfraRed peripherals.	
IR Address Select	2E8H	Choose the IR I/O address.	Default
	2F8H,3E8H, 2E8H,3E0H, 2E0H,3F8H		

Onboard Serial Ports (Continued)

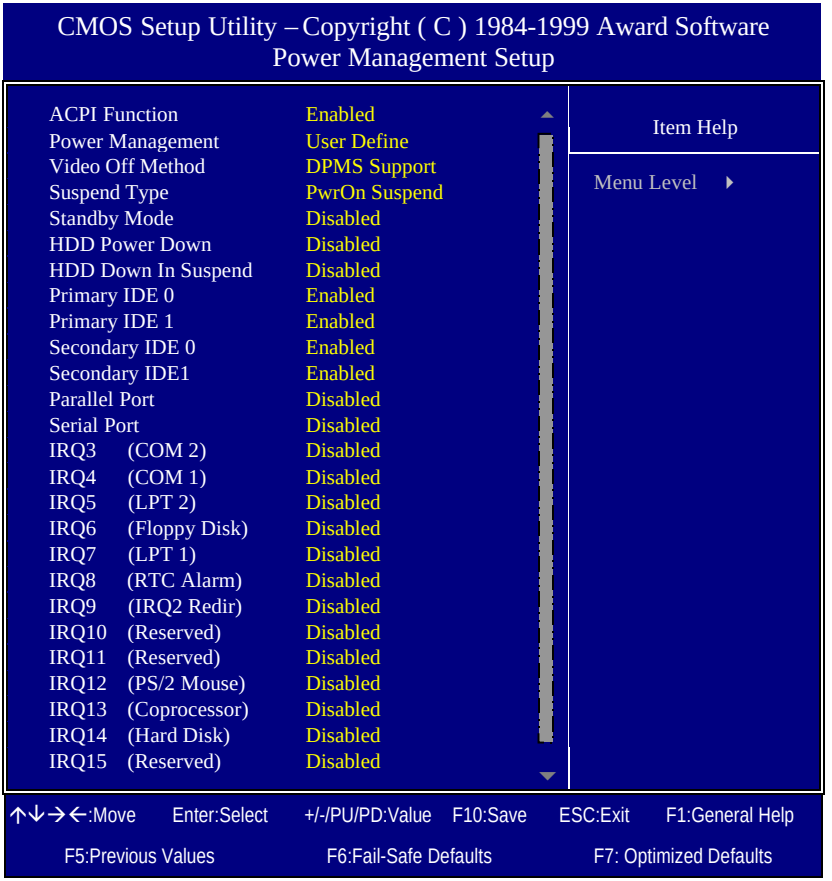
Onboard Serial Ports	Setting	Description	Note
IR Mode	IrDA	The second serial port offers these InfraRed interface modes.	Default
	ASKIR		
	FIR		
IR Transmittiion delay	Disabled		
	Enabled	Some IR devices need this item enabled.	Default
IR IRQ Select	IRQ10	Select the IRQ that the IR uses under this them.	Default
	IRQ3/4/10/11		
IR Mode Use DMA	Disabled		Default
	1	Choose DMA1	
	3	Choose DMA3	

3-5.6 Onboard Parallel Ports

Onboard Parallel Ports	Setting	Description	Note
Onboard Parallel Port	Disabled	Choose the printer I/O address.	
	378/IRQ7		Default
	3BC/IRQ7		
	278/IRQ5		
Parallel Port Mode	SPP	The mode depends on your external device that connects to this port.	Default
	EPP		
	ECP		
	ECP+EPP		
If [Parallel Port Mode] is set to [ECP] mode			
ECP Mode use DMA	3	Choose DMA3	Default
	1	Choose DMA1	
If [Parallel Port Mode] is set to [EPP] mode			
EPP Mode Select	EPP 1.9	Select EPP port type 1.9	Default
	EPP 1.7	Select EPP port type 1.7	

3-6 POWER MANAGEMENT SETUP

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



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

3-6.1 Power Management Controls

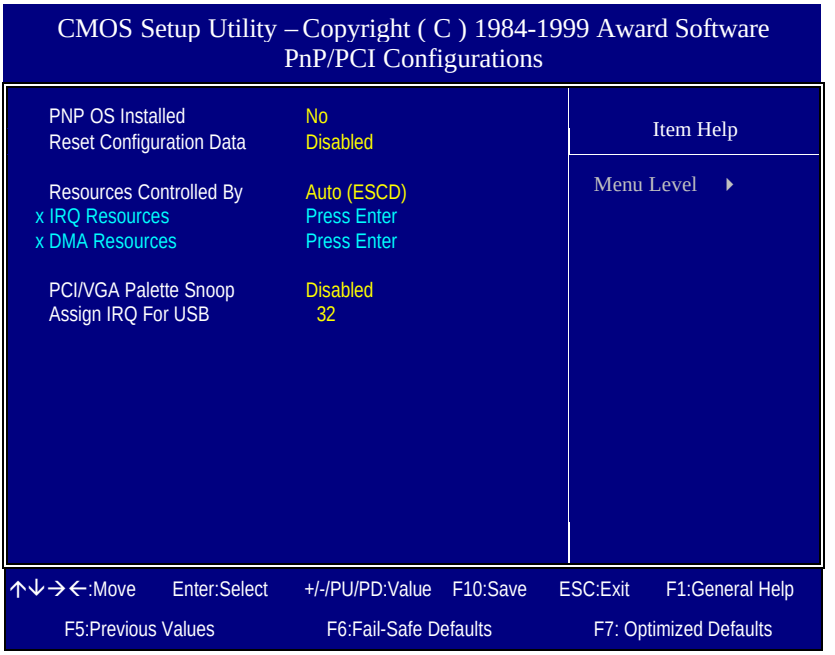
Power Management Controls	Setting	Description			Note
ACPI function	Disabled				
	Enabled	ACPI (Advanced Configuration Power Management Interface)			Default
Power Management	User Define	Lets you define the HDD and system power down times.			Default
		Doze timer	Standby timer	Suspend timer	HDD power down
	Min Saving	1 Hour	1 Hour	1 Hour	15 Min
	Max Saving	1 Min	1 Min	1 Min	1 Min
Video Off Method	V/H Sync+Blank	Selects the method by which the monitor is blanked.			Default
	Blank screen				
	DPMS				
Suspend Type	Stop Grant	The system can wake up through external events.			Default
	PwrOn Suspend	The system can only wake up through the Power-Button.			
Standby Mode	Disable				Default
	1Min-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Standby Mode.			
HDD Power Down	Disabled				Default
	1-15Min	When the set time has elapsed, BIOS sends a command to the HDD to power down. This turns off the HDD motor.			Some older model HDDs may not support this advanced function.
HDD Down In Suspend	Disabled	If this item is set to enabled the HDD will shut down (the motor will stop turning) when entering suspend mode.			Default
	Enabled				

3-6.2 Reload Global Timer Events

Power Down & Resume Events	Setting	Description	Note
IDE0, IDE1 ➢ **Primary** ➢ **Secondary**	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected.	
FDD, COM, LPT Port	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected.	
PCI PIRQ [A-D]#	Disabled		
	Enabled	The system monitors these elements for activity. The system will resume if [IRQ activity] is detected.	Default

3-7 PNP/PCI CONFIGURATION SETUP

This option sets the Motherboard's PCI Slots.



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.

3-7.1 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 (ESCO)	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: 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**	*Interrupt 12 will be released by the PnP BIOS automatically if the PS/2 Mouse Port is not used.*	
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.			
PCI/VGA Palette Snoop	Disabled	This option will correct color settings. Most applications do not need it , we recommend setting this option to disabled.	Default
	Enabled		
Assign IRQ For USB	Disabled	BIOS will assign IRQ for USB port.	
	Enabled	BIOS won't assign IRQ for USB port.	Default

3-7.2 MULTI I/O ADDRESSES

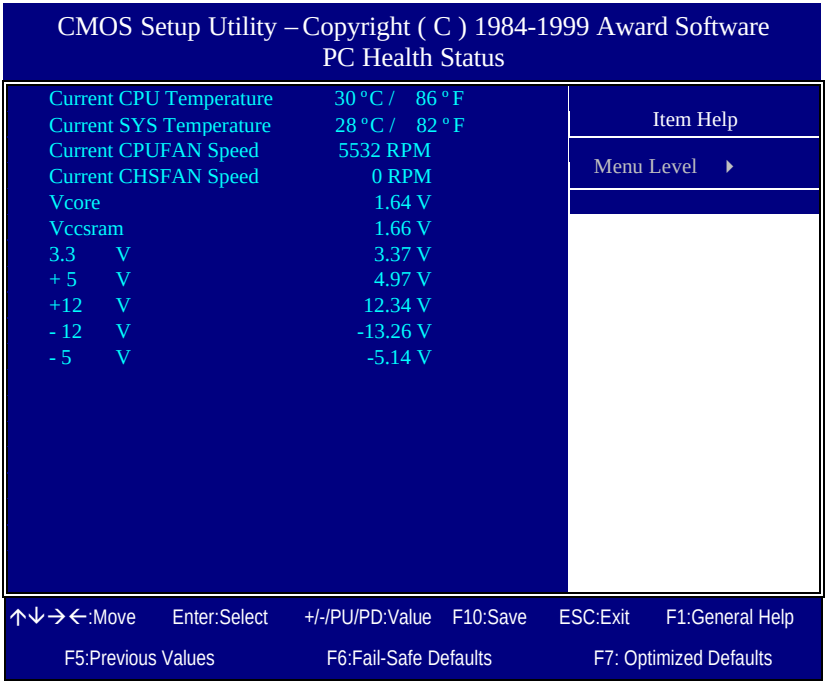
Default settings for multi-I/O addresses are as follows:

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)

3-8 PC HEALTH STATUS

This option sets the Motherboard's PC Health Status.



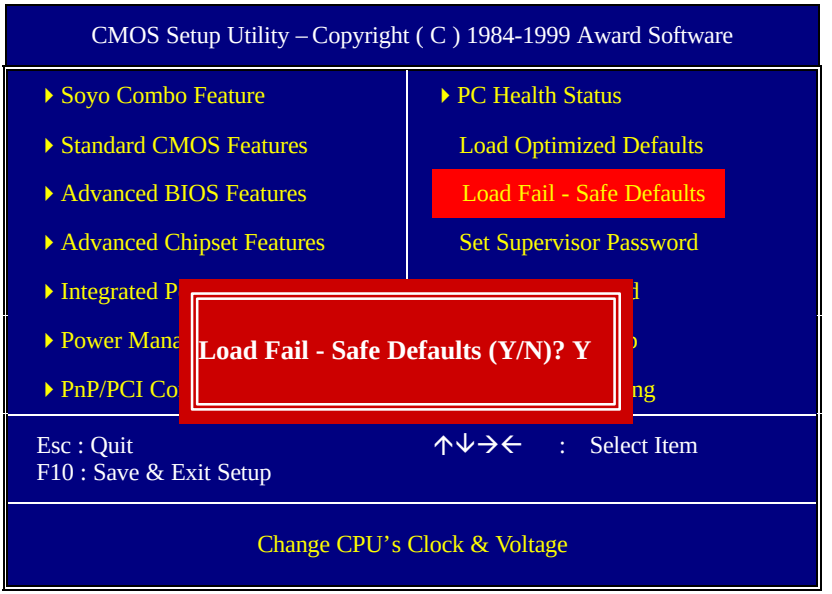
Note: Starred (*) items will disappear when the [Resources Controlled By] option is set to [Auto].

3-8.1 CPU Device Monitoring

CPU Device Monitoring	Setting	Description	Note
Current CPU Dio Temp.	°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, Vccsram, 3.3V, +5V, +12V, -12, 15	V	Show the current voltage status.	

3-9 LOAD FAIL-SAFE DEFAULTS

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

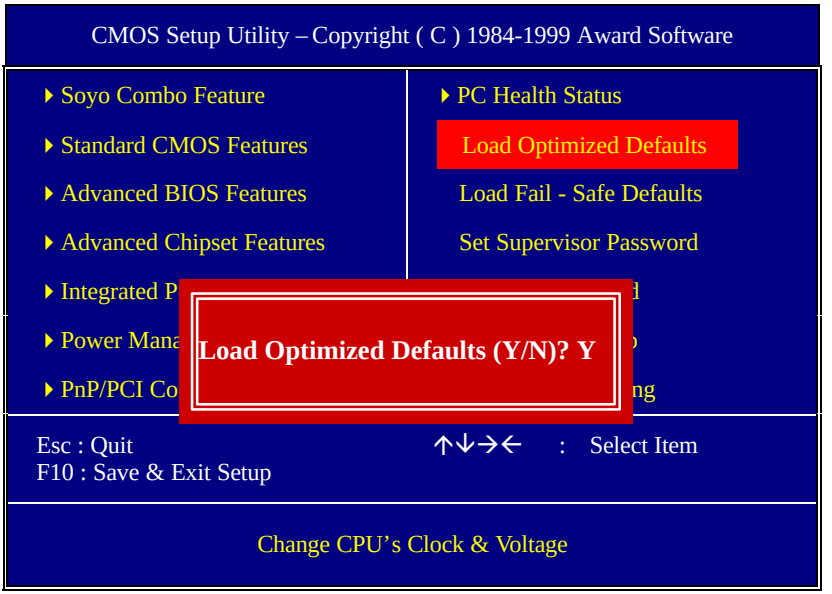


Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

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

3-10 LOAD OPTIMIZED DEFAULTS

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



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

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

3-11 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:

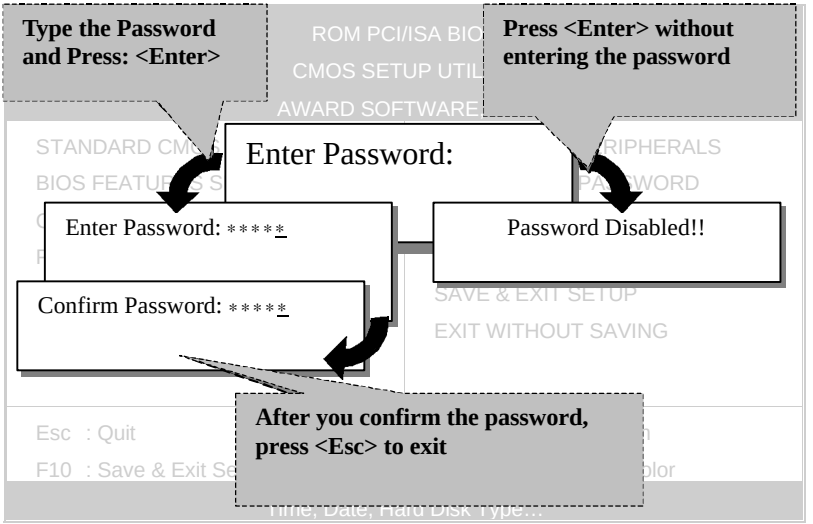
Password Disabled!!

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:



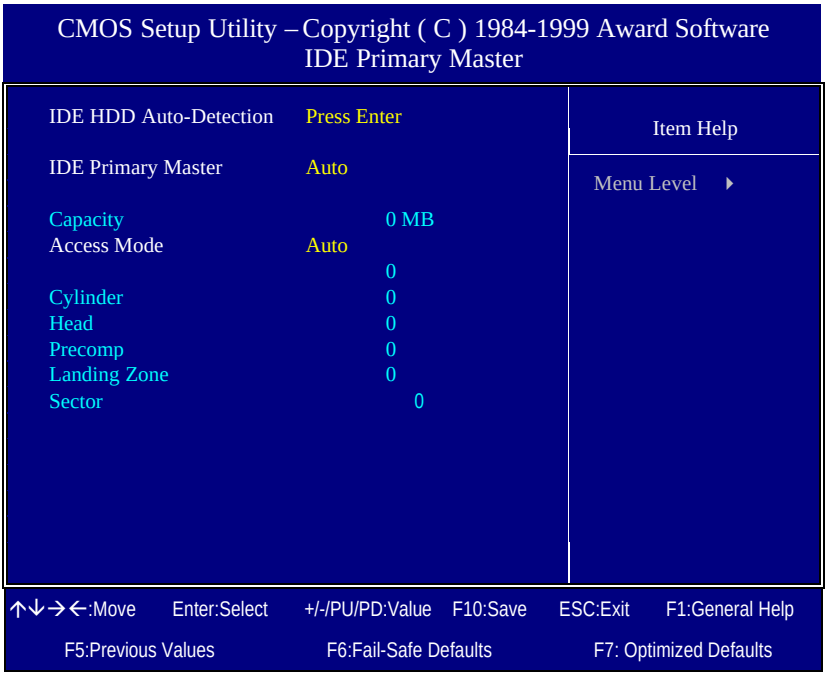
3-12 USER PASSWORD

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).

3-13 IDE HDD AUTO DETECTION

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



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

Chapter 4

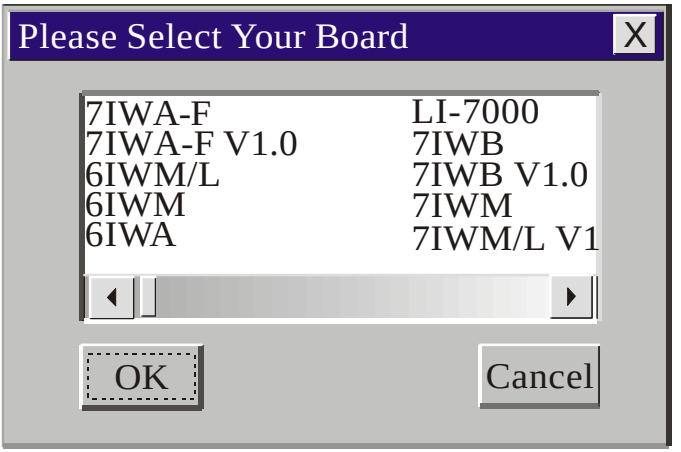
DRIVERS INSTALLATION

Your SY-K7AIA 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)

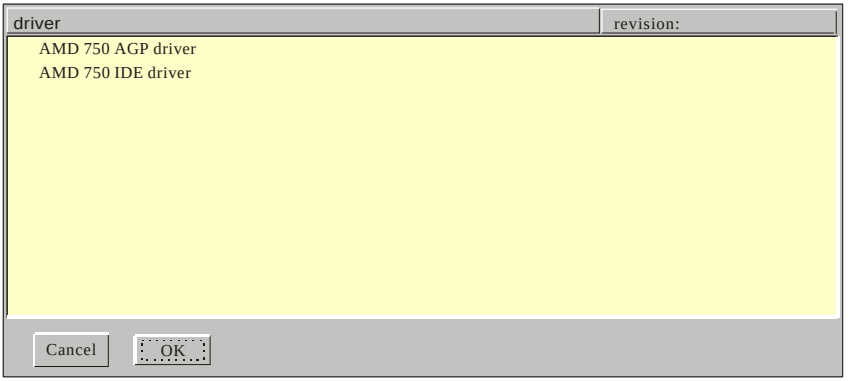
If you use Windows 95 or 98, the SOYO CD Start Up Program automatically detects which SOYO Motherboard you own and displays the corresponding model name.

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:

- **AMD 750 AGP driver**

This driver has to installed in order to able to make use of the AGP port on your AMD-750 board. This driver is suitable for windows 95 and 98.

- **AMD 750 IDE driver**

This driver will allow you to make use of the DMA feature of IDE drives (the drive needs to support DMA as well) on your AMD-750 board. This driver is suitable for use with windows 95 and 98.This utility comes with a preset monitoring rage for the CPU voltage. However, the core voltage of the processor you purchased may fall out of this preset range, so you may need to adjust the pre-set value. Please refer to the SY-K7AIA Motherboard's CD manual for the details.

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

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.

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SOYO