

# SY-6BA Mainboard

\*\*\*\*\*

Pentium<sup>®</sup> II processor (66&100MHz) supported

82440 BX AGP Set Mainboard

ATX Form Factor

\*\*\*\*\*

User's Guide  
&  
Technical Reference

## About This Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the mainboard. Information in this guide has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. The information in this document is subject to change without notice.

## Copyright Notice

Copyright 1998, Soyo Computer Inc. All rights reserved. This manual is copyrighted by Soyo Computer Inc. You may not reproduce, transmit, transcribe, store in a retrieval system, or translate into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, any part of this publication without express written permission of Soyo Computer Inc.

## Trademarks

Soyo is a registered trademark of Soyo Computer Inc. All trademarks are the property of their owners.

## Disclaimer

Soyo Computer Inc. makes no representations or warranties regarding the contents of this manual. We reserve the right to revise the manual or make changes in the specifications of the product described within it at any time without notice and without obligation to notify any person of such revision or change. The information contained in this manual is provided for general use by our customers. Our customers should be aware that the personal computer field is the subject of many patents. Our customers should ensure that their use of our products does not infringe upon any patents. It is the policy of Soyo Computer Inc. to respect the valid patent rights of third parties and not to infringe upon or assist others to infringe upon such rights.

## Restricted Rights Legend

Use, duplication, or disclosure by the Government is subject to restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at 252.277-7013.

## Product Rights

Products mentioned in this manual are mentioned for identification purpose only. Product names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies.

If you need any further information, please come to our home page on the Internet. The address is "<http://www.soyo.com.tw>".

**Edition: April 1998**  
**Version 1.0**  
**6BA SERIAL**

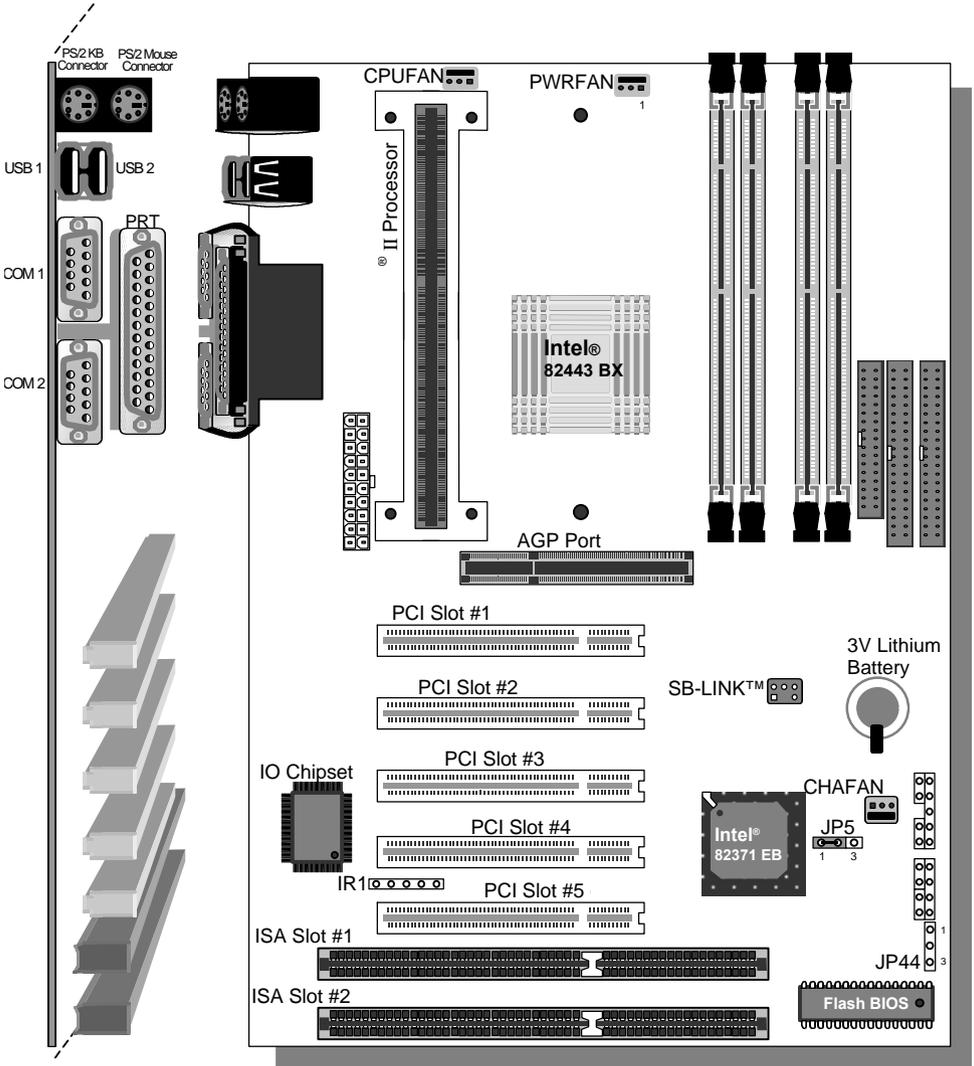
**FC** Tested To Comply  
With FCC Standards  
FOR HOME OR OFFICE USE

**100%** POST CONSUMER  
RECYCLED PAPER

# Table of Contents

SY-6BA MOTHERBOARD LAYOUT .....	1
<b>MOTHERBOARD FEATURES .....</b>	<b>2</b>
<b>DEFAULT SETTINGS.....</b>	<b>3</b>
<b>QUICK INSTALLATION GUIDE .....</b>	<b>4</b>
<b>CHAPTER 1 INTRODUCTION .....</b>	<b>23</b>
1-1 KEY FEATURES.....	23
1-2 UNPACKING THE MOTHERBOARD .....	25
1-3 HANDLING THE MOTHERBOARD .....	25
1-4 ELECTROSTATIC DISCHARGE PRECAUTIONS.....	25
<b>CHAPTER 2 HARDWARE SETUP .....</b>	<b>27</b>
2-1 CMOS CLEAR JUMPER JP5 .....	27
2-2 AUTO DETECT CPU VOLTAGE & FREQUENCY .....	28
2-3 CPU TYPE CONFIGURATION .....	28
2-4 MEMORY CONFIGURATION.....	30
2-5 MULTI I/O ADDRESSES.....	31
2-6 MAKING CONNECTIONS .....	31
<b>CHAPTER 3 BIOS SETUP UTILITY.....</b>	<b>32</b>
3-1 STANDARD CMOS SETUP .....	34
3-2 BIOS FEATURES SETUP.....	37
3-3 CHIPSET FEATURES SETUP.....	42
3-4 POWER MANAGEMENT SETUP.....	46
3-5 PNP/PCI CONFIGURATION SETUP .....	50
3-6 LOAD SETUP DEFAULTS.....	53
3-7 LOAD BIOS DEFAULTS .....	53
3-8 INTEGRATED PERIPHERALS .....	54
3-9 SUPERVISOR PASSWORD.....	588
3-10 USER PASSWORD .....	599
3-11 IDE HDD AUTO DETECTION .....	60
APPENDIX <i>QUICK START GUIDE</i> .....	611

# SY-6BA MOTHERBOARD LAYOUT



Back Panel

Layout with Default Settings

## MOTHERBOARD FEATURES

Board Size	4-layer PCB, 22.5x30.5cm, ATX Form Factor
Slot 1	Slot 1 for Pentium® II Processor; supports: <ul style="list-style-type: none"><li>➤ Pentium® II Processors up to 100 MHz host bus frequency (233-500MHz)</li><li>➤ Auto detection of CPU voltage</li></ul>
Chipset	82440 BX AGP Set
ATX Power	20-pin Male Connector
Memory	DIMM Bank 1~4 (D1~D4) <ul style="list-style-type: none"><li>➤ 168-pin Unbuffered SDRAM DIMM Module</li><li>➤ Support 8~128MB DIMM in each Bank</li><li>➤ Supports ECC configuration</li></ul>
BIOS	System BIOS built-in, Award BIOS <ul style="list-style-type: none"><li>➤ "Plug-and-Play" function</li><li>➤ NCR810/SY-V325/SY-8115 BIOS Code</li></ul>
PCI Slots (5x)	5 x 32-bit Bus Mastering Slots
AGP Slot (1x)	1 x 32-bit AGP Slot
ISA Slots (2x)	2 x 16-bit ISA Slots
IDE1, IDE2	2 x 40-pin Bus Mastering E-IDE/ATAPI Ports <ul style="list-style-type: none"><li>➤ IDE1: Primary IDE Device Connector</li><li>➤ IDE2: Secondary IDE Device Connector</li></ul>
FDC	1 Floppy Disk Drive (FDD) Port (Supports 1.2MB/1.44MB/2.88MB and LS120/3-mode FDD)
IR1	5-pin Infrared Device Connector
PRT	1 26-pin Female Parallel Printer Port
COM1, COM2	2 RS-232 Serial Ports
PS/2 KB	1 PS/2 Keyboard Connector

**MOTHERBOARD FEATURES (CONTINUED)**

PS/2 Mouse	1 PS/2 Mouse Connector
USB1, USB2	2 USB (Universal Serial Bus) Connectors
Keylock	5-pin KeyLock Connector
Reset	2-pin Reset Switch Connector
Speaker	4-pin PC Speaker Connector
TB_LED	2-pin Turbo LED Connector
HDD_LED	2-pin IDE Device LED Connector
JP5	CMOS Clear Jumper
JP44	WOL (Wake-On-LAN) 3-pin Connector
SBLINK	PCI Audio Card Connector

**DEFAULT SETTINGS**

CPU	Pentium® II 233/350 MHz Processor
CPU Voltage	Auto Detect CPU Voltage
2 IDE Ports	PCI E-IDE Ports
1 Parallel Port	LPT1: EPP/ECP Printer Port <ul style="list-style-type: none"><li>➤ LPT1: I/O Address 378H, IRQ 7, Status ECP+EPP</li></ul>
2 Serial Ports	COM1 & COM2: 2 x RS-232 high-speed UARTs (w/ 16550 FIFO) <ul style="list-style-type: none"><li>➤ COM1: I/O Address 3F8H, IRQ 4</li><li>➤ COM2: I/O Address 2F8H, IRQ 3</li></ul>
2 USB Ports	2 Onboard USB (Universal Serial Bus) Ports
PS/2 Mouse	
ATX Power Supply	

## QUICK INSTALLATION GUIDE

Congratulations on your purchase of SY-6BA Motherboard. You are about to install and connect your motherboard.



---

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

---

### PREPARATIONS

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

1. Pentium® II 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 included in this motherboard package.

---

2. DRAM module
3. Computer case and chassis with adequate power supply unit
4. Monitor
5. Keyboard
6. Pointing Device (PS/2 mouse)
7. VGA Card
8. Sound Card (optional)
9. Speaker(s) (optional)
10. Disk Drives: HDD, CD-ROM, Floppy drive ...
11. External Peripherals: Printer, Plotter, and Modem (optional)
12. Internet Card (optional)



## UNPACKING THE MOTHERBOARD

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.

## 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.

### Step 1. CPU Installation

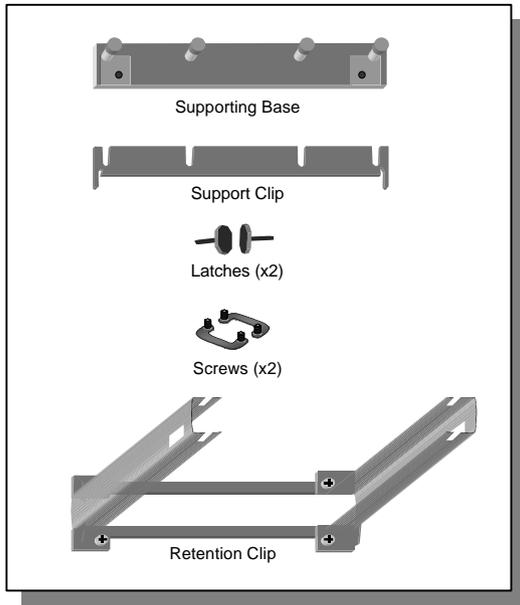
Your SY-6BA motherboard comes with a CPU retention set kit. The retention set is used to hold the Pentium® II processor attached to the Slot 1 CPU connector on the motherboard.

Follow these instructions to install your Pentium® II processor correctly.

#### 1. Unpack the Retention Set Kit

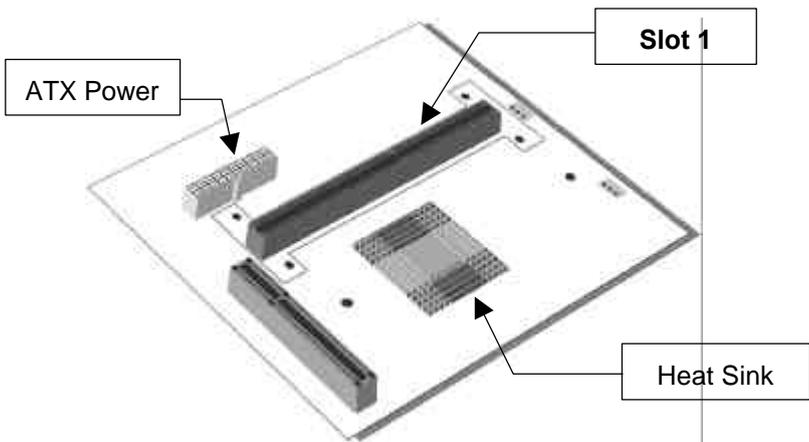
Gather the following items included in the retention set kit, as shown in the following figure:

- Ø Supporting Base
- Ø Support Clip
- Ø Latches (x2)
- Ø Screws (x2) used to set the retention clip
- Ø Retention Clip



## 2. Position the Motherboard

Locate **Slot 1** on the motherboard and position the board in the direction as shown in the following figure:



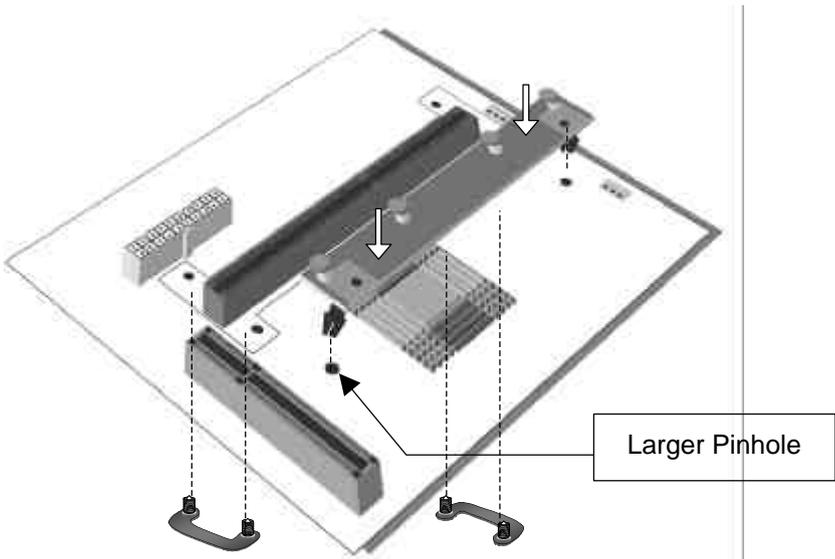
**3. Insert the Screws**

Install the two pairs of screws used to set the retention clip in the two pairs of holes at both ends of Slot 1. Insert the screws from below the motherboard upward, as shown in the figure below.

**4. Install the Supporting Base**

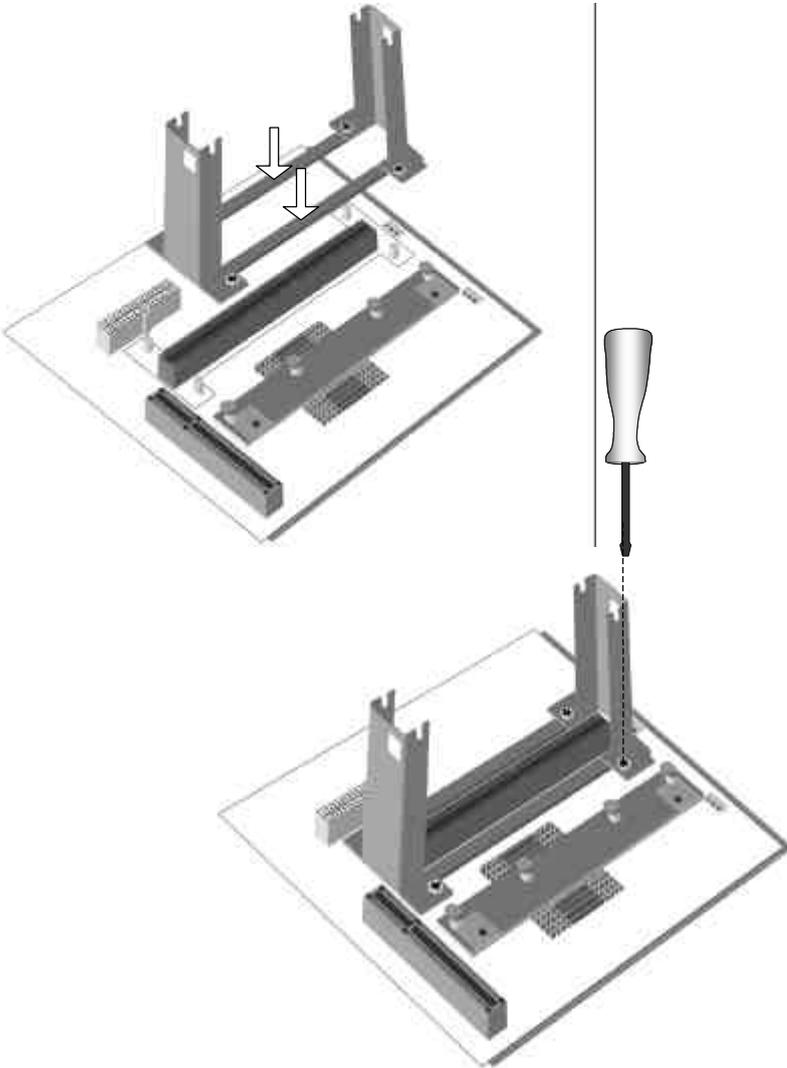
Insert the supporting base into the two holes adjacent to the two sets of screws previously installed.

Pay special attention to the directionality provided by the larger pinhole on the AGP port side. Do not apply excessive force when inserting the supporting base. If the supporting base does not go in, check the orientation with the following figure and position the supporting base so as to match the larger pinhole.



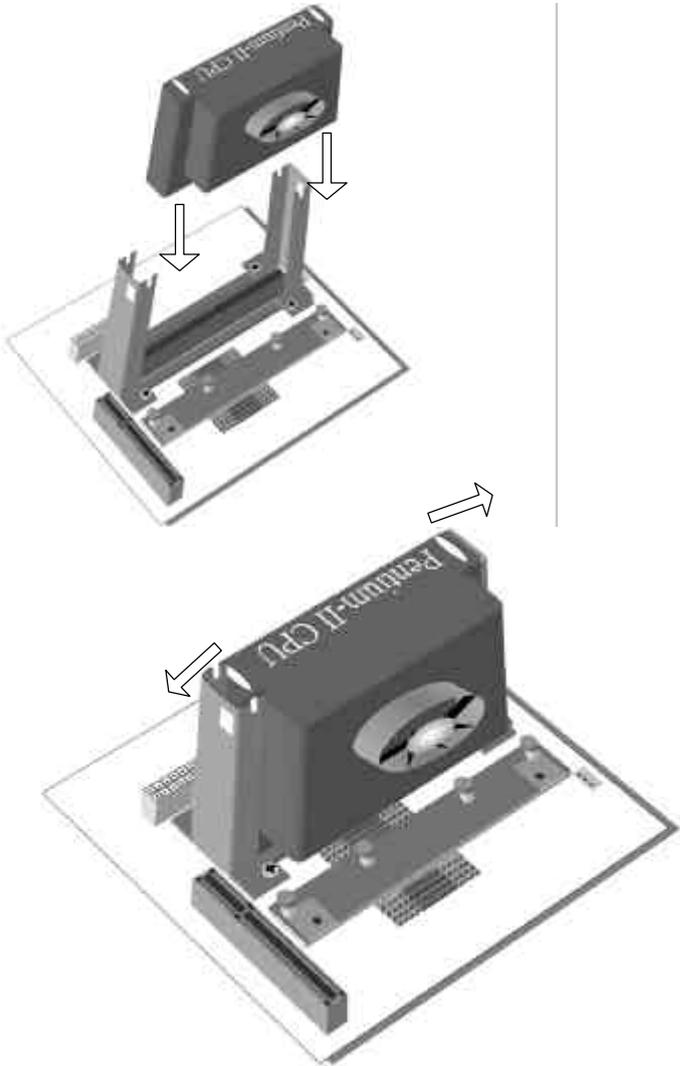
**5. Install the Retention Clip**

Set the retention clip centered on Slot 1 and right on top of the two sets of screws along side Slot 1, as shown in the following figure. Then tighten the four screws on the retention clip.



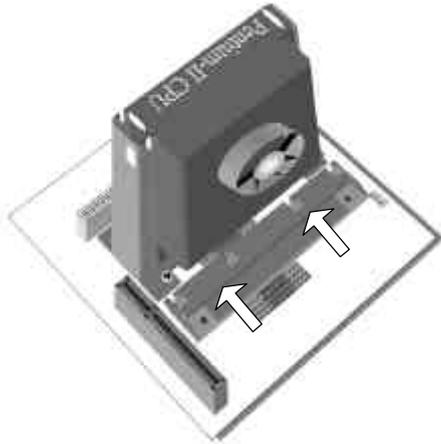
**6. Install the CPU**

Insert the CPU into the retention clip and lock the two latches on the sides of the CPU to secure the Pentium®II processor in place, as shown in the following figures.



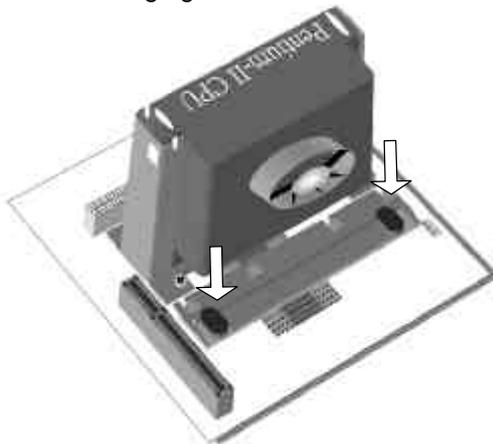
**7. Install the Support Clip**

Insert the support clip on the supporting base so that the CPU heat sink can seat on top of the supporting base, as shown in the following figure.



**8. Insert the Latches**

Insert the two latches in the corresponding pinholes on the supporting base and then turn them 90 degrees to secure the CPU, as shown in the following figure.



## Step 2. CPU Fan Installation

Your Pentium® II 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.

---

## Step 3. CPU Frequency Setting

This motherboard does not use any jumpers to set the CPU frequency, CPU settings are changed through the BIOS. Refer to *Chapter 2 Hardware Setup* and *Chapter 3 BIOS Setup Utility* for details on how to set the Pentium® II processor frequency.

## Step 4. DRAM Module Installation

This motherboard supports DIMM banks from 8 to 128 MB.



**Note:** Always install the memory module DIMM bank 4 first, then install additional memory modules in DIMM banks of decreasing order (4→3→2→1). Refer to the memory configuration table below.

---

Refer to *Chapter 2 Hardware Setup* for details on how to install memory modules in DIMM banks.

## Step 5. 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 HDD or CD-ROM.

Connect one side of the 40-pin 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 HDDs.

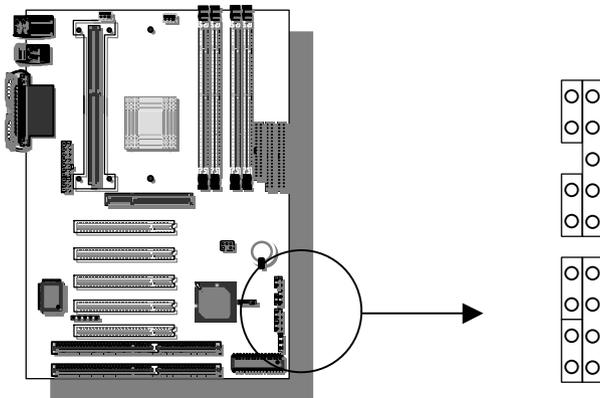
### Step 6. Floppy Drive Installation

The system supports 5 possible floppy drive types: 720 KB, 1.25 MB, 1.44 MB, 2.88 MB, and LS-120. In addition, this motherboard supports a 3-mode (720KB/1.25MB/1.44MB) floppy commonly used in Japan.

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.

### Step 7. Front Panel Connections



Plug the computer case's front panel devices to the corresponding connectors on the motherboard.

### **1. Power LED & KeyLock**

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

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 connector 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 connector 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 connector on the motherboard.

### **4. Turbo LED**

Connecting the 2-pin Turbo LED cable to the corresponding Turbo LED connector will cause the LED to light whenever the system is in Turbo mode.

The manufacturer has permanently set this motherboard in Turbo mode due to most hardware and software compliance to turbo mode.

### **5. IDE LED**

Attach the 2-pin IDE device LED cable to the corresponding IDE LED connector 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

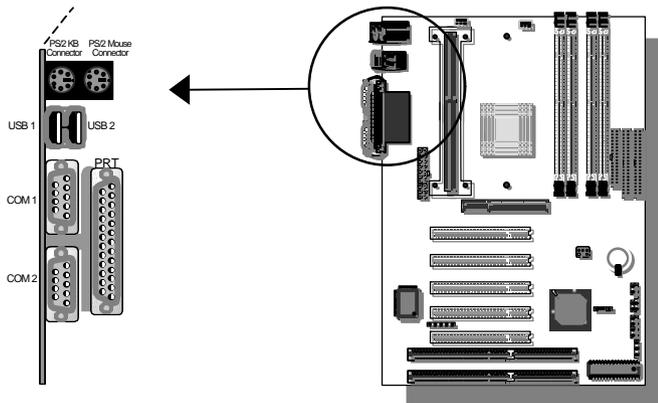
Attach the 2-pin momentary type switch to the PWRBT connector for turning On or Off your ATX power supply.

### Step 8. Back Panel Connections

All external devices such as the keyboard, printer, PS/2 mouse, USB can be plugged directly to 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. 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 and COM2 9-pin female 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 26-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**

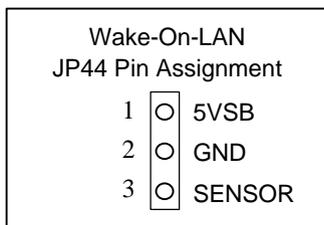
This motherboard provides two USB ports for your additional devices. Plug the USB device jack into the available USB connector USB1 or USB2.

## Step 9. 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 JP44 connector on the motherboard. This WOL function lets users wake up the connected computer through the LAN card.

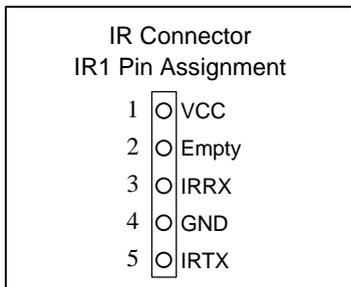
Please install according to the following pin assignment:



### 2. Infrared (IR)

Plug the 5-pin infrared device cable to the IR connector. This will enable the infrared transfer function. This motherboard meets both the ASKIR and HPSIR specifications.

Please install according to the following pin assignment:

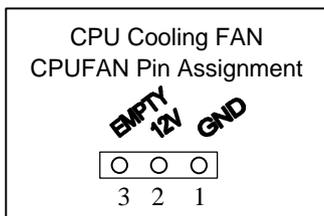


## Step 10. Cooling Fan Installation

### 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.)

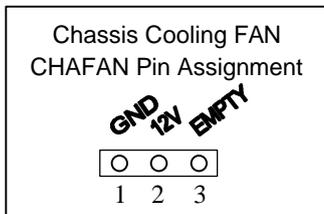
To avoid damage to the system, install according to the following pin assignment:



**Note :** Pin 3 should be "Sensor" not "empty".

### 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:

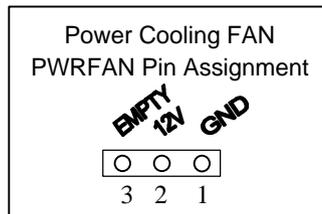


**Note :** Pin 3 should be "Sensor" not "Empty".

The chassis fan will stop when the system enters into Suspend Mode. (Suspend mode can be enabled from the BIOS Setup Utility.)

### 3. Power Supply Fan

If your power supply equipment features a cooling fan, connect the cable from the power supply fan to the PWRFAN 3-pin connector on the motherboard. The PWRFAN connector provides 12V power to the fan. Install according to the following pin assignment:



**Note :** Pin 3 should be “Sensor” not “Empty”.



**Note:** CPUFAN must be installed for this motherboard, CHAFAN and PWRFAN are optional.

### Step 11. 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.

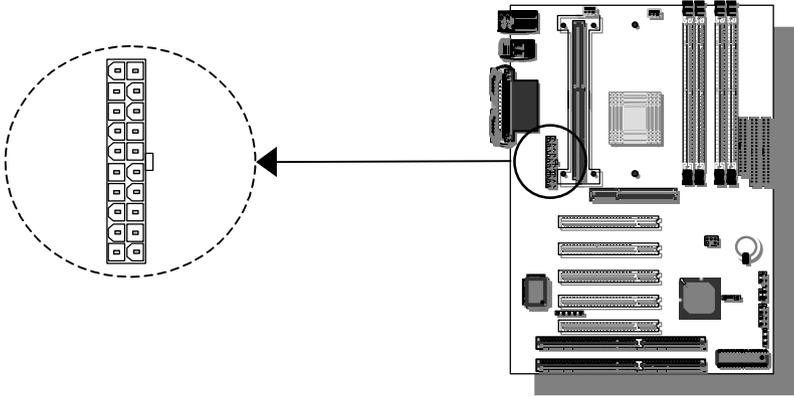
**Other Display Cards:** Insert other types of VGA cards into the PCI or ISA expansion slots according to card specifications.

### Step 12. PCI Audio Card

Some soundcards require a DMA channel. Attach the 5-pin cable from the PCI Audio card to the SB-LINK™ connector on the motherboard. The SB-LINK™ will forward requests for legacy DMA channel to the PCI Bus.

### Step 13. ATX Power Supply

If you are using ATX power, 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:

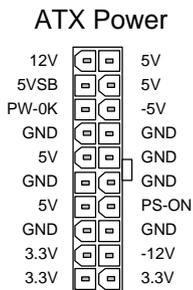


**Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.**

---

The motherboard requires a power supply with at least 200 Watts and a "power good" signal. Make the ATX power supply can take at least 10mAmp load on the 5V Standby lead (5VSB) to meet the standard ATX specification.

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



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

➤ **Make sure pin 1 is in its position.**

### Step 14. 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.

Reset your computer now.

### Step 15. Power On

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

1. Turn the power on
2. When the system is performing the diagnostic checks, press the DEL key to enter the BIOS Setup Utility.



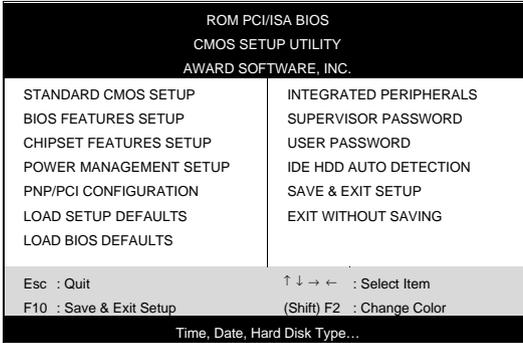
---

**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 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:



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

Or continue to Chapter1: **INTRODUCTION** and Chapter2: **HARDWARE SETUP** for more information about your SY-6BA Motherboard.

## Chapter 1

### INTRODUCTION

The SY-6BA AGP Set motherboard is a high-performance Pentium® II processor supported ATX form-factor system board. SY-6BA uses the 82440 BX Chipset technology and supports Pentium® II series processors. This motherboard is fully compatible with industry standards and adds many technical enhancements.

#### 1-1 KEY FEATURES

- **CPU**

- Supports Intel Pentium® II processors featuring speeds of 233-500 MHz
- Features Slot 1 for Pentium® II processor support
- Supports both boxed and non-boxed type of CPUs.
- Includes a CPU mount kit with retention clip
- Also includes a CPU Fan support stand used for heavier non-boxed type CPUs

- **DRAM Controller**

- Supports 4 strips of 168-pin SDRAM unbuffered DIMM  
4 x 168-pin DIMM banks support 8/16/32/64/128 MB unbuffered DIMM modules
- Memory configuration:
  - ◆ System memory: 8MB to 512MB
  - ◆ Maximum of 512MB with SDRAM

● **BUS Controller**

- Compliant with v2.1 PCI specifications
- Features 5 x 32-bit PCI slots:
  - ◆ 5 x Bus Mastering PCI Slots
- Features 2 x 16-bit ISA slots
- Features 1 x 32-bit AGP slot
- Provides on-board USB (Universal Serial Bus) port

● **Peripheral Controller**

- System BIOS with Plug-and-Play function
  - ◆ NCR810/SY-V325/SY-8115 BIOS code
- Onboard features:
  - ◆ PCI Bus Mastering IDE controller
  - ◆ Floppy controller
- Onboard supports:
  - ◆ 2 x high-speed UARTs (with 16550 FIFO) serial ports
  - ◆ 1 x ECP/EPP/SPP multi-mode parallel printer port
  - ◆ 1 x PS/2 mouse port
- Onboard FLASH Memory for BIOS easy upgrade
- Onboard IR function

## 1-2 UNPACKING THE MOTHERBOARD

When unpacking the motherboard, check for the following items:

- θ The **SY-6BA** 82440 BX AGP Set Motherboard
- θ This *Quick Start Guide*
- θ The Installation CD-ROM
- θ One IDE Device Flat Cable
- θ One Floppy Disk Drive Flat Cable

► If your board came with a driver disc and a paper manual, the Quick start Guide and the CD-ROM will not be included in the package.



---

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

---

## 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 mainboard 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.

## Chapter 2

# HARDWARE SETUP

In addition to the Installation Guide, this section is designed to help you configure the motherboard hardware and to provide complementary knowledge of the hardware. (This chapter is designed for Normal edition motherboard use only.)



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

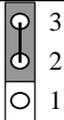
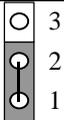
After you install the motherboard:

1. Set the CMOS clear jumper
2. Install memory
3. Make case connections

Refer to this chapter whenever you upgrade or reconfigure your system.

### 2-1 CMOS Clear Jumper JP5

Clear the CMOS memory by momentarily shorting pin 2-3 on jumper JP5, and then by shorting pin 1-2 to retain new settings. This jumper can be easily identified by its white color cap.

CMOS Clearing	Step 1	Step 2
	Clear CMOS Data	Retain CMOS Data (Default)
<b>JP5 Setting</b>	Momentarily short pin 2-3 to clear the CMOS 	Short pin 1-2 to retain new settings 

---

## 2-2 Auto Detect CPU Voltage



---

**Note:** You do not need to set any jumpers since this motherboard auto detects the Pentium® II processor voltage.

---

This motherboard is designed to automatically detect the CPU voltage. Therefore, it is not necessary to set any jumpers on the motherboard.

## 2-3 CPU Type Configuration

This motherboard does not use any jumpers to set the CPU frequency, CPU settings are changed through the BIOS Setup Utility.

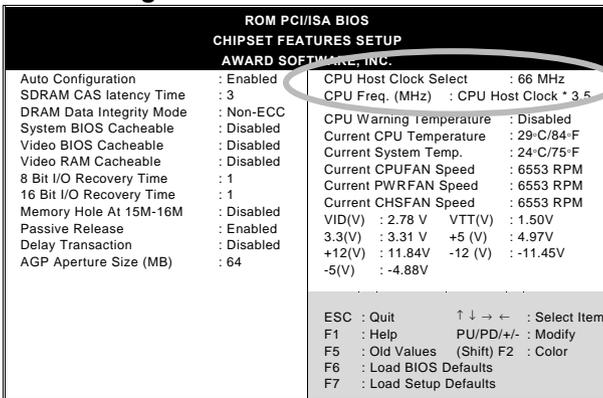
Enter the BIOS Setup Utility [CHIPSET FEATURES SETUP] section and configure the CPU frequency settings to match the working frequency of your Pentium® II processor. Follow these steps to configure the CPU settings:

- Step 1.** Press the [Delete] key during boot up. In BIOS select the [CHIPSET FEATURES SETUP] menu.
- Step 2.** In [CHIPSET FEATURES SETUP], select the correct **Host Clock frequency** of your CPU.
- Step 3.** Note the working frequency of your Pentium® II processor that should be clearly marked on the CPU cover.
- Step 4.** Configure the **CPU Freq.** field in BIOS by selecting the Multiplier that matches the Host Clock with your CPU working frequency, as shown in the following table:

### CPU Frequency Settings

CPU Host Cock (MHz)	X	Multiplier	=	CPU Frequency (MHz)
66	X	3.5	=	233
66	X	4.0	=	266
66	X	4.5	=	300
66	X	5	=	330
100	X	3.5	=	350
100	X	4	=	400
100	X	4.5	=	450
100	X	5	=	500

### CPU Settings in BIOS



The 133/200MHz setting is used as default so whenever the BIOS settings are erased or reset the board will be able to boot up.

However, there is no Pentium® II processor of that frequency.

If the CPU frequency was set too high and the motherboard refuses to start up, you can always load the default values by pressing the [Ins] key during boot up.

## 2-4 MEMORY CONFIGURATION

This motherboard features 4 x DIMM Banks for 168-pin 3.3V unbuffered DIMM modules

Your board comes with four DIMM sockets, providing support for up to 512MB of main memory using DIMM modules from 8MB to 128MB. For 66MHz host bus CPUs use 12ns or faster DIMM modules; for 100MHz host bus CPUs use 8ns modules.

**Memory configuration Table**

Number of Memory Modules	DIMM 1	DIMM 2	DIMM 3	DIMM 4
1				1 <sup>st</sup>
2			2 <sup>nd</sup>	1 <sup>st</sup>
3		3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>
4	4 <sup>th</sup>	3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>



---

**Note:** It is of prime importance that you install DIMM modules as outlined in the table above in order to preserve signal integrity on 100MHz host bus systems.

---

## 2-5 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)

### Sound Card Installation Notice

Some sound cards have a default IRQ setting for IRQ7. This may conflict with LPT1 printing functions. If this occurs, avoid using the sound card at the same time you print.

## 2-6 MAKING CONNECTIONS

For making case connections, attach the motherboard to case devices by plugging flat cables and device cables to the connectors on the motherboard.

Connect the motherboard to external peripheral devices such as PS/2 keyboard, parallel printer, PS/2 mouse ...via the back panel connectors.

(Refer to the "**Quick Installation Guide**" for directions on how to make connections to the motherboard.)

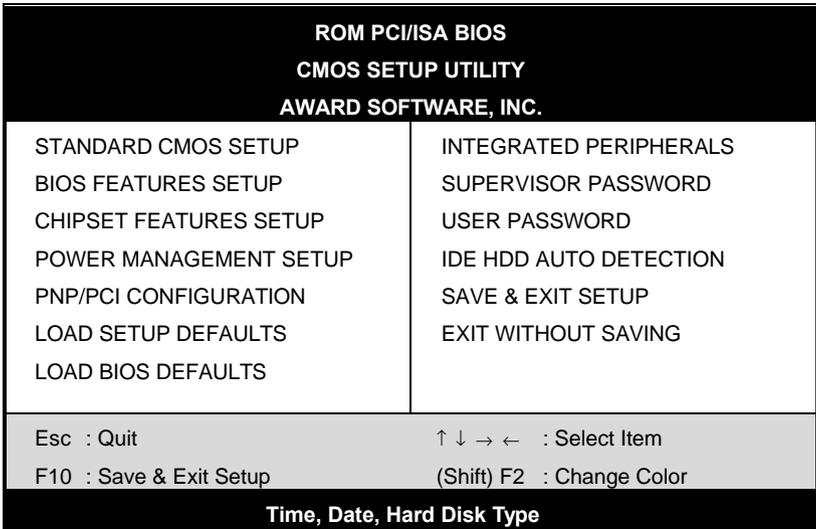
## Chapter 3

# 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  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

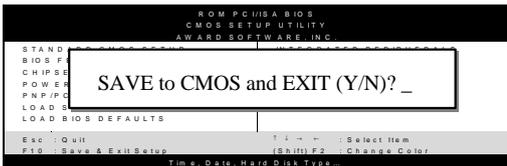
- Use the +– keys to modify values within the selected fields. Some fields let you enter values directly.

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

Function	Command	Description
F1	Help	Gives the list of options available for each item.
Shift F2	Color	Change the color of the display window.
F5	Old values	Restore the old values. These are the values that the user started the current session with.
F6	Load BIOS Defaults	Loads all options with the BIOS Setup default values.
F7	Load Setup Defaults	Loads all options with the Power-On default values.
F10	Save & Exit Setup	Saves your changes and reboots the system.
[Esc]	Quit	Lets you return at anytime and from any location to the Main Menu.

### SAVE AND EXIT SETUP

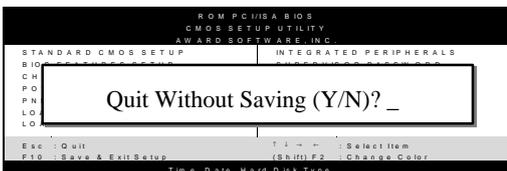
Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.



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.

ROM PCI/ISA BIOS								
STANDARD CMOS SETUP								
AWARD SOFTWARE, INC.								
Date (mm:dd:yy)	: Fri, Feb 1 1995							
Time (hh:mm:ss)	: 7 : 30 : 33							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: AUTO	0	0	0	0	0	0	AUTO
Primary Slave	: None	0	0	0	0	0	0	----
Secondary Master	: None	0	0	0	0	0	0	----
Secondary Slave	: None	0	0	0	0	0	0	----
Drive A : 1.44M, 3.5 in.					Base Memory:	640K		
Drive B : None					Extended Memory:	3328K		
Floppy 3 Mode Support : Disabled					Other Memory:	128K		
Video : EGA/VGA					-----			
Halt On : All Errors					Total Memory:	4096K		
Esc : Quit	↑ ↓ → ← : Select Item				PU/PD/+/-	: Modify		
F1 : Help	(Shift) F2 : Change Color				F3	: Toggle Calendar		

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
<b>Date</b>	mm/dd/yy	Type the current date	
<b>Time</b>	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
<b>Type</b>	Auto	BIOS detects hard disk type automatically.	Default
	1-46	Selects standard hard disk type.	
	User	User defines the type of hard disk.	
<b>Mode</b>	Auto	BIOS detects hard disk mode automatically.	Default
	Normal	Normal IDE hard disk	<528MB
	LBA	Enhanced IDE hard disk	>528MB
	Large	Large IDE hard disk (for certain hard disk)	



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

### 3-1.3 Floppy Drives

Floppy Drives	Setting	Description	Note
<b>Drives A &amp; B</b>	360KB, 5 1/4 in.		
	1.2MB, 5 1/4 in.		
	720KB, 3 1/2 in.		
	1.44MB, 3 1/2 in.		Default
	2.88MB, 3 1/2 in.		
	None	Not installed	
<b>Floppy 3-Mode Support</b>	Disabled		Default
	Enabled	Supports 3-mode floppy diskette: 740KB/1.25MB/1.44MB	Special disk drive commonly used in Japan

**3-1.4 Video**

Select the video mode: EGA/VGA (Default), CGA 40×25, CGA 80×25, Mono (Monochrome).

**3-1.5 Halt On**

When the BIOS detects system errors, this function will stop the system. Select which type of error will cause the system halt: All Errors (Default), No Errors, All But Diskette, All But Keyboard, All But Disk/Key.

### 3-2 BIOS FEATURES SETUP

Select the [BIOS FEATURES SETUP] option from the Main Menu and press [Enter] key.

ROM PCI/ISA BIOS	
BIOS FEATURES SETUP	
AWARD SOFTWARE, INC.	
Virus Warning	: Disabled
CPU Internal Cache	: Enabled
External Cache	: Enabled
CPU L2 Cache ECC Checking	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A, C, SCSI
Swap Floppy Drive	: Disabled
Boot Up NumLock Status	: On
Gate A20 option	: Fast
Typematic Rate Setting	: Disabled
Typematic Rate (Chars/Sec)	: 6
Typematic Delay (Msec)	: 250
Security Option	: Setup
PCI/VGA Palette Snoop	: Disabled
OS Select for DRAM >64MB	: Non-OS2
HDD S.M.A.R.T. capability	: Disabled
Report No FDD For WIN 95	: No
Video BIOS Shadow	: Enabled
C8000-CBFFF Shadow	: Disabled
CC000-CFFFF Shadow	: Disabled
D0000-D3FFF Shadow	: Disabled
D4000-D7FFF Shadow	: Disabled
D8000-DBFFF Shadow	: Disabled
DC000-DFFFF Shadow	: Disabled
ESC : Quit                    ↑ ↓ → ← : Select Item F1 : Help                    PU/PD/+/- : Modify F5 : Old Values            (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

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**

	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Virus Warning</b>	Disabled		Default
	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.	

**3-2.2 Cache Memory Options**

	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>CPU Internal Cache</b>	Disabled		
	Enabled	Enables the CPU's internal cache.	Default
<b>External Cache</b>	Disabled		
	Enabled	Enables the external memory.	Default
<b>CPU L2 Cache ECC Checking</b>	Disabled		
	Enabled	This option activates the CPU L2 cache ECC checking function.	Default

**3-2.3 System Boot Control Settings**

<b>System Boot Control Settings</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Quick Power On Self Test</b>	Disabled		
	Enabled	Provides a fast POTS at boot-up.	Default
<b>Boot Sequence</b>	A, C, SCSI	Choose the boot sequence adapted to your needs, for example: <ul style="list-style-type: none"> <li>• [A, C, SCSI] means the BIOS will look for an operating system first in drive A, then in drive C, and eventually in SCSI device.</li> </ul>	
	C, A, SCSI		
	C, CD-ROM, A		
	CD-ROM, C, A		
	D, A, SCSI		
	E, A, SCSI		
	F, A, SCSI		
	SCSI, A, C		
	SCSI, C, A		
C only			
LS/ZIP, C			
<b>Swap Floppy Drive</b>	Disabled		Default
	Enabled	Changes the sequence of A and B drives.	
<b>Boot Up NumLock Status</b>	On	Puts numeric keypad in NumLock mode at boot-up.	
	Off	Puts numeric keypad in arrow key mode at boot-up.	
<b>Gate A20 Option</b>	Normal		
	Fast	Allows RAM access above 1MB using the fast gate A20 line.	Default

**3-2.4 Typematic Settings**

Typematic Settings	Setting	Description	Note
<b>Rate Setting</b>	Disabled		
	Enabled	Enable to adjust the keystroke repeat rate.	
<b>Typematic Rate</b>	Char / sec	Choose the rate a character keeps repeating.	
<b>Typematic Delay</b>	Msec	Choose how long after you press a key down the character begins repeating.	

**3-2.5 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.

**3-2.6 Other Control Options**

Other Control Options	Setting	Description	Note
<b>PCI/VGA Palette Snoop</b>	Disabled		Default
	Enabled	The color of the monitor may be altered when using an MPEG card. Enable this option to restore the monitor's normal color.	
<b>OS Select for DRAM&gt;64MB</b>	OS2	When using an OS2 operating system.	
	Non-OS2	When using another, non-OS2 operating system.	
<b>HDD S.M.A.R.T. capability</b>	Disabled		
	Enabled	Enable this field when your HDD supports the S.M.A.R.T. function. Consult your HDD provider for details.	
<b>Report No FDD For WIN 95</b>	Yes	Windows will release IRQ line 6 (normally used by the Floppy Disk Drive) after you disable your on-board FDD and set this field to [Yes].	
	No	Windows will reserve INT 6 for your FDD, whether it is disabled or not.	
<b>Video or Adapter BIOS Shadow</b>	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.	

### 3-3 CHIPSET FEATURES SETUP



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

The [CHIPSET FEATURES SETUP] option changes the values of the chipset registers. These registers control the system options in the computer.

ROM PCI/ISA BIOS	
CHIPSET FEATURES SETUP	
AWARD SOFTWARE, INC.	
Auto Configuration	: Enabled
SDRAM CAS latency Time	: 3
DRAM Data Integrity Mode	: Non-ECC
System BIOS Cacheable	: Disabled
Video BIOS Cacheable	: Disabled
Video RAM Cacheable	: Disabled
8 Bit I/O Recovery Time	: 1
16 Bit I/O Recovery Time	: 1
Memory Hole At 15M-16M	: Disabled
Passive Release	: Enabled
Delay Transaction	: Enabled
AGP Aperture Size (MB)	: 64
CPU Host Clock Select	: 66 MHz
CPU Freq. (MHz)	: CPU Host Clock * 3.5
CPU Warning Temperature	: Disabled
Current CPU Temperature	: 29°C/84°F
Current System Temp.	: 24°C/75°F
Current CPUFAN Speed	: 6553 RPM
Current PWRFAN Speed	: 6553 RPM
Current CHSFAN Speed	: 6553 RPM
VID(V) : 2.78 V	VTT(V) : 1.50V
3.3(V) : 3.31 V	+5 (V) : 4.97V
+12(V) : 11.84V	-12 (V) : -11.45V
-5(V) : -4.88V	
ESC : Quit                    ↑ ↓ → ← : Select Item F1 : Help                    PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup 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 CHIPSET FEATURES SETUP Menu and how to configure each parameter.

**CHIPSET FEATURES SETUP**

<b>CHIPSET FEATURES</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Auto Configuration</b>	Enabled	It is strongly recommended to enable this option so that the system automatically sets all options on the left panel of the screen (except for cache update & BIOS cacheable).	Default
<b>SDRAM Cache Latency Time</b>	3	Use the default setting	Default
<b>DRAM Data Integrity Mode</b>	Non-ECC	Choose according to the DRAM type you have.	Default
	ECC		
<b>System BIOS Cacheable</b>	Disabled		Default
	Enabled	The ROM area F0000H-FFFFFH is cacheable.	
<b>Video BIOS Cacheable</b>	Disabled		Default
	Enabled	The video BIOS C0000H-C7FFFH is cacheable.	
<b>Video RAM Cacheable</b>	Disabled		Default
	Enabled	The ROM area A0000-BFFFF is cacheable.	
<b>8 BIT I/O Recovery Time</b>	1	Use the default setting	Default
<b>16 BIT I/O Recovery Time</b>	1	Use the default setting	Default
<b>Memory Hole At 15M-16M</b>	Disabled		Default
	Enabled	Some interface cards will map their ROM address to this area. If this occurs, select [Enabled] in this field.	

**CHIPSET FEATURES SETUP (Continued)**

CHIPSET FEATURES	Setting	Description	Note		
<b>Passive Release</b>	Enabled	Use the default setting	Default		
	Disabled				
<b>Delayed Transaction</b>	Enabled	Use the default setting	Default		
	Disabled				
<b>AGP Aperture Size</b>	4MB-256MB	AGP could use the DRAM as its video RAM. Choose the DRAM size that you wish to allocate as video RAM.			
<b>CPU Host Clock Select</b>	66 MHz	Select the host clock of your Pentium® II processor among these values. Note: For the BX chipset, 66 and 100 MHz host clock frequencies are acceptable. However, the system stability is not guaranteed for other frequencies due to the limitations of this chipset.			
	68 MHz				
	75 MHz				
	83 MHz				
	100 MHz				
	103 MHz				
	112 MHz				
<b>CPU Freq. (MHz)</b>	After you have selected the host clock, choose the right multiplier for the CPU. Options are: [2, 2.5, 3., 3.5, 4, 4.5, 5]. The CPU frequency is then defined as [host clock freq.]x[multiplier], as shown in the following table:				
	CPU Freq. (MHz)	=	Host Clock Freq. (MHz)	x	Multiplier
	233	=	66	x	3.5
	266	=	66	x	4
	300	=	66	x	4.5
	330	=	66	x	5
	350	=	100	x	3.5
	400	=	100	x	4
	450	=	100	x	4.5
	500	=	100	x	5

**CHIPSET FEATURES SETUP (Continued)**

<b>CHIPSET FEATURES</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Spread Spectrum Modulated</b>	Disabled		Default
	Enabled	When using Spread Spectrum Modulated 1.5% or 6% for FCC or DOC testing.	
<b>CPU Warning Temperature</b>	Disabled		Default
	Enabled	Set CPU temperature from 50°C to 70°C. The CPU will slow down when CPU temperature goes beyond the preset value. The CPU will continue to run slow until the temperature returns back within the safe range.	
<b>Current CPU Temperature</b>	°C/°F	Show the current status of CPU temperature.	
<b>Current System Temp.</b>	°C/°F	Show the current status of the system temperature.	
<b>Current CPUFAN Speed</b>	°C/°F	Show the current status of CPU Fan	
<b>Current PWRFAN Speed</b>	°C/°F	Show the current status of PWR Fan	
<b>Current CHSFAN Speed</b>	°C/°F	Show the current status of CHS Fan	
<b>VID, VTT, 3.3V, +12V, -5V, +5V, -12V</b>	V	Show the current voltage status.	

### 3-4 POWER MANAGEMENT SETUP

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

ROM PCI/ISA BIOS		
POWER MANAGEMENT SETUP		
AWARD SOFTWARE, INC.		
Power Management	: User Define	** Reload Global Timer Events **
PM Control by APM	: Yes	IRQ [3-7,9-15], NMI : Enabled
Video Off Method	: V/H SYNC+Blank	Primary IDE 0 : Disabled
Video Off After	: Standby	Primary IDE 1 : Disabled
MODEM Use IRQ	: 3	Secondary IDE 0 : Disabled
		Secondary IDE 1 : Disabled
		Floppy Disk : Disabled
		Serial Port : Enabled
		Parallel Port : Disabled
** PM Timers **		
Doze Mode	: Disabled	
Standby Mode	: Disabled	
Suspend Mode	: Disabled	
HDD Power Down	: Disabled	
** PM Events **		
VGA Active Monitor	: Enabled	
Soft-Off by PWR-BTTN	: Instant-Off	ESC : Quit           ↑ ↓ → ← : Select Item
CPUFAN Off In Suspend	: Enabled	F1 : Help            PU/PD/+/- : Modify
Resume by Ring	: Disabled	F5 : Old Values   (Shift) F2 : Color
Resume by Alarm	: Disabled	F6 : Load BIOS Defaults
		F7 : Load Setup Defaults
IRQ 8 Break Suspend	: Disabled	

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

**3-4.1 Power Management Controls**

<b>Power Management Controls</b>	<b>Setting</b>	<b>Description</b>				<b>Note</b>
<b>Power Management</b>	User Define	Lets you define the HDD and system power down times.				Default
	Disabled	Disables the Green PC Features.				
		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	
<b>PM Control by APM</b>	Yes	To use Advanced Power Management (APM) you must run [power.exe] under DOS V6.0 or later version.				Default
	No					
<b>Video Off Method</b>	V/H Sync+Blank					Default
	Blank screen					
	DPMS					
<b>Video Off After</b>	Standby	Choose the PM mode you want video to go off after the mode is being active.				
	Suspend					
	Doze					
<b>MODEM Use IRQ</b>	3					Default

**3-4.2 PM Timers**

PM Timers	Setting	Description	Note
<b>Doze Mode</b>	Disabled		Default
	1Min-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Doze Mode.	System clock drops to 33MHz.
<b>Standby Mode</b>	Disabled		Default
	1Min-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Standby Mode.	
<b>Suspend Mode</b>	Disabled		Default
	1Min-1Hour	In Suspend mode, the CPU stops completely (no instructions are executed.)	Only an SL-Enhanced (or SMI) CPU can enter this mode.
<b>HDD Power Down</b>	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.

**3-4.3 PM Events**

PM Events	Setting	Description	Note
<b>VGA Active Monitor</b>	Disabled		
	Enabled	Enables the power management timers when a [no activity] event is detected.	Default
<b>Soft-Off by PWR-BTTN</b>	Instant-off		Default
	Delay 4 Sec.	Turns off the system power 4 seconds after pushing the power button.	

**PM Events (continued)**

PM Events	Setting	Description	Note
<b>CPUFAN Off In Suspend</b>	Disabled	Disables the PM timer.	
	Enabled	Switches off the CPU Fan when the system enters Suspend Mode.	Default
<b>Resume by Ring</b>	Disabled		Default
	Enabled	The system will resume active when the modem is ringing. (This function only works when the computer is powered on.)	
<b>Resume by Alarm</b>	Disabled	The system ignores the alarm.	Default
	Enabled	Set alarm to wake up the system by the date (1-31) or time (hh:mm:ss). If the date is set to [0], the system will wake up by the alarm everyday.	
<b>IRQ 8 Break Suspend</b>	Disabled		Default
	Enabled	Alarm function is active.	

**3-4.4 Reload Global Timer Events**

Power Down & Resume Events	Setting	Description	Note
<b>IRQ [3-7,9-15], NMI</b>	Disabled		
	Enabled	The system monitors these elements for activity. The system will resume if [IRQ activity] is detected.	Default
<b>IDE0, IDE1</b> ➤ Primary ➤ Secondary	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected.	
<b>Floppy Disk Serial Port Parallel Port</b>	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected.	

### 3-5 PNP/PCI CONFIGURATION SETUP

This option sets the motherboard's PCI Slots.

ROM PCI/ISA BIOS	
PNP/PCI CONFIGURATION	
AWARD SOFTWARE, INC.	
PnP OS Installed : No	Based MEM base addr : N/A
Resources Controlled By : Manual	Based MEM Length : 8K
Reset Configuration Data : Disabled	Assign IRQ For USB : Enabled
IRQ-3 assigned to : Legacy ISA*	
IRQ-4 assigned to : Legacy ISA*	
IRQ-5 assigned to : PCI/ISA PnP*	
IRQ-6 assigned to : PCI/ISA PnP*	
IRQ-7 assigned to : PCI/ISA PnP*	
IRQ-8 assigned to : PCI/ISA PnP*	
IRQ-9 assigned to : PCI/ISA PnP*	
IRQ-10 assigned to : PCI/ISA PnP*	
IRQ-11 assigned to : PCI/ISA PnP*	
IRQ-12 assigned to : PCI/ISA PnP*	
IRQ-13 assigned to : PCI/ISA PnP*	
IRQ-14 assigned to : PCI/ISA PnP*	
IRQ-15 assigned to : PCI/ISA PnP*	
DMA-1 assigned to : PCI/ISA PnP*	
DMA-3 assigned to : PCI/ISA PnP*	
DMA-5 assigned to : PCI/ISA PnP*	
DMA-6 assigned to : PCI/ISA PnP*	
DMA-7 assigned to : PCI/ISA PnP*	
	ESC : Quit                    ↑ ↓ → ← : Select Item
	F1 : Help                    PU/PD/+/- : Modify
	F5 : Old Values            (Shift) F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup 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.

**3-5.1 PNP/PCI Configuration Controls**

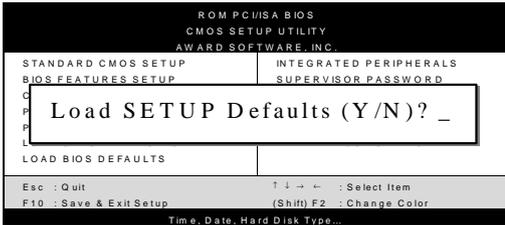
<b>PNP/PCI Controls</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>PnP OS Installed</b>	Yes	Set this field to [Yes] if you are running Windows 95, which is PnP compatible.	
	No	If the OS you are running does not support PnP configuration.	Default (If there is any doubt, set this field to [No])
<b>Resources Controlled By</b>	Manual	BIOS does not manage PCI/ISA PnP card IRQ assignment. Requires to assign IRQ-# and DMA-# to PCI or ISA PnP manually. IRQ-3,4,5,7,9,10-15 assigned to: _ DMA-0,1,3,5,6,7 assigned to: _	
	Auto	BIOS auto manages PCI/ISA PnP card IRQ assignment automatically.	<b>Recommended</b>
<b>Reset Configuration Data</b>	Disabled	Retain PnP configuration data in BIOS.	Default
	Enabled	Reset PnP configuration data in BIOS.	Default

**3-5.2 PNP/PCI Configuration Setup**

PNP/PCI Setup	Setting	Description	Note
If [Resources Controlled By] is set to [Manual]			
<b>IRQ-# and DMA-# assigned to:</b>	PCI/ISA PnP	Choose IRQ-# and DMA-# assigned to PCI/ISA PnP card.	IRQ-3,4,5,7,9,10-15 DMA-0,1,3,5,6,7
	Legacy ISA	Choose IRQ-# and DMA-# assigned to ISA card.	IRQ-3,4,5,7,9,10-15 DMA-0,1,3,5,6,7
<b>Based MEM base addr</b>	N/A		Default
	I/O address	C800,CC00,D000,D400,D800,DC00. (Asking card provider for the exactly I/O address of this add-on card.)	Use this function only when problems occur while using some certain add-on cards.
<b>Based MEM Length</b>	Memory length	8K,16K,32K,64K. (Asking card provider for the exactly memory length of this add-on card.)	This item appears only when the [Based MEM base addr] set to I/O address.
<b>Assign IRQ For USB</b>	Enabled	BIOS will assign IRQ for USB port.	Default
	Disabled	BIOS won't assign IRQ for USB port.	

## LOAD SETUP DEFAULTS

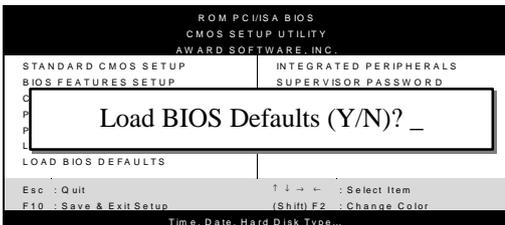
load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve



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

### 3-7 LOAD BIOS DEFAULTS

Select the [LOAD BIOS DEFAULTS] option from the Main Menu to yield high performance.



Type [Y] to use the Setup or otherwise [N] to return to the Main Menu and keep



**Warning:** If you run into any problems after loading BIOS performance.

### 3-8 INTEGRATED PERIPHERALS



**Caution:**

familiar with the Chipset.

The [INTEGRATED PERIPHERALS] option changes the values of the computer.

The following screen shows default settings.

INTEGRATED PERIPHERALS	
AWARD SOFTWARE, INC.	
IDE HDD Block Mode : Enabled	Parallel Port Mode : ECP+EPP
IDE Primary Master PIO : Auto	ECP Mode Use DMA : 3
IDE Secondary Master PIO : Auto	
IDE Secondary Slave PIO : Auto	
IDE Secondary Slave UDMA : Auto	
On-Chip Primary PCI IDE : Enabled	
USB Keyboard Support : Disabled	
VxD,TxD Active :	
Transmission delay : Enabled	
KBC Input Clock : 12MHz	
Onboard Serial Port 1 : 3F8/IRQ4	
Onboard Serial Port 2 : 2F8/IRQ3	
	↑ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values F6 F7 : Load Setup Defaults

The following tables describe each field in the INTEGRATED

the IDE controls, FDC controls, and the onboard serial and parallel ports.

**3-8.1 IDE Device Controls**

IDE Controls	Setting	Description	Note
<b>IDE HDD Block Mode</b>	Disabled		
	Enabled	Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.	Default
<b>IDE</b> > 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
	Disabled		
<b>IDE</b> > Secondary Master UDMA > Secondary Slave UDMA	Auto	When Auto is selected, it supports Ultra DMA Mode.	Default
	Disabled		
<b>On-Chip PCI IDE</b> > Primary > Secondary	Disabled	Turn off the on-board IDE	
	Enabled	Use the on-board IDE	Default

**3-8.2 Keyboard Controls**

Keyboard Controls	Setting	Description	Note
<b>USB Keyboard Support</b>	Disabled	Turn off the on-board IDE	Default
	Enabled	Use a USB keyboard	
<b>KBC Input Clock</b>	12 MHz	Controls the frequency of the clock signal of the keyboard. Set this value to 8MHz if experience problems with your keyboard.	Default

**3-8.3 FDC Controls**

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

**3-8.4 Onboard Serial Ports**

<b>Onboard Serial Ports</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Onboard UART 1 Onboard UART 2</b>	Disabled		
	COM1/3F8H	Choose serial port 1 & 2's I/O address. Do not set port 1 & 2 to the same address except for Disabled.	Default
	COM2/2F8H		Default
	COM3/3E8H		
	COM4/2E8H		
<b>UR2 Mode</b>	Standard	Supports a serial infrared IrDA.	Default
	HPSIR	Supports HP serial infrared interface format.	
	ASKIR	Supports a Sharp serial interface format.	
<b>VxD,TxD Active</b>	Hi,Lo/Lo,Hi/Lo,Lo/Hi,Hi	Ask IR device provider for exactly setting.	
<b>IR Transmittiion delay</b>	Enabled	Ask IR device provider for exactly setting	Default
	Disabled	Ask IR device provider for exactly setting	

**3-8.5 Onboard Parallel Ports**

<b>Onboard Parallel Ports</b>	<b>Setting</b>	<b>Description</b>	<b>Note</b>
<b>Onboard Parallel Port</b>	378H/IRQ7	Choose the printer I/O address.	Default
	3BCH/IRQ7		
	278H/IRQ5		

<b>Parallel Port Mode</b>	ECP/EPP	The mode depends on your external device that connects to this port.	Default
	SPP		
	ECP		
	EPP/SPP		
If [Parallel Port Mode] is set to [ECP] mode			
<b>ECP Mode use DMA</b>	3	Choose DMA3	Default
	1	Choose DMA1	

### 3-9 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  $\leftrightarrow$ . 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!!

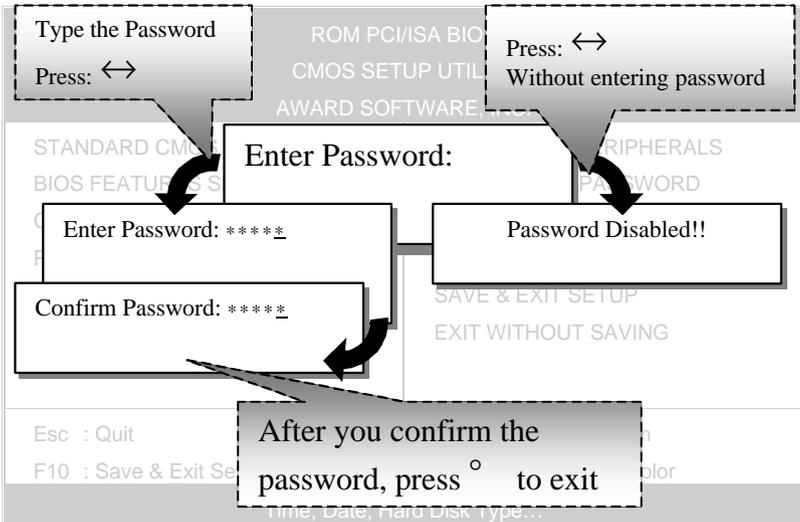
---

- 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:



### 3-10 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).

### 3-11 IDE HDD AUTO DETECTION

This Main Menu function automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: AUTO	0	0	0	0	0	0	AUTO
Primary Slave	: None	0	0	0	0	0	0	----
Secondary Master	: None	0	0	0	0	0	0	----
Secondary Slave	: None	0	0	0	0	0	0	----

Do you accept this drive C (Y/N)? \_

ESC : Skip



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

# APPENDIX QUICK START GUIDE

This guide is designed for those users who have prior knowledge of motherboard operations and are already familiar with basic motherboard settings. For further information, please refer to *SY-6BA Motherboard User's Guide and Technical Reference* online manual included on the CD-ROM packed with your motherboard.

\* All brand names and trademarks are properties of their respective owners

## 1 Unpack the Motherboard

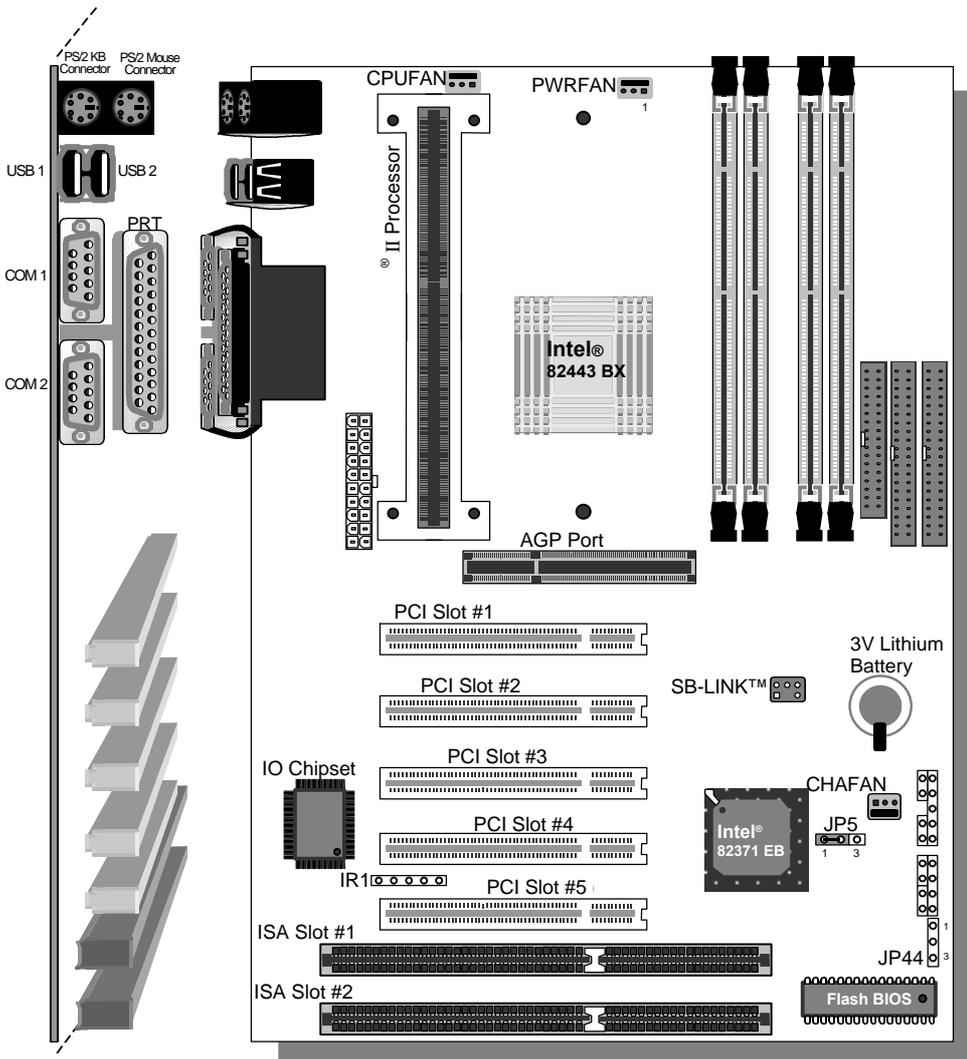
When unpacking the motherboard, check for the following items:

- Ø The SY-6BA 82440 BX AGP Set Motherboard
- Ø This Quick Start Guide
- Ø The Installation CD-ROM
- Ø One IDE Device Flat Cable
- Ø One Floppy Disk Drive Flat Cable
- Ø The CPU Retention Set

► If your board came with a driver disc and a paper manual, the Quick start Guide and the CD-ROM will not be included in the package.

## 2 Motherboard Layout

Your new SY-6BA Motherboard is a high-performance Pentium® II processor supported system board that features state-of-the-art technology, as shown on the following layout. This layout helps you identify the motherboard elements that you will be dealing with during the installation.



### Default Settings

- CPU: Pentium® II processor 233/350 MHz
- CPU Voltage: Auto Detect CPU Voltage
- 2 PCI E-IDE Ports
- 1 Parallel Port LPT1 EPP/ECP Printer Port
  - LPT1: I/O Address 378H, IRQ 7, Status ECP+EPP
- 2 Serial Ports COM1 & COM2:
  - COM1: I/O Address 3F8H, IRQ 4
  - COM2: I/O Address 2F8H, IRQ 3
- 2 Onboard USB Ports
- PS/2 Mouse
- ATX Power Supply

### 3 Jumper Settings and Connectors

<b>CMOS Clear: JP5</b>		<b>PCI Audio Card Connector: SB-Link</b>		<b>CPU Cooling Fan: CPUFAN</b>			
Retain CMOS data (default)	1-2	Some PCI audio cards needs a DMA channel. Connect the cable to SB-Link™		<b>Chassis Fan: CHAFAN</b>			
Clear CMOS data	2-3	<b>Wake-On-LAN Jumper: JP44</b>		Pin	1	2	3
		Connect the WOL cable from your LAN card to JP44.		Function	GND	12V	Sensor
<b>USB</b>	<b>TB LED</b>	<b>SPK</b>	<b>RESET</b>	<b>IDE LED</b>		<b>KB-LOCK</b>	
Connect your USB devices to this header	Connect your Turbo LED to this jumper	Connect the speaker cable to this jumper	Connect the reset button to this jumper	Connect the IDE device LED to this jumper		Connect the Power LED and the KB Lock switch to	
<b>IrDA (Infrared Device Connector): IR</b>		<b>ATX Power On/Off: PWRBT</b>		<b>ATX Power: ATX PW</b>			
Connect your IrDA device to this connector		Connect your power switch to this jumper (momentary switch type)		Attach the ATX Power Supply to this connector			

### 4 Memory configuration

Your board comes with four DIMM sockets, providing support for up to 512MB of main memory using DIMM modules from 8MB to 128MB. For 66MHz host bus CPUs use 12ns or faster DIMM modules; for 100MHz host bus CPUs use 8ns modules.

Memory configuration Table

Number of Memory Modules	DIMM 1	DIMM 2	DIMM 3	DIMM 4
1				1 <sup>st</sup>
2			2 <sup>nd</sup>	1 <sup>st</sup>
3		3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>
4	4 <sup>th</sup>	3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>

**Note:** It is of prime importance that you install DIMM modules as outlined in the table above in order to preserve signal integrity on 100MHz host bus systems.

### 5 Default I/O Settings

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	

**Note:** 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 under [Integrated Peripherals].)

### 6 CPU Settings

Enter the BIOS Setup Utility [CHIPSET FEATURES SETUP] section and configure the CPU frequency settings to match the working frequency of your Pentium® II processor. Follow these steps to configure the CPU settings:

- Step 5.** In BIOS, select the correct Host Clock frequency of your CPU.
- Step 6.** Note the working frequency of your Pentium® II processor that should be clearly marked on the cover.
- Step 7.** Configure CPU Freq. field in BIOS by selecting the Multiplier that matches the Host Clock with your CPU working frequency, as shown in the following table:

CPU Host Clock (MHz)	X	Multiplier	=	CPU Frequency (MHz)
66	X	3.5	=	233
66	X	4.0	=	266
66	X	4.5	=	300
66	X	5	=	330
100	X	3.5	=	350
100	X	4	=	400
100	X	4.5	=	450
100	X	5	=	500

ROM PCI/ISA BIOS CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
Auto Configuration	: Enabled
SDRAM CAS latency Time	: 3
DRAM Data Integrity Mode	: Non-ECC
System BIOS Cacheable	: Disabled
Video BIOS Cacheable	: Disabled
Video RAM Cacheable	: Disabled
8 Bit I/O Recovery Time	: 1
16 Bit I/O Recovery Time	: 1
Memory Hole At 15M-16M	: Disabled
Passive Release	: Enabled
Delay Transaction	: Disabled
AGP Aperture Size (MB)	: 64
CPU Host Clock Select	: 66 MHz
CPU Freq. (MHz)	: CPU Host Clock * 3.5
CPU Warning Temperature	: Disabled
Current CPU Temperature	: 29° C/84° F
Current System Temp.	: 24° C/75° F
Current CPUFAN Speed	: 6553 RPM
Current PWRFAN Speed	: 6553 RPM
Current CHSFAN Speed	: 6553 RPM
VID(V) : 2.78 V	VTT(V) : 1.50V
3.3(V) : 3.31 V	+5 (V) : 4.97V
+12(V) : 11.84V	-12 (V) : -11.45V
-5(V) : -4.88V	
ESC : Quit	↑ ↓ → ← : Select Item
F1 : Help	PU/PD/+/- : Modify
F5 : Old Values	(Shift) F2 : Color
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

