SC-6TLx

SURIA Lx ATX Rev 2 Main Board
User's Guide & Technical Reference
82440 LX PCI Chipset

Table of Contents

1 Introduction

The 82440 LX PCI mainboard is a high-performance ATX architecture system board that supports 686 (PII) family CPUs. This mainboard is fully compatible with industry standards, and adds many technical enhancements.

Key Features

- Processor supports:
  - 686 (PII) CPU up to 66 MHz host bus frequency (233 ~ 333 MHz)
  - **auto detection of CPU voltage**
  - **Slot 1 support**
- DRAM controller:
  - **supports 4 strips of 168-pin EDO /SDRM Unbuffered DIMM**
  - supports auto detection of memory type
  - **supports ECC or Parity configuration**
  - has onboard memory configurations from 8MB to 512MB
- BUS controller:
  - complies with the PCI specifications v2.1
  - four 32-bit PCI slots (Masters), three ISA slots, and 4-layer PCB
  - **supports Universal Serial Bus—USB (Optional)**
- Peripheral controller:
  - System BIOS built-in NCR4.0 SCSI/SY-S8115 SCSI/SY-V325-2M Card BIOS and "Plug and Play" function
  - onboard built-in PCI Master IDE controller and floppy controller
  - onboard supports for two high speed UARTS (w/i 16550 FIFO) and Multimode parallel port for Standard, Enhanced (EPP) and high speed (ECP) modes, PS/2 mouse function
  - onboard supports FLASH Memory for easy upgrade BIOS
  - **onboard supports IR function**
  - One 32-bit AGP slot onboard

Unpacking the Mainboard

The mainboard package contains:

•   The 82440LX Mainboard
•   This User's Guide
•   One Triones IDE Bus Master Drivers Diskette

Note: Do not unpack the mainboard until you are ready to install it.

Follow the precautions below while unpacking the mainboard.

1. Before handling the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.
2. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.
3. Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board contact your dealer immediately.

Electrostatic Discharge Precautions

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

Take these precautions to protect your equipment from electrostatic discharge:

•   Do not remove the anti-static packaging until you are ready to install the mainboard and other system components.

•   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 mainboard by the edges and avoid touching its components.

Mainboard Layout w/ Default Settings
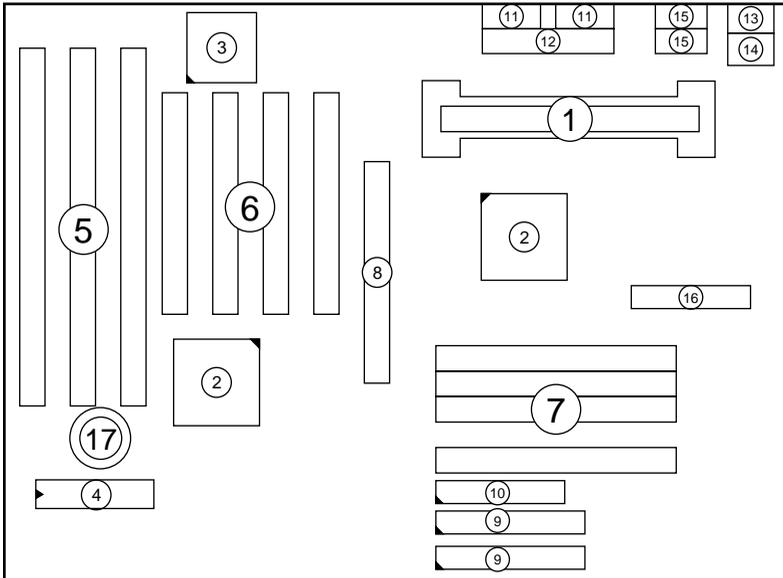
Figure 1–1. Mainboard Layout

1. Slot 1 for PII CPU
2. 82440LX Chipset
3. Ultra I/O Chip
4. PnP FLASH BIOS
5. ISA Slot
6. PCI Slot
7. DIMM Memory Bank
8. AGP Port
9. IDE1/IDE2 Connector
10. Floppy Connector
11. COM1/COM2 Connector
12. Parallel Port Connector
13. PS/2 Keyboard Connector
14. PS/2 Mouse Connector
15. USB 1/2 Connector
16. ATX Power Connector
17. CMOS Battery (Lithium battery, 3V)

Default settings are as follows: 686 (PII) 233MHz CPU, On-board PCI Bus IDE Enabled, FDC Enabled, 2 high speed UARTS Enabled (w/ 16550 FIFO), 1 EPP/ECP port (ECP + EPP mode), and ATX Power Supply.
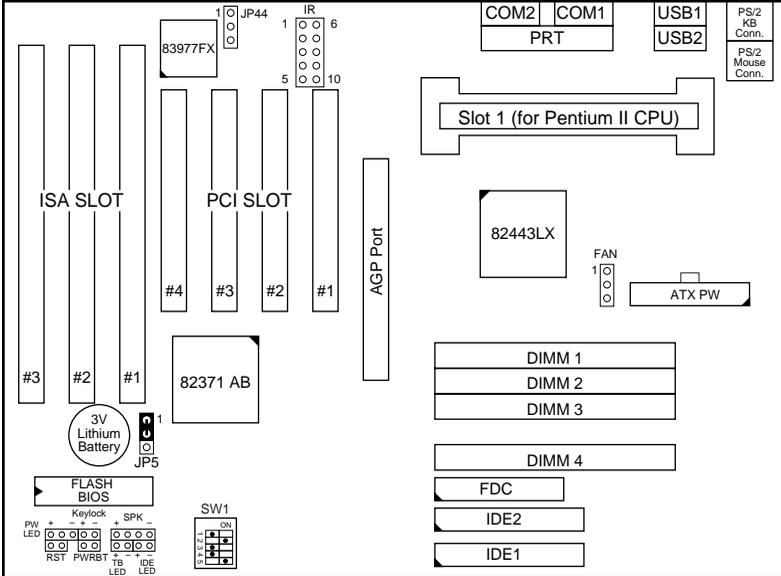
Figure 1–2. Mainboard Default Setting

Important: *Make sure the system is well ventilated to prevent overheating and ensure system stability.*

2 Hardware Setup

This chapter explains how to configure the mainboard's hardware. After you install the mainboard, you can set jumpers, install memory on the mainboard, and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

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

Jumpers

JP5: CMOS Clear Jumper

Clear the CMOS memory by momentarily shorting this jumper; then open the jumper to retain new settings.

CMOS Setting	JP5
Retain CMOS data (default)	1
Clear CMOS data	1

SW1: Bus Fraction Core/Bus Ratio Select Jumper

Set this jumper according to your CPU clock.

Ratio	686 (PII) Family	SW1
3.5x (default)	686 (PII) – 233 MHz	ON 1 2 3 4 5
4.0x	686 (PII) – 266 MHz	ON 1 2 3 4 5
4.5x	686 (PII) – 300 MHz	ON 1 2 3 4 5
5.0x	686 (PII) – 330 MHz	ON 1 2 3 4 5
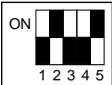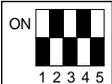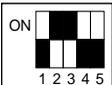
CPU Type Configuration

Set the mainboard's CPU switch SW1 according to CPU type as described below.

686 (PII) – 233 CPU Settings (3.5 x clock)
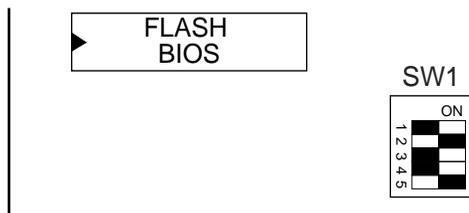
Figure 2–1–1. CPU Jumper Settings

686 (PII) – 266 CPU Settings (4.0 x clock)
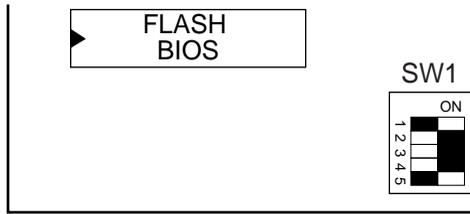
Figure 2–1–2. CPU Jumper Settings

686 (PII) – 300 CPU Settings (4.5 x clock)
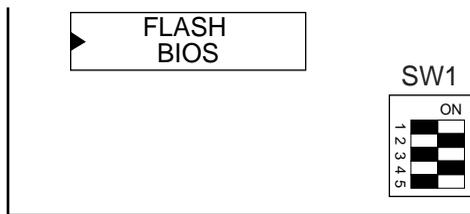
Figure 2–1–3. CPU Jumper Settings

686 (PII) – 330 CPU Settings (5.0 x clock)
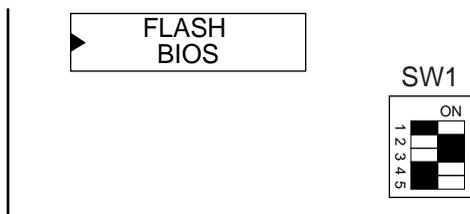
Figure 2–1–4. CPU Jumper Settings

Memory Configuration

The mainboard supports four banks of **168-pin 3.3V EDO/SDRM Unbuffered DIMM**. The mainboard supports **from 8 to 512 Mbytes** with no other restrictions on memory configurations. You can install DRAM in any combination without having to rely on a memory configuration table. Memory configuration is thus "**Table-Free**" in any bank.

Multi I/O Port Addresses

Default settings for multi-I/O port addresses are shown in the table below.

Port	I/O Address	IRQ	Status
LPT1*	378H	7	ECP + EPP
COM1	3F8H	4	
COM2	2F8H	3	

* If default I/O port addresses conflict with other I/O cards (e.g. sound cards or I/O cards), you must adjust one of the I/O addresses to avoid address conflict. (You can adjust these I/O addresses from the BIOS.

Note: Some sound cards have a default IRQ setting for IRQ7, which may conflict with printing functions. If this occurs do not use sound card functions at the same time you print.

Connectors

Attach the mainboard to case devices, or an external battery, via connectors on the mainboard. Refer to Figure 1-1 for connector locations and connector pin positions.

ATX PW — ATX Power Supply Connectors

The motherboard provides an ATX power supply connector. It is a twenty-pin male header connector. Plug the connector from the power directly onto the board connector while making sure the pin1 is in its position.

3.3V	3.3V
–12V	3.3V
GND	GND
PS-ON	5V
GND	GND
GND	5V
GND	GND
–5V	PW-0K
5V	5VSB
5V	12V
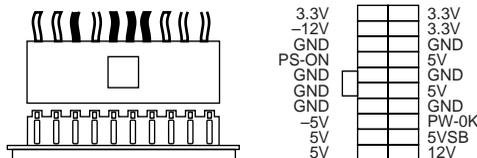
PS/2 Keyboard Connector

A six-pin female PS/2 keyboard connector is located at the rear of the board. Plug the keyboard jack into this connector.

PS/2 Mouse Connector

A six-pin female PS/2 mouse connector is located at the rear of the board. Plug the mouse jack into this connector.

IR – IR Connector

A ten-pin wafer connector is for connecting to the IR device. Use the device that has the ASKIR or HPSIR specification and choose ASKIR/HPSIR from the BIOS setup.

IR Connector Pin Assignment	
VCC 1	6 Empty
FIRRX 2	7 CIRRX
IRRX 3	8 VSB
GND 4	9 Empty
IRTX 5	10 Empty
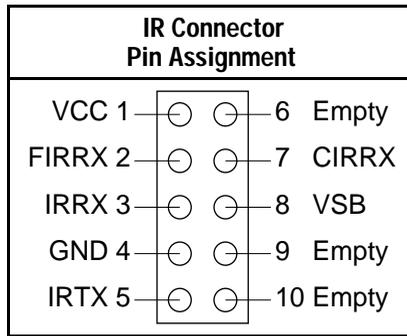
There are two ways to use this IR function. One is to connect a 5-pin IR device and treat it like an ordinary IR port. The other way is to connect a 10-pin IR device and use the advanced "IR Wake Up" PC function. Ask your IR provider for the new "IR Wake Up" function.

Keylock & Power LED Connector

This connector is for a lock that may be installed on the system case for enabling or disabling the keyboard. This connector also attaches to the case's Power LED. (Pin 1, 3 for power LED, pin 4, 5 for keylock.)

SPK – Speaker Connector

Attach the system speaker to connector SPK.

RST – Hardware Reset Control

Attach the Reset switch to RST. Closing the Reset switch restarts the system.

IDE1/IDE2 – On-board Primary/Secondary IDE HDD Connectors

Attach on-board hard disk drives to these connectors.

COM1/COM2 Connectors

Connect COM1/COM2 devices to these connectors.

IDE LED – IDE HDD LED Connectors

Attach on-board IDE device LEDs to this connector. The LED lights when an IDE device is active.

FDC Connector

Attach floppy cable to this connector.

PRT – Parallel Port Connector

Attach parallel port cable to this connector.

USB1/USB2 – Universal Serial Bus Connector

Attach USB cable to these connectors for external USB device.

PWRBT – ATX Power Supply On/Off Switch Connector (Momentary Type)

Attach a two-pin switch to this connector for turning the ATX power supply on/off.

FAN: CPU Cooling Fan Connector

This 3-pins connector provides 12V power for the CPU cooling fan which matches the pin assignment of this connector. If you enable the Suspend Mode function in BIOS setup, this fan will stop when the system is into the suspend mode.
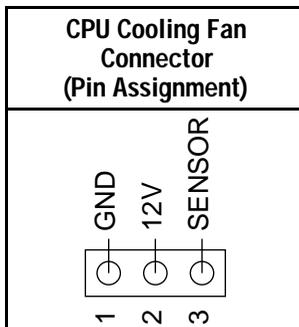
Note: Make sure the pin assignment of our CPU Cooling Fan is matched with this connector before connecting it, otherwise, you may damage either the mainboard or the cooling fan.

JP44 – Wake-On-LAN (WOL) Header

Attach a 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function. This function lets users wake up the connected computer through the LAN card. (The cable should be included with the LAN card.)
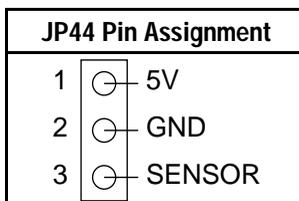
Slot 1 Installation Guide

This mainboard provides a non-boxed 686 (PII) CPU retention set to secure the CPU on this board. Follow the steps below to secure this type of CPU on to your motherboard.

Step 1:

Find the ATX PW and the Slot 1 on the board and set the board in the direction as follows before doing any installation.
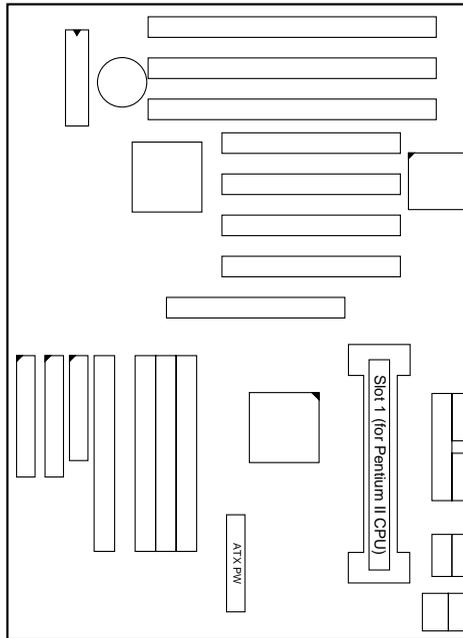
Install the 2 pairs of screws, as shown in the following figure, from the bottom of the motherboard upward onto the mainboard.
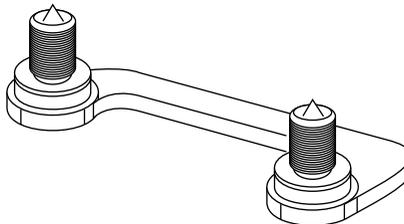
Step 2:

Insert the supporting base, which is shown below, into the two holes directly to the left of the 2 sets of screws that have just been inserted on to the board.

ATX PW
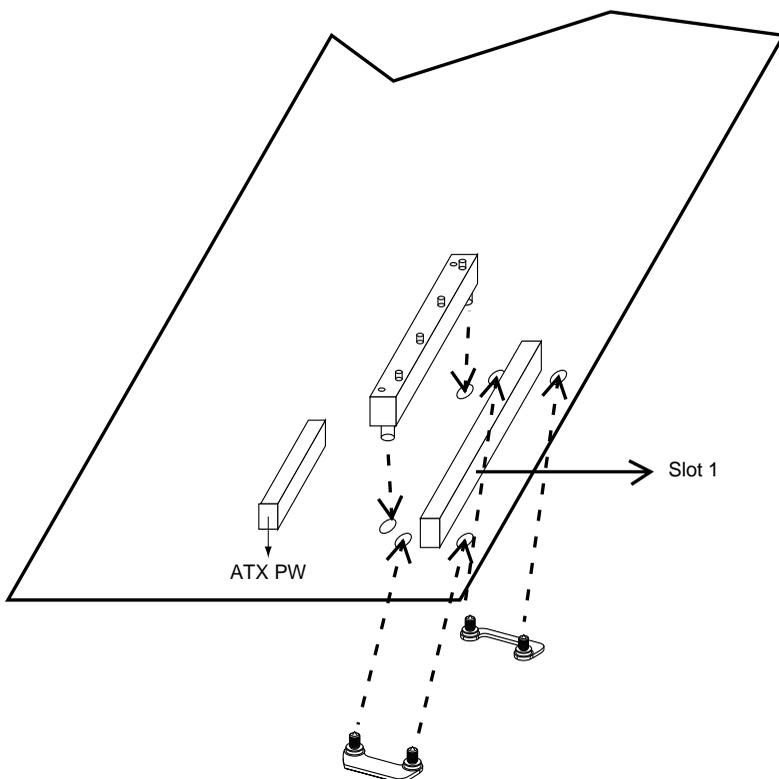
Slot 1

Step 3:

Insert the 2 latches into the two holes of the supporting base and then turn them 90° to secure the CPU.

ATX PW
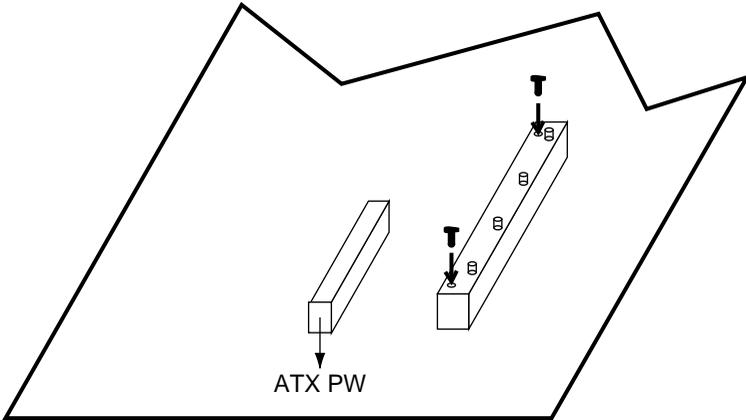
Step 4:

Set the retention clip right on the top of the 2 sets of screws which are along the sides of Slot1 and then tighten the 4 screws on the retention clip.

Slot 1

ATX PW
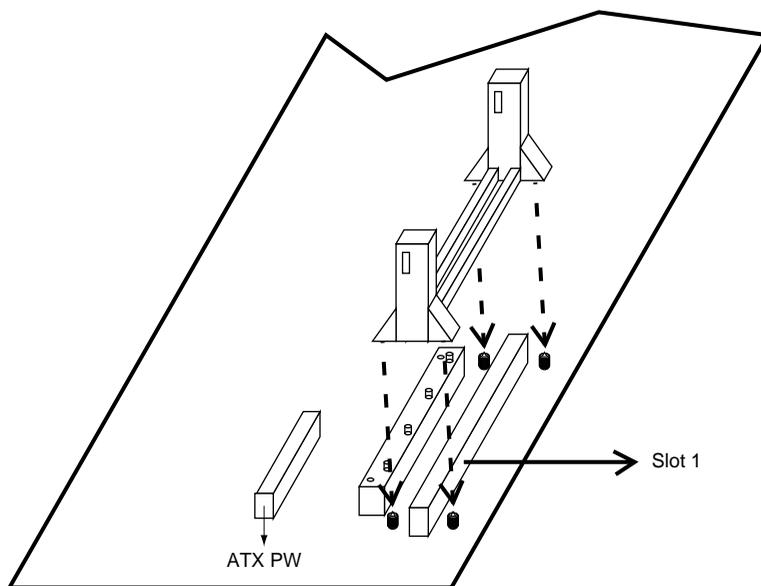
Step 5:

Insert the CPU into the retention clip and notice that the heat sink is on the left hand side of the board. Lock the two latches on the sides of the CPU to secure the CPU.

Non-boxed Pentium II

Golden Finger

Slot 1

ATX PW
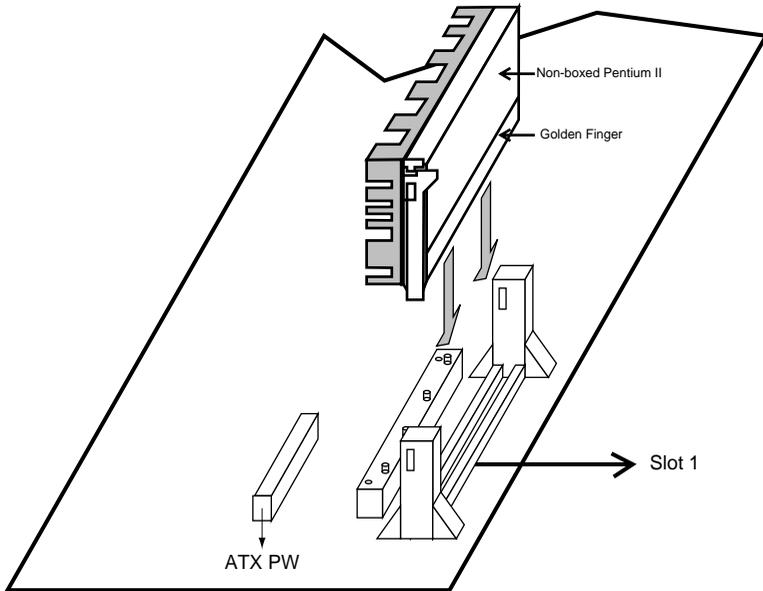
Step 6:

Insert the clip portion of the CPU supporter, which is shown below, so that the heat sink can sit on the top of the whole CPU supporter.
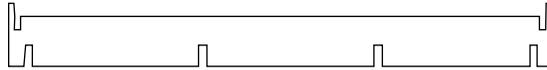
Top View of CPU Support Clip

ATX PW
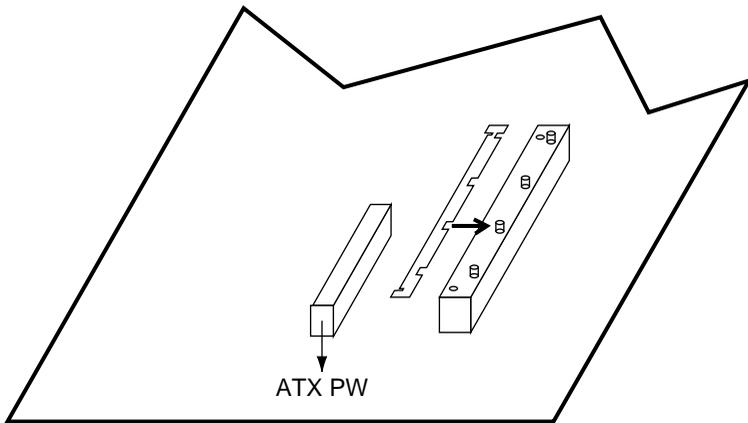
3 BIOS Setup

The mainboard's BIOS setup program is the ROM PCI/ISA BIOS from Award Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic checks, you are asked to press DEL to enter Setup.

2. Press the <DEL> key to enter the Award BIOS program and the main screen appears:

```
                        ROM PCI/ISA BIOS
                        CMOS SETUP UTILITY
                      AWARD SOFTWARE, INC.
┌────────────────────────────────────────────────────────────────┐
│   STANDARD CMOS SETUP            INTEGRATED PERIPHERALS          │
│                                                                 │
│   BIOS FEATURES SETUP            SUPERVISOR PASSWORD             │
│                                                                 │
│   CHIPSET FEATURES SETUP         USER PASSWORD                  │
│                                                                 │
│   POWER MANAGEMENT SETUP         IDE HDD AUTO DETECTION          │
│                                                                 │
│   PNP/PCI CONFIGURATION          SAVE & EXIT SETUP              │
│                                                                 │
│   LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING             │
│                                                                 │
├────────────────────────────────────────────────────────────────┤
│ Esc : Quit                     ↑ ↓ → ←  : Select Item          │
│ F10 : Save & Exit Setup        (Shift) F2 : Change Color        │
├────────────────────────────────────────────────────────────────┤
│             Time, Date, Hard Disk Type...                       │
└────────────────────────────────────────────────────────────────┘
```

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (See the following sections.)

4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program.

The Main Menu options of the Award BIOS are described in the sections that follow.

Standard CMOS Setup

Run the Standard CMOS Setup as follows.

1. Choose "STANDARD CMOS SETUP" from the Main Menu. A screen appears.

```
                        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.
  Drive B : None                          Base Memory:     640K
  Floppy 3 Mode Support : Disabled     Extended Memory:   3328K
                                          Other Memory:    128K
  Video  : EGA/VGA
  Halt On : All Errors                    Total Memory:   4096K

  Esc : Quit          ↑ ↓ → ←    : Select Item    PU/PD/+/− : Modify
  F11 : Help          (Shift) F2 : Change Color    F3 : Toggle Calendar
```

2. Use arrow keys to move between items and select values. Modify selected fields using PgUp/PgDn/+/– keys. Some fields let you enter values directly.

Date (mm/dd/yy)   Type the current date.

Time (hh:mm:ss)   Type the current time.

Primary   Choose from the standard hard disk types 1 to
(Secondary)   46. Type 47 is user definable. If a hard disk is
Master & Slave   not installed choose "Not installed." (default)

Drive A & B   Choose 360KB , 5 1/4 **in**.,
    1.2MB , 5 1/4 **in**.,
    720KB , 3 1/2 **in**.,
    1.4M , 3 1/2 **in**.(default),
    2.88 MB, 3 1/2 **in**. or
    Not installed

Video	Choose	Monochrome, Color 40x25, VGA/EGA (default), Color 80x25

Floppy 3 Mode Support Choose Disabled (default) or Enabled. When enables this function, the system will support 720KB/1.25MB/1.44MB 3 different modes floppy diskette.

Note: This function is for a special disk drive which happens to be popular in Japan.

Halt On Choose halt mode when BIOS detects system errors:

All Errors (default)	All, But Diskette
No Errors	All, But Keyboard
	All, But Disk/Key

3. When you finish, press the <ESC> key to return to the Main Menu.

BIOS Features Setup

Run the BIOS Features Setup as follows.

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of items appears. (**The screen below shows the BIOS default settings.**)

```
                    ROM PCI/ISA BIOS
                   BIOS FEATURES SETUP
                   AWARD SOFTWARE, INC.

 CPU Internal Cache        : Enabled  Video  BIOS Shadow  : Enabled
 External Cache            : Enabled  C8000-CBFFF Shadow  : Disabled
 Quick Power on Self Test  : Enabled  CC000-CFFFF Shadow  : Disabled
 Boot Sequence             : A,C      D0000-D3FFF Shadow  : Disabled
 Swap Floppy Drive         : Disabled D4000-D7FFF Shadow  : Disabled
 Boot Up NumLock Status    : On       D8000-DBFFF Shadow  : Disabled
 Gate A20 Option           : Fast     DC000-DFFFF Shadow  : Disabled
 Typematic Rate Setting    : Disabled
 Typematic Rate (Chars/Sec): 6        ESC : Quit      ↑↓→←: Select Item
 Typematic Delay (Msec)    : 250      F1  : Help      PU/PD/+/- : Modify
 Security Option           : Setup    F5  : Old Values (Shift)F2 : Color
 PCI/VGA Palette Snoop     : Disabled F6  : Load BIOS Defaults
 OS Select for DRAM >64MB  : Non-OS2  F7  : Load Setup Defaults
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/– keys. <F> keys are explained below:

<F1>: "Help" gives options available for each item.

Shift <F2>: Change color.

<F5>: Get the old values. These values are the values with which the user started the current session.

<F6>: Load all options with the BIOS Setup default values.

<F7>: Load all options with the Power-On default values.

A short description of screen items follows:

CPU Internal Cache	This option enables/disables the CPU's internal cache. (The Default setting is Enabled.)
External Cache	This option enables/disables the external cache memory. (The Default setting is Enabled.)
Quick Power On Self Test	Enabled provides a fast POST at boot-up .

Boot Sequence	Choose the boot device sequence as your need. For example, "A, C, SCSI" means that BIOS will look for an operating system first from drive A, drive C, then SCSI device. Options of this function are:

A, C, SCSI;
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;
LS120, C.

Swap Floppy Drive	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Gate A20 Option	Choose Fast (default) o Normal. Fast allows RAM accesses above 1MB using the fast gate A20 line.
Typematic Rate Setting	Enable this option to adjust the keystroke repeat rate.
Typematic Rate (Chars/Sec)	Choose the rate a character keeps repeating.
Typematic Delay (Msec)	Choose how long after you press a key that a character begins repeating.
Security Option	Choose Setup or System. Use this feature to prevent unauthorized system boot-up or use of BIOS Setup.

"System" – Each time the system is booted the password prompt appears.

"Setup"– If a password is set, the password prompt only appears if you attempt to enter the Setup program.

PCI/VGA Palette Snoop	Enabled:	The color of the monitor may be incorrect if uses with MPEG card. Enable this option to make the monitor normal.
	Disabled:	Default setting.
OS Select for DRAM >64MB	OS2:	Choosing this when you are using OS/2 operation system.
	Non-OS/2:	Choosing this when you are using no-OS/2 operation system.
Video or Adapter BIOS Shadow	BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM. These 16K segments can be shadowed from ROM to RAM. BIOS is shadowed in a 16K segment if it is enabled and it has BIOS present.	

3. After you have finished with the BIOS Features Setup program, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Chipset Features Setup

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

Note: Change these settings only if you are familiar with the Chipset.
Run the Chipset Features Setup as follows.

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                    ROM PCI/ISA BIOS
                 CHIPSET FEATURES SETUP
                  AWARD SOFTWARE, INC.

 Auto Configuration     : Enabled    SDRAM CAS Latency Time   : 3
 DRAM Speed Selection   : 60 ns      Spread Spectrum Modulated : Disabled
 MA Wait State          : Slow       CPU Warning Temperature  : Disabled
 EDO RAS# To CAS# Delay : 3          Current CPU Temperature  : 27ºC/80ºF
 EDO RAS# Precharge Time : 3         Current System Temperature: 24ºC/80ºF
 EDO DRAM Read Burst    : x3/3/3     Current CPUFAN1 Speed    : 6553 RPM
 EDO DRAM Write Burts   : x3/3/2     3.3(V) : 2.78 V    VTT(V) : 1.50V
 DRAM Data Integrity Mode : Non-ECC  +12(V) : 11.84V    -12(V) : -11.45V
 CPU-TO-PCI IDE Posting : Enabled    -5(V)  : -4.88V
 System BIOS Cacheable  : Disabled
 Video BIOS Cacheable   : Disabled
 Video RAM Cacheable    : Disabled
 8 Bit I/O Recovery Time : 3
 16 Bit I/O Recovery Time : 2
 Memory Hole At 15M-16M : Disabled
 Passive Release        : Enabled    ESC : Quit    ↑ ↓ → ←  : Select Item
 Delay Transaction      : Disabled   F1  : Help    PU/PD/+/- : Modify
 AGP Aperture Size (MB) : 64         F5  : Old Values (Shift)F2 : Color
 SDRAM RAS-to-CAS Delay : Slow       F6  : Load BIOS Defaults
 SDRAM RAS Precharge Time : Slow     F7  : Load Setup Defaults
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/– keys.

A short description of screen items follows:

Auto Configuration	Enable this option (strongly recommended) and the system automatically sets all options on the left side of the screen (except cache update mode & BIOS cacheable). If this option is Enabled you must boot from Turbo mode.
MA Wait State	Use the default setting.
EDO RAS# to CAS# Delay	Use the default setting.

EDO RAS# Precharge Time	Use the default setting.
EDO DRAM Read Burst	Use the default setting.
DRAM Write Burst	Use the default setting.
DRAM Data Integrity Mode	Choose Non-ECC (default) or ECC according to the DRAM type you have.
CPU-TO-PCI IDE Posting	Use the default setting.
System BIOS Cacheable	Disabled: The ROM area F0000H-FFFFFH is not cached. Enabled: The ROM area F0000H-FFFFFH is cacheable if cache controller is enabled.
Video BIOS Cacheable	Disabled: The video BIOS C0000H-C7FFFH is not cached. Enabled: The video BIOS C0000H-C7FFFH is cacheable if cache controller is enabled.
8Bit I/O Recovery Time	Use the default setting.
16Bit I/O Recovery Time	Use the default setting.
Memory Hole At 15M-16M	Choose Enabled or Disabled (default). Some interface cards will map their ROM address to this area. If this occurs, you should select Enabled, otherwise use Disabled.
Passive Release	Use the default setting.
Delayed Transaction	Use the default setting.
AGP Aperture Size	AGP could use the DRAM as its video RAM. Choose the DRAM size that you want it to be used as video RAM. The range is from 4MB to 256MB.

SDRAM RAS-to-CAS Delay	Use the default setting.
SDRAM RAS Precharge Time	Use the default setting.
SDRAM CAS Latency Time	Use the default setting.
Spread Spectrum Modulated	Enabled it when you want to run the FCC or DOC testing.
CPU Warning Temperature	Choose **Disabled** (default) or **Enabled**. Set CPU temperature from 50ºC to 70ºC. The system will slow down automatically when CPU temperature goes beyond the preset value. CPU will continue to run slow until the CPU temperature returns back within the safe range.
Current CPU Temperature; System Temp and CPU FAN1 Speed; Vcore	Show the current status of CPU.

3. After you have finished with the Chipset Features Setup, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Power Management Setup

The Power Management Setup option sets the system's power saving functions.

Run the Power Management Setup as follows.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen with a list of items appears.

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                 POWER MANAGEMENT SETUP

┌──────────────────────────────────┬──────────────────────────────────┐
│ Power Management    : Disabled   │ ** Power Down & Resume Events ** │
│ PM Control by APM   : No         │ IRQ 3  (COM 2)        : ON       │
│ Video Off Method    : V/H SYNC+Blank│ IRQ 4  (COM 1)      : ON       │
│                                  │ IRQ 5  (LPT 2)        : ON       │
│ Doze Mode           : Disabled   │ IRQ 6  (Floppy Disk)  : OFF      │
│ Standby Mode        : Disabled   │ IRQ 7  (LPT 1)        : ON       │
│ Suspend Mode        : Disabled   │ IRQ 8  (RTC Alarm)    : OFF      │
│ HDD Power Down      : Disabled   │ IRQ 9  (IRQ2 Redir)   : ON       │
│                                  │ IRQ 10 (Reserved)     : ON       │
│                                  │ IRQ 11 (Reserved)     : ON       │
│ ** Wake Up Events In Doze & Standby **│ IRQ 12 (PS/2 mouse) : ON     │
│ IRQ3  (Wake-Up Event) : ON       │ IRQ 13 (Coprocessor)  : ON       │
│ IRQ4  (Wake-Up Event) : ON       │ IRQ 14 (Hard Disk)    : ON       │
│ IRQ8  (Wake-Up Event) : ON       │ IRQ 15 (Reserved)     : ON       │
│ IRQ12 (Wake-Up Event) : ON       │                                  │
│                                  │ ESC : Quit      ↑↓→←: Select Item│
│                                  │ F1  : Help   PU/PD/+/- : Modify  │
│                                  │ F5  : Old Values (Shift)F2 : Color│
│                                  │ F6  : Load BIOS Defaults         │
│                                  │ F7  : Load Setup Defaults        │
└──────────────────────────────────┴──────────────────────────────────┘
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/- keys.

A short description of selected screen items follows:

Power Management	Options are as follows:	
	User Define system	Let's you define the HDD and power down times.
	Disabled	Disables the Green PC Features.
	Min Saving	Doze timer = 1 Hour Standby timer = 1 Hour Suspend timer = 1 Hour HDD Power Down = 15 Min
	Max Saving	Doze timer = 1 Min Standby timer = 1 Min Suspend timer = 1 Min HDD Power Down = 1 Min

PM Control by APM	Choose Yes or No (default). APM stands for Advanced Power Management. To use APM, you must run "power.exe" under DOS v6.0 or later version.
Video Off Method	Choose V/H Sync+Blank (default), Blank screen, or DPMS for the selected PM mode.
Doze Mode	When the set time has elapsed, the BIOS sends a command to the system to enter doze mode (system clock drops to 33MHz). Time is adjustable from 1 Min to 1 Hour.
Standby Mode	The default is Disabled. Time is adjustable from 1 Min to 1 Hour.
Suspend Mode	The default is Disabled. Only an SL-Enhanced (or SMI) CPU can enter this mode. Time is adjustable from 1 Min to 1 Hour. Under Suspend mode, the CPU stops completely (no instructions are executed.)
HDD Power Down	When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor. Time is adjustable from 1 to 15 minutes. The default setting is Disabled. Some older model HDDs may not support this advanced function.
IRQx (Wake-Up Events)	The BIOS monitors these items for activity. If activity occurs from the Enabled item the system wakes up.
Power Down Activities	The BIOS monitors these items for no activity. If no activity occurs from the Enabled item the system will enter power saving mode (Doze/Standby/Suspend/ HDD Power Down mode) .

3. After you have finished with the Power Management Setup, press the <ESC> key to return to the Main Menu.

PNP/PCI Configuration Setup

This option sets the mainboard's PCI Slots. Run this option as follows:

1. Choose "PNP/PCI CONFIGURATION SETUP" from the Main Menu and the following screen appears. (The screen below shows default settings.)

```
                    ROM PCI/ISA BIOS
                  PNP/PCI CONFIGURATION
                   AWARD SOFTWARE, INC.

┌────────────────────────────────────┬──────────────────────────────────┐
│ Resources Controlled By : Manual   │ PCI IRQ Actived By : Level       │
│ Reset Configuration Data : Disabled │ PCI IDE IRQ Map To : PCI-AUTO    │
│                                     │  Primary   IDE INT# : A          │
│ IRQ-3  assigned to : Legacy ISA*    │  Secondary IDE INT# : B          │
│ IRQ-4  assigned to : Legacy ISA*    │                                  │
│ IRQ-5  assigned to : PCI/ISA PnP*   │                                  │
│ IRQ-7  assigned to : Legacy ISA*    │                                  │
│ 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-14 assigned to : Legacy ISA*    │                                  │
│ IRQ-15 assigned to : Legacy ISA*    │                                  │
│ DMA-0  assigned to : PCI/ISA PnP*   │ ESC : Quit    ↑↓→← : Select Item │
│ DMA-1  assigned to : PCI/ISA PnP*   │ F1  : Help    PU/PD/+/- : Modify │
│ DMA-3  assigned to : PCI/ISA PnP*   │ F5  : Old Values (Shift)F2 : Color│
│ DMA-5  assigned to : PCI/ISA PnP*   │ F6  : Load BIOS Defaults          │
│ DMA-6  assigned to : PCI/ISA PnP*   │ F7  : Load Setup Defaults         │
│ DMA-7  assigned to : PCI/ISA PnP*   │                                  │
└────────────────────────────────────┴──────────────────────────────────┘
```

   *: These items will disappear when Resource Controlled. is Auto.

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/– keys.

A short description of screen items follows:

Resources Controlled By	Manual:	BIOS doesn't manage PCI/ISA PnP card (i.e., IRQ) automatically.
	Auto:	BIOS auto manage PCI and ISA PnP card (recommended).
Reset Configuration Data	Disabled:	Retain PnP configuration data in BIOS.
	Enabled:	Reset PnP configuration data in BIOS.

IRQX and DMAX assigned to	Choose PCI/ISA PnP or Legacy ISA. If the first item is set to Manual, you could choose IRQX and DMAX assigned to PCI/ISA PnP card or ISA card.
	PCI/ISA PnP: BIOS auto assigns IRQ/DMA to the device.
	Legacy ISA: User assigns IRQ/DMA to the device.
PCI IRQ Activated By	Choose Edge or Level. Most PCI trigger signals are Level. This setting must match the PCI card.
PCI IDE IRQ Map To	Select PCI-AUTO, ISA, or assign a PCI SLOT number (depending on which slot the PCI IDE is inserted). The default setting is PCI-AUTO. If PCI-AUTO does not work, then assign an individual PCI SLOT number.
Primary IDE INT#	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTA#.
Secondary IDE INT#	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTB#.

3. After you have finished with the PCI Slot Configuration, press the <ESC> key and follow the screen instructions to save or disregard your settings.

Load Setup Defaults

This item loads the system values you have previously saved. Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

To use the SETUP defaults, change the prompt to "Y" and press <Enter>.

Note: The SETUP Defaults are optimized for the most stabilized performance.

Load BIOS Defaults

Choose this item and the following message appears:

"Load BIOS Defaults (Y/N)?N"

To use the BIOS defaults, change the prompt to "Y" and press <Enter>.

Note: BIOS DEFAULTS values are adjusted for high performance. If you run into any problems after loading BIOS DEFAULTS, please load the SETUP DEFAULTS for the stable performance.

Integrated Peripherals

The Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

Note: Change these settings only if you are familiar with the Chipset.

Run the Integrated Peripherals as follows.

1. Choose "Integrated Peripherals" from the Main Menu and the following screen appears. (The screen below shows default settings.,

```
                    ROM PCI/ISA BIOS
                 INTEGRATED PERIPHERALS
                  AWARD SOFTWARE, INC.

 IDE HDD Block Mode      : Enabled | USB Controller          : Enabled
 IDE Primary Master PIO  : Auto    |
 IDE Primary Slave PIO   : Auto    |
 IDE Secondary Master PIO : Auto   |
 IDE Secondary Slave PIO  : Auto   |
 On-Chip Primary   PCI IDE: Enabled|
 On-Chip Secondary PCI IDE: Enabled|
 PCI Slot IDE 2nd Channel : Enabled|
                                   |
 Onboard FDD Controller  : Enabled |
 Onboard Serial Port 1   : 3F8/IRQ4|
 Onboard Serial Port 2   : 2F8/IRQ3|
 UART 2 Mode             : Standard | ESC : Quit      ↑↓→←: Select Item
 Onboard Parallel Port   : 378H/IRQ7| F1  : Help      PU/PD/+/- : Modify
 Onboard Parallel MODE   : ECP/EPP  | F5  : Old Values (Shift)F2 : Color
 ECP Mode Use DMA        : 3        | F6  : Load BIOS Defaults
 Parallel Port EPP Type  : EPP1.9   | F7  : Load Setup Defaults
```

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/– keys.

A short description of screen items follows:

IDE HDD Block Mode	Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.
IDE Primary Master PIO **IDE Primary Slave PIO** **IDE Secondary Master PIO** **IDE Secondary Slave PIO**	Choose Auto (default) or mode 0~4. Mode 0 is the slowest speed, and HDD mode 4 is the fastest speed. For better performance and stability, we suggest you use the Auto setting to set the HDD control timing.
On-chip Primary/ Secondary PCI IDE	Enabled: Use the on-board IDE (default) Disabled: Turn off the on-board IDE
PCI Slot IDE 2nd Channel	Choose Enabled (default) or Disabled. When Enabled is set, IRQ15 is dedicated for secondary IDE use. When Disabled is set, IRQ15 is released for other devices.
Onboard FDC Controller	Enabled: Use the on-board floppy controller (default). Disabled: Turn off the on-board floppy controller.
Onboard Serial Port 1 **Onboard Serial Port 2**	Choose serial port 1 & 2's I/O address. Do no set port 1 & 2 to the same value except for Disabled. COM 1/3F8H | COM3/3E8H COM 2/2F8H | COM4/2E8H (default) |
UART 2 Mode	Standard: Use standard UART mode (default). ASK IR: Use UART with ASK. IR function enable. HPSIR: Use UART with HP.. Serial IR function enable.

Onboard Parallel Port   Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5

Onboard Printer Mode   Choose SPP, ECP, EPP/SPP, or ECP/EPP mode. The mode depends on your external device that connects to this port.

ECP Mode Use DMA   Choose 3 (default) or 1 to select DMA3 or DMA1 when using the ECP device.

Parallel Port EPP Type   Choose EPP specification Ver. 1.7 (default) or 1.9.

USB Controller   Enable it when you are using the USB device.

Supervisor Password

Based on the setting you made in the "Security Option" of the "BIOS FEATURES SETUP", this Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "SUPERVISOR PASSWORD" in the Main Menu and press <Enter>. The following message appears:

"Enter Password:"

2. Enter a password and press <Enter>.

   (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new password:

"Confirm Password:"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.
5. You have the right to change any changeable settings in the "CMOS SETUP UTILITY."

Important: *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.*

User Password

Based on the setting you made in the "Security Option" of the "BIOS FEATURES SETUP", this Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

1. Choose "USER PASSWORD" in the Main Menu and press <Enter>. The following message appears:

<p align="center">**"Enter Password:"**</p>

2. Enter a password and press <Enter>.

    (If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

3. After you enter your password, the following message appears prompting you to confirm the new password:

<p align="center">**"Confirm Password:"**</p>

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

5. You are not allowed to change any setting in "CMOS SETUP UTILITY" except change user's password.

Important: ***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.***

IDE HDD Auto Detection

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

*Note: This function is only valid for **IDE** hard disks.*

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.

 HARD DISKS         TYPE  SIZE    CYLS HEAD  PRECOMP  LANDZ  SECTOR  MODE

 Primary Master   : None    0       0    0        0      0       0  ----
 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)? N


                        ESC : Skip
```

4   Drivers Installation Guide

Triones IDE Bus Master Drivers Installation Guide is for Intel PIIX/PIIX3 Chipset.

MS-DOS/WINDOW/WFW

1) You should install CD-ROM in secondary channel in Windows (WFW).

2) Change the current directory to a: or b:.

3) Under DOS command line prompt, run the SETUP directly.

After entering the setup utility, just follow the instructions of the setup.

WINDOWS NT3.5/4.0

1) From the Program Manager, double click on "Windows NT Setup" in the Main group.

2) Select "Options/Add/Remove SCSI Adapters...".

3) Click on Add.

4) The "Select SCSI Adapter Option" dialog will appear; select "Other (Requires a disk from a hardware manufacturer)" from the "Adapter:" list box.

5) Next, the "Insert Diskette" dialog box will appear; insert the Triones PIIX/PIIX3 Bus Master EIDE/ATAPI Driver disk into Drive A: and type in "a:\winnt35" and <Return>.

6) Next, the "Select OEM Option" dialog box will appear; select "PIIX/PIIX3 Bus Master EIDE/ATAPI" and click "OK".

7) Next, the "Select SCSI Adapter Option" dialog box will appear; click on the "Install" button in the dialog box. If installation is successful, the "SCSI Adapter Setup" dialog box will reappear, and "PIIX/PIIX3 Bus Master EIDE/ATAPI" will be listed. That means the driver is installed.

8) Reboot your system to load the driver.

WINDOWS 95

1) Close any running applications.

2) Insert the floppy disk into drive A:.

3) Open "My Computer", double click "Drive A:".

4) Double click "Win95".

5) Double click the Setup program.

6) Then just follow the instruction.

NOVELL 3.X&4.X

1) Copy the driver TRIN4X.DSK or TRIN312.DSK to the subdirectory which holds the file SERVER.EXE.

2) Boot up the file server.

3) On the system console and on the command prompt state, type in: **load TRIN4X.DSK** <Enter> or **load TRIN312.DSK** <Enter>

You can also include the above command line into the start up file STARTUP.NCF to load the driver automatically.

SCO UNIX

1) Install SCO UNIX 3.2.x or SCO Open Desktop 3.x using the default SCO IDE driver.

2) Reboot your SCO UNIX system

3) Insert Triones supplied diskette into the 3.5 inch floppy drive of your system. Use doscp command to copy the file TRISCO.TAR to your /tmp directory. for example, if you are using floppy drive A, type: doscp a:/scounix/trisco.tar/tmp/trisco.tar

4) From root directory, type the following commands:
   mkdir/inst
   cd /inst
   tar xvf /tmp/trisco.tar.
   (Note: there is a period at the end of the last command.)

5) Now, insert a blank diskette into the floppy drive A and type:
   tar cvf /dev/<your floppy drive A device name>.
   (Note: there is a period at the end of the last command.)

   Your floppy drive A device name could be:

   - rfd096ds15,5.25 DSHD
   - rfd0135ds18 3.5 DSHD
   - rfd048ds9 5.25 DSDD
   - rfd0135ds9 3.5 DSDD

   Now you have already made an installation diskette for the device driver.

   Start the installation by typing: **custom**.

6) Select the "Install" operation and then follow the guided steps. When prompted "Do you want to set the device configuration (y/n)", answer "n".

7) Reboot your SCO UNIX system.

SCO UNIX 5.0

1) Install SCO UNIX 5.0 using the default SCO IDE driver.

2) Reboot your SCO UNIX system

3) Insert Triones supplied diskette into the 3.5 inch floppy drive of your system. Use doscp command to copy the file TRISCO.TAR to your /tmp directory. for example, if you are using floppy drive A, type: doscp **a:/scounix/trisco5.tar/tmp/trisco5.tar**

4) From root directory, type the following commands:
    mkdir/inst
    cd /inst
    tar xvf /tmp/trisco.tar.
    (Note: there is a period at the end of the last command.)

5) Install the driver by typing:
    ./install

6) Reboot your SCO UNIX system..

OS/2 2.0 and WARP 3.X

1) Copy TRIOS2.ADD from the floppy diskette to your hard disk
    under the OS2 directory (i.e., C:\OS2).

2) Edit C:\CONFIG.SYS to replace **BASEDEV=IBM1S506.ADD**
    with **BASEDEV=TRIOS2.ADD**

3) Reboot the system.

*Note: For more information (like parameter settings, driver de-
    installation, etc.), please refer to the README.TXT file on the
    diskette.*

Quick Installation Guide

This Quick Installation Guide leaflet is designed for those people who are familiar with motherboard settings to set up this new motherboard in order to boot up the system. Refer back to the proper chapters if you have run in to any problems.

Motherboard Layout
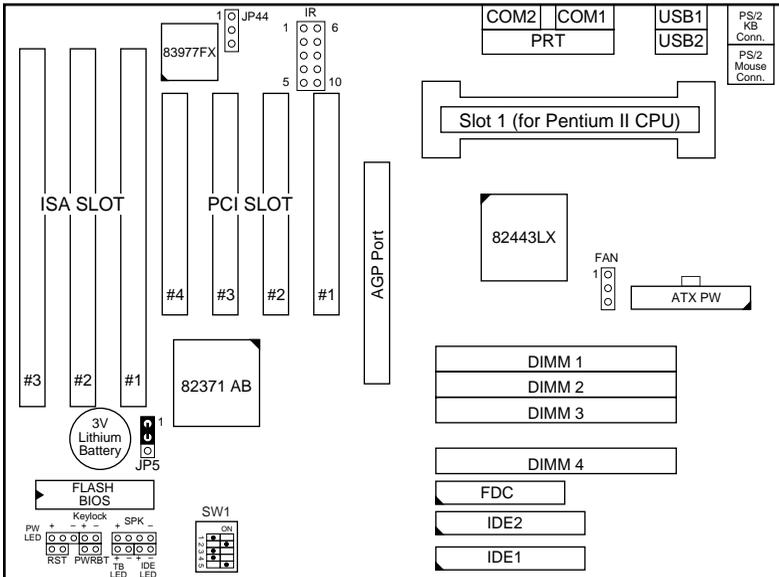
CPU Jumper Settings

CPU Frequency Settings: JP13, JP10, & JP11		SW1				
Processor Type	Multiplier	1	2	3	4	5
Pentium II 166MHz	2.5x	off	on	off	on	on
Pentium II 200MHz	2.0x	off	on	on	off	on
Pentium II 233MHz	3.5x (default)	off	on	off	off	on
Pentium II 266MHz	4.0x	off	on	on	on	off
Pentium II 300MHz	4.5x	off	on	off	on	off

Memory Configurations

	DIMM BANKS			
	DIMM1	DIMM2	DIMM3	DIMM4
RAM Type	EDO/SDRAM			
Size	8/16/32/64/128			

Note: This mainboard requires 3.3V DIMM with an access time of 70ns or less, it supports memory size from 8 to 512MB and you may use any combination of DIMMs in the banks.

Connectors and Jumper Settings

CMOS clear: JP5		ATX Power Supply: ATX	CPU Cooling Fan: FAN			
Retain CMOS data (default)	1-2	please insert the ATX power supply plug into this header.	pin	1	2	3
			function	GND	12V	sensor
Clear CMOS data	2-3	**wake on LAN jumper: J44**	**RST**		**IDE Led**	
		Please connect the WOL cable from your LAN card to this jumper.	Connect the reset button to this jumper.		Connect the HDD led to this jumper.	
USB1 and 2			**PRT**	**SPK**	**Keylock**	
Connect your USB devices to these headers			printer cable header	Connect the cable	Connect keyboard	
ATX Power Supply On/Off Switch: PWRBT				of speakers to	lock switch to this	
Connect your power switch to this jumper (momentary switct type).				this jumper	jumper	
IrDA (Infrared Devices Connector: IR					**TB Led**	**PW Led**
pin	1	2	3	4	5	Connect your	Connect the
function	Vcc	FIRRX	IRRX	GND	IRTX	Turbo led to this jumper.	power led to this jumper.

Default I/O Settings

PORT	I/O Address	IRQ	Functionality
LPT1	378H	7	ECP + EPP
COM1	3F8H	4	–
COM2	2F8H	3	–

Note: If the default I/O settings conflict with those of other I/O cards, such as soundcards you will have to adjust the settings of one of them. The default settings for the onboard I/O can be changed in the BIOS setup. Enter BIOS Setup by pressing <Delete> key during boot-up. The I/O settings can be found under "Integrated Peripherals".