

# 6KL

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**82440 LX PCI Mainboard  
User's Guide &  
Technical Reference**



**SOYO**<sup>TM</sup>

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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.

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**Version 1.1**

**6KL SERIAL**

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

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# 1 Introduction

The 82440 LX PCI mainboard is a high-performance AT architecture system board that supports Intel Pentium II family CPUs. This mainboard is fully compatible with industry standards, and adds many technical enhancements.

## Key Features

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- Processor supports:
  - Intel Pentium II CPU up to 83 MHz host bus frequency (233 ~ 333 MHz)
  - **auto detection of CPU voltage**
  - **Slot 1 support**
- DRAM controller:
  - **supports 3 strips of 168-pin EDO /SDRAM Unbuffered DIMM and 2 strips of EDO SIMM**
  - supports auto detection of memory type
  - **supports ECC or Parity configuration**
  - onboard memory configurations from 8MB to 384MB
- BUS controller:
  - complies with the PCI specifications v2.1
  - three 32-bit PCI slots (Masters), three ISA slots, one 32-bit AGP slot, and 4-layer PCB
  - **supports Universal Serial Bus—USB (Optional)**
- Peripheral controller:
  - System BIOS built-in 1M “Plug and Play” function
  - onboard built-in PCI Master IDE controller and floppy controller
  - onboard support 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 FLASH Memory for easy upgrade of BIOS
  - **onboard support for IR function**
  - AT/ATX power supply connectors available.

## Unpacking the Mainboard

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The mainboard package contains:

- The 82440LX Mainboard
- One CD (including Manuals/Drivers/Utilities)

*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

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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

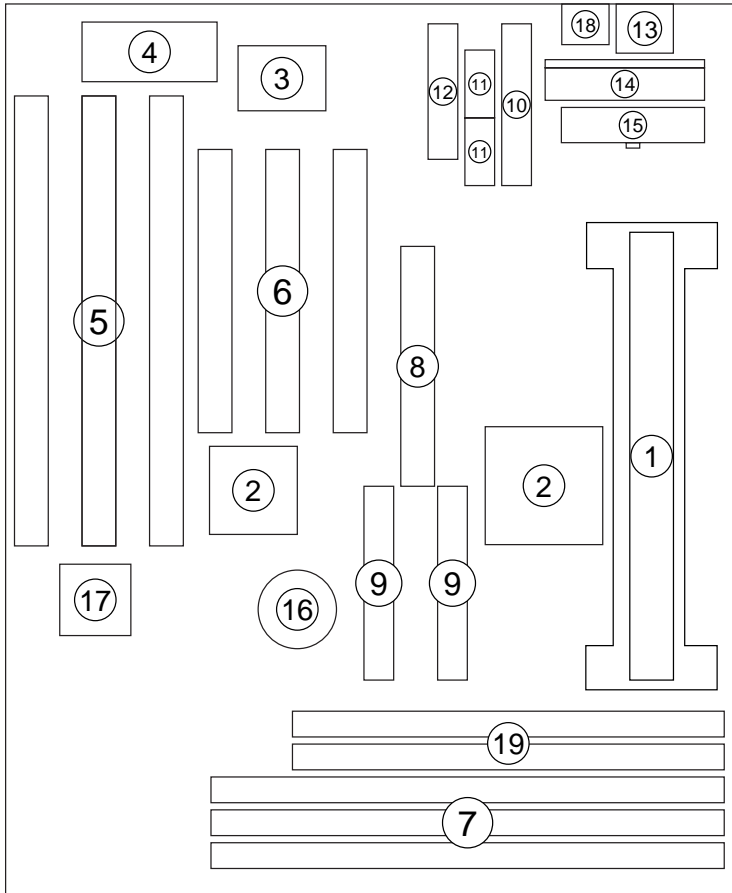


Figure 1-1. Mainboard Layout

- |                        |  |
|------------------------|--|
| 1. Slot 1 for PII CPU  | 10. Floppy Connector                   |
| 2. 82440LX Chipset     | 11. COM1/COM2 Connector                |
| 3. Ultra I/O Chip      | 12. Parallel Port Connector            |
| 4. PnP FLASH BIOS      | 13. Keyboard Connector                 |
| 5. ISA Slot            | 14. AT Power Connector                 |
| 6. PCI Slot            | 15. ATX Power Connector                |
| 7. DIMM Memory Bank    | 16. CMOS Battery (Lithium battery, 3V) |
| 8. AGP Port            | 17. Winbond 781D (optional)            |
| 9. IDE1/IDE2 Connector | 18. PS/2 Mouse Connector               |
|                        | 19. 2 SIMM slots                       |

Default settings are as follows: Intel Pentium II 233MHz CPU, On-board PCI Bus IDE Enabled, FDC Enabled, 2 high speed UARTS Enabled (w/ 16550 FIFO), 1 EPP/ECF port (ECP + EPP mode), and AT Power Supply.

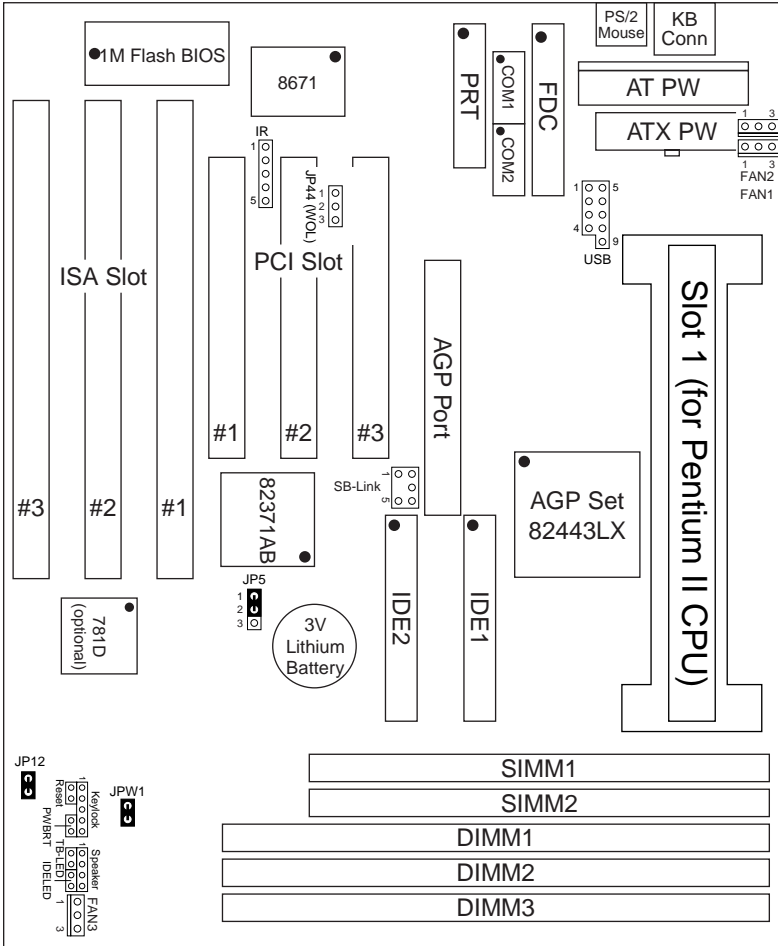


Figure 1-2. Mainboard Default Setting

**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.

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


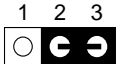
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## Jumpers

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### JP5: CMOS Clear Jumper

Clear the CMOS memory by setting this jumper to 2-3, then set the jumper back to 1-2 to retain the new settings.

CMOS Setting	JP5
Retain CMOS data (default)	1 2 3 
Clear CMOS data	1 2 3 

## CPU Type Configuration

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This mainboard is designed so that it is not necessary to use any jumpers to set the CPU frequency and multipliers onboard. Instead of using jumpers, the settings for the CPU frequency are set through the BIOS Setup which allows you to use any type of CPU from the Pentium II family's 233-333 range.

In order to change the CPU type, you need to enter the BIOS by pressing the <Delete> key during boot-up and then select the "Chipset Features Setup" menu. There is an item called "CPU Speed" under this setup section and it allows you to set the frequency according to the speed of the Pentium II CPU that you have, which should be clearly indicated on the outer cover. The choices of settings are 133, 233, 266, 300, and 333 MHz. The 133 MHz setting is used as default and as a "safe" frequency which means the board can be boot-up at any time even if the BIOS settings are erased or reset, however, there is no Pentium II CPU of that frequency.

If the frequency is set too high, the CPU will not be able to function properly and the board will not boot up. By pressing the <Insert> key a few times while turning on the computer, the frequency will be set back to the default value, 133MHz, and you will be able to enter the BIOS Setup to correct the CPU frequency value.

## Memory Configuration

The mainboard supports three banks of **168-pin 3.3V EDO/SDRAM Unbuffered DIMM**. The mainboard supports **from 8 to 384 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. The SIMM bank can not be used together with the DIMM banks. The SIMM bank takes two EDO SIMM modules that have to be of the same size. FTP modules can not be used. The SIMM bank supports up to a maximum of 128MB of memory (2x 64KB modules).

## 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
<b>LPT1*</b>	378H	7	ECP + EPP
<b>COM1</b>	3F8H	4	
<b>COM2</b>	2F8H	3	

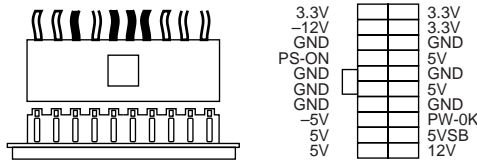
\* If default I/O port addresses conflict with other I/O cards (e.g. sound cards or I/O cards), you must adjust one of the I/O addresses to avoid address conflict. (You can adjust these I/O addresses from the BIOS.)

## Connectors

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

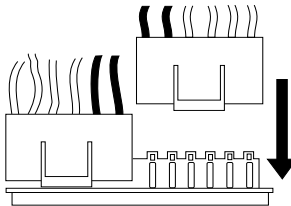
### ATX PW — ATX Power Supply Connectors

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.



### AT PW — Power Supply Connectors

The mainboard requires a power supply of at least 200 watts and a “power good” signal. AT PW has two 6-pin male header connectors. Plug the dual connectors from the power directly onto the board connector while making sure the black leads are in the center.



### Keyboard Connector

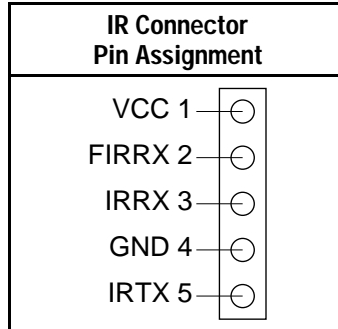
A six-pin female keyboard connector is located at the rear of the board. Plug the keyboard jack into this connector.

### 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**

This five-pin wafer connector is for connecting to an IR device. Use a device that complies to the ASKIR or HPSIR specification and choose ASKIR/HPSIR from the BIOS setup.



## **Keylock & Power LED Connector**

This connector is for a lock that may be present 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.

## **RESET – 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 hard disk cables to these connectors.

## **COM1/COM2 Connectors**

Connect COM1/COM2 devices to these connectors.

### IDE LED – IDE HDD LED Connector

Attach the HDD LED from the case to this connector. The LED will light up when an IDE device is active.

### TB LED – Turbo LED Connector

Attach the turbo led from the case to this connector.

### FDC Connector

Attach floppy cable to this connector.

### PRT – Parallel Port Connector

Attach parallel port cable to this connector.

### USB – Universal Serial Bus Connector




Attach a 9-pinUSB cable to this connector for external USB devices.

### 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.

### FAN1, FAN2, FAN3: CPU Cooling Fan Connectors

These 3-pins connectors provide 12V power for cooling fans that match the pin assignment of this connector. If you enable the Suspend Mode function in BIOS setup, these fans will stop when the system enters suspend mode.

CPU Cooling Fan Connector (Pin Assignment)	
1	 GND
2	 12V
3	 SENSOR

**FAN1:** CPU Cooling Fan

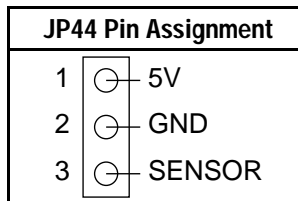
**FAN2:** Power Supply Fan  
(Optional)

**FAN3:** Case Fan (Optional)

*Note: Make sure the pin assignment of your CPU Cooling Fan is matched with this connector before connecting it, otherwise, you may damage either the mainboard or the cooling fan. Fan1 must be installed for this motherboard, fan2 and fan3 are optional.*

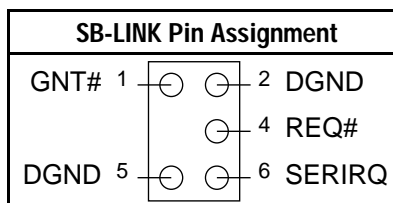
## **JP44 – Wake-On-LAN (WOL) Header**

Attach a 3-pin connector from a LAN card that 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.)



## **SB-LINK – PCI Audio Card Connector**

This 5-pin connector is used for plugging the PCI Audio card's PCI request/grant sideband signals connector into. Through this connector requests for legacy DMA channel support as needed by some soundcards are forwarded to the PCI Bus. Your soundcard package should include a cable for this feature if it requires it.





## **JPW1 – Power Supply Adjustment Jumper**

This jumper should be closed (default) with standard ATX power supplies. There are ATX power supplies that do not comply to the standard, if you have problems with your power supply, please set this jumper to open.

## JP12: PS/2 Keyboard WakeUp

JP12 allows the user to enable the keyboard/mouse wake up function. If JP12 is set to Enabled, the BIOS setting determines the exact response of the mainboard to a wake up event. (See the “Integrated Peripherals” section.)

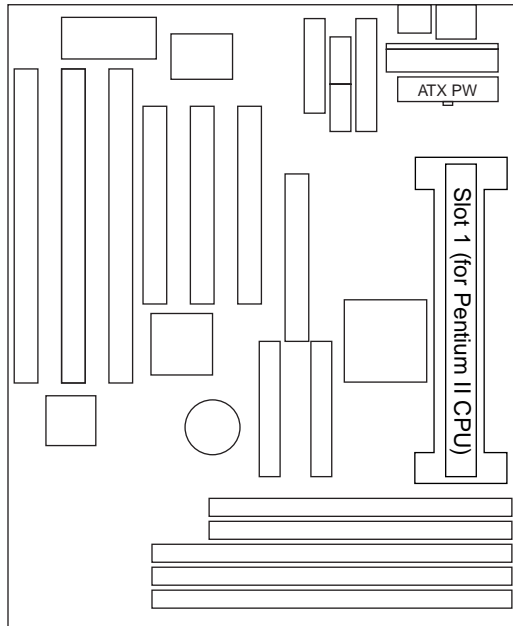
JP12: PS/2 Keyboard Wake up	
Wake Up Enabled	
Wake Up Disabled	

*Note: The wakeup function can ONLY be used if you have an ATX power supply. If you use an AT power supply, set JP12 to open (wake up is disabled).*

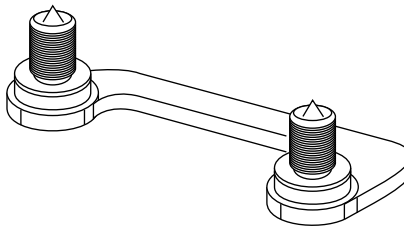
## Slot 1 Installation Guide

### 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.



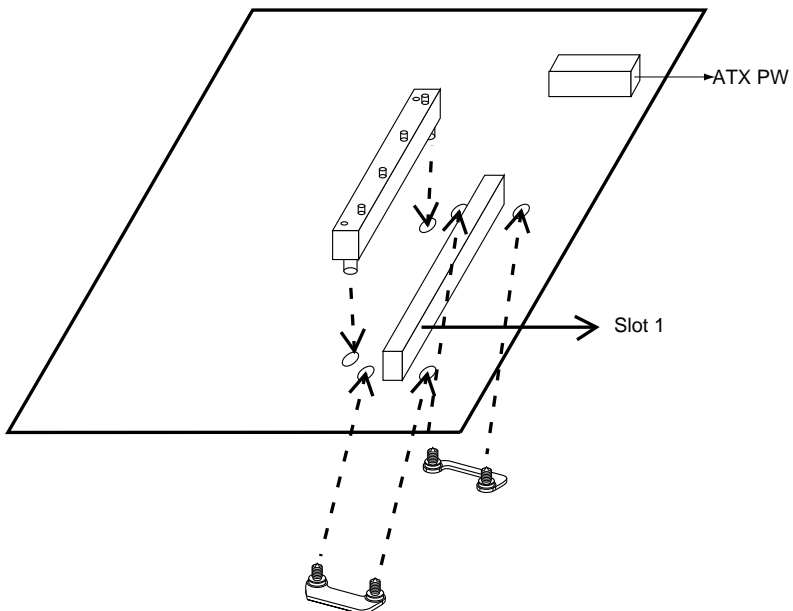
Install the 2 pairs of screws, as shown in the following figure, from the bottom of the motherboard upward onto the mainboard.





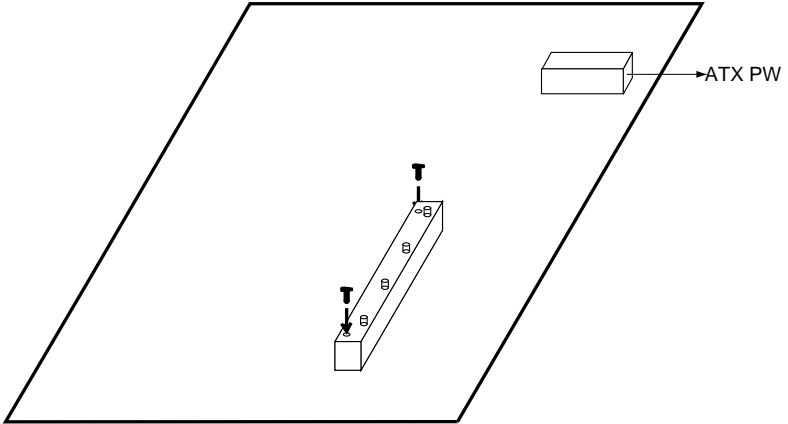
**Step 2:**

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.



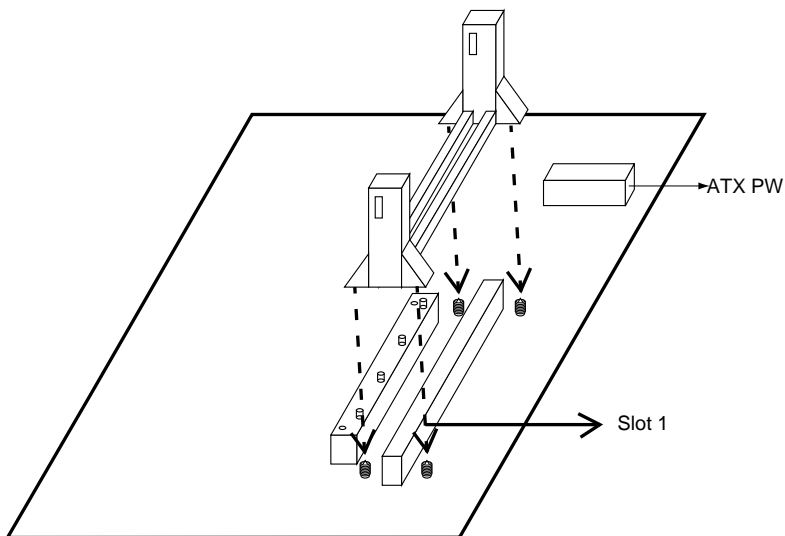
**Step 3:**

Insert the 2 latches into the two holes of the supporting base to secure the CPU.



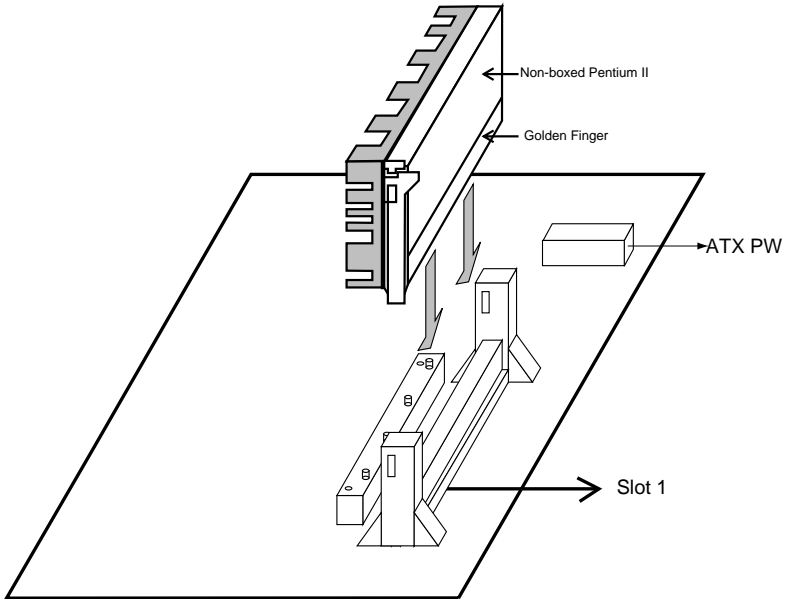
**Step 4:**

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.



**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.

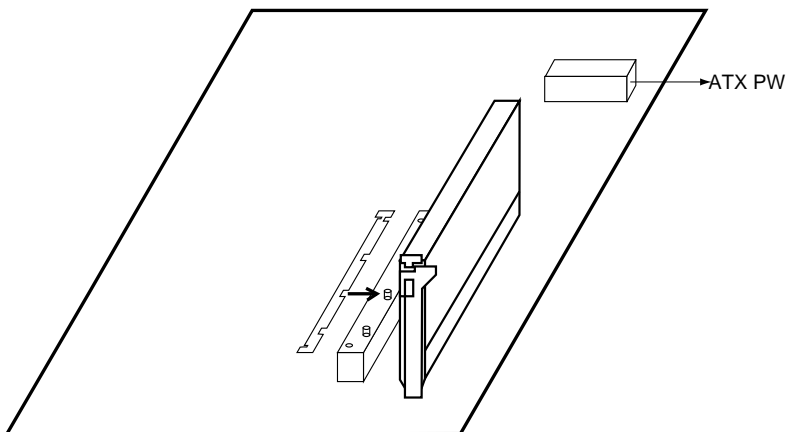


**Step 6:**

Now 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. Only Intel specification compliant heatsinks can be fixed this way.



*Top View of CPU Support Clip*



# 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
LOAD BIOS DEFAULTS	
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) : Sat, Jan 10 1998								
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	: AUTO	0	0	0	0	0	0	AUTO
Secondary Master	: AUTO	0	0	0	0	0	0	AUTO
Secondary Slave	: AUTO	0	0	0	0	0	0	AUTO
Drive A : 1.44M, 3.5 in.					Base Memory: 640K			
Drive B : None					Extended Memory: 31744K			
Floppy 3 Mode Support : Disabled					Other Memory: 384K			
Video : EGA/VGA					Total Memory: 32768K			
Halt On : All Errors								
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 (Secondary) Master & Slave** Choose from the standard hard disk types 1 to 46. Type 47 is user definable. If a hard disk is 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

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<b>Video</b>	Choose Monochrome, Color 40x25, VGA/EGA (default), Color 80x25
<b>Floppy 3 Mode Support</b>	Choose Disabled (default) or Enabled. When enables this function, the system will support 720KB/1.25MB/1.44MB 3 different modes floppy diskette. <i>Note: This function is for a special disk drive that is popular in Japan.</i>
<b>Halt On</b>	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.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power on Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up NumLock Status	: On	DC000-DFFFF Shadow	: Disabled
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup	ESC : Quit	↑ ↓ → ← : Select Item
PCI/VGA Palette Snoop	: Disabled	F1 : Help	PU/PD/+/- : Modify
OS Select for DRAM >64MB	: Non-OS2	F5 : Old Values (Shift)	F2 : Color
Report No FDD for Win95	: No	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. <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:

**Virus Warning** Enable this option will allow BIOS to protect the boot sectors and partition tables of your hard disk. Any attempt to write to them will cause the system to halt and display a warning message.

**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.)

---

<b>Quick Power On Self Test</b>	Enabled provides a fast POST at boot-up .
<b>Boot Sequence</b>	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; LS/ZJP.C.
<b>Swap Floppy Drive</b>	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
<b>Boot Up Num Lock Status</b>	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.
<b>Gate A20 Option</b>	Choose Fast (default) o Normal. Fast allows RAM accesses above 1MB using the fast gate A20 line.
<b>Typematic Rate Setting</b>	Enable this option to adjust the keystroke repeat rate.
<b>Typematic Rate (Chars/Sec)</b>	Choose the rate a character keeps repeating.
<b>Typematic Delay (Msec)</b>	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.
- Report No FDD for Windows** This item has the following function: Windows will release IRQ line 6 (normally used by the Floppy Disk Drive) if you disable your onboard FDD and set this item to ‘Yes’. If you set it to ‘No’, windows will reserve INT 6 for your FDD, whether it is disabled or not.
- 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	CPU Speed : 233MHz (66x3.5)
MA Wait State : Slow	
EDO RAS# To CAS# Delay : 3	Spread Spectrum : Disabled
EDO RAS# Precharge Time : 3	
EDO DRAM Read Burst : x3/3/3	
EDO DRAM Write Bursts : x2/2/2	
DRAM Data Integrity Mode : Non-ECC	
CPU-TO-PCI IDE Posting : Enabled	
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	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 : Fast	F6 : Load BIOS Defaults
SDRAM RAS Precharge Time : Fast	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.

---

<b>EDO RAS# Precharge Time</b>	Use the default setting.
<b>EDO DRAM Read Burst</b>	Use the default setting.
<b>DRAM Write Burst</b>	Use the default setting.
<b>DRAM Data Integrity Mode</b>	Choose Non-ECC (default) or ECC according to the DRAM type you have.
<b>CPU-TO-PCI IDE Posting</b>	Use the default setting.
<b>System BIOS Cacheable</b>	Disabled: The ROM area F0000H-FFFFFH is not cached. Enabled: The ROM area F0000H-FFFFFH is cacheable if cache controller is enabled.
<b>Video BIOS Cacheable</b>	Disabled: The video BIOS C0000H-C7FFFH is not cached. Enabled: The video BIOS C0000H-C7FFFH is cacheable if cache controller is enabled.
<b>8Bit I/O Recovery Time</b>	Use the default setting.
<b>16Bit I/O Recovery Time</b>	Use the default setting.
<b>Memory Hole At 15M-16M</b>	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.
<b>Passive Release</b>	Use the default setting.
<b>Delayed Transaction</b>	Use the default setting.
<b>AGP Aperture Size</b>	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.

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<b>SDRAM RAS-to-CAS Delay</b>	Use the default setting.
<b>SDRAM RAS Precharge Time</b>	Use the default setting.
<b>SDRAM CAS Latency Time</b>	Use the default setting.
<b>CPU Speed</b>	<p>Select the frequency of your Pentium II CPU from the following: <i>133, 233, 266, 300, 333 MHz</i>, or <i>Manual</i>.</p> <p><b>133MHz:</b> default setting which allows the board to boot up at any time if a wrong CPU frequency setting crashes the system. Press &lt;Insert&gt; during boot-up to load the BIOS default values.</p> <p><b>Manual:</b> User can select the frequency and multiplier values if so desired. SOYO does not guarantee proper functioning of the system if the user selects "Manual" setting, however, since some combinations fall outside of the INTEL specifications. Refer to the table on page 26 for CPU frequency settings.</p>
<b>Spread Spectrum Modulated</b>	Enable when you want to run the FCC or DOC test.

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.

**CPU Frequency:**

		Bus Frequency					
		50MHz	60MHz	66MHz	68MHz	75MHz	83MHz
	2.0	100MHz	120MHz	133MHz	137MHz	150MHz	166MHz
	2.5	125MHz	150MHz	166MHz	171MHz	188MHz	208MHz
	3.0	150MHz	180MHz	200MHz	205MHz	225MHz	250MHz
<b>Multiplier</b>	3.5	175MHz	210MHz	233MHz	239MHz	263MHz	291MHz
	4.0	200MHz	240MHz	266MHz	274MHz	300MHz	333MHz
	4.5	225MHz	270MHz	300MHz	308MHz	338MHz	374MHz
	5.0	250MHz	300MHz	333MHz	342MHz	375MHz	416MHz

*Notes:*

1. *If you use Bus Frequencies of 75 or 83 MHz, make sure that your PCI cards can cope with the higher PCI clock.*

## 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	: User Define	** Relead 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
Doze Mode	: Disabled	Serial Port : Enabled
Standby Mode	: Disabled	Parallel Port : Disabled
Suspend Mode	: Disabled	
HDD Power Down	: Disabled	
Throttle Duty Cycle	: 62.5%	
VGA Active Monitor	: Enabled	
Soft-Off by PWR-BTN	: Instant-Off	
CPU Fan Off in Suspend	: Enabled	ESC : Quit ↑↓→←: Select Item
Resume by Ring	: Disabled	F1 : Help PU/PD/+/- : Modify
Resume by Alarm	: Disabled	F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults
IRQ 8 Break Suspend	: Disabled	

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

Options are as follows:

### Management

**User Define** 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.



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<b>Video Off Method</b>	Choose V/H Sync+Blank (default), Blank screen, or DPMS for the selected PM mode.
<b>Video Off After</b>	Choose the mode you want video to go off after the mode is being active. Options are Standby, Suspend, and Doze.
<b>Doze Mode</b>	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.
<b>Standby Mode</b>	The default is Disabled. Time is adjustable from 1 Min to 1 Hour.
<b>Suspend Mode</b>	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.)
<b>HDD Power Down</b>	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.
<b>Throttle Duty Cycle</b>	Using the default setting.
<b>ZZ Active in suspend</b>	Using the default setting.
<b>VGA Active Monitor</b>	Choose Enabled (default) or Disabled. Enabled –enables the power management timers when a “no activity” event is detected.
<b>Soft-Off by PWR-BTN</b>	Choose <b>Instant-off</b> (default) or <b>Delay 4 Sec.</b> <b>Delay 4 Sec</b> turns off the system power 4 seconds after pushing the power button
<b>CPU Fan Off in Suspend</b>	<i>Enable</i> will switch off the CPU Fan when the system enters suspend mode.

- Resume by Ring** Choose **Enabled** or **Disabled** (default). This function only works when the computer is powered on.  
Enabled: The system will resume active when modem is ringing.  
Disabled: The system will not resume when modem is ringing.
- Resume by Alarm** Choose **Enabled** or **Disabled** (default).  
Enabled: Set alarm to wake up the system either by the date (1-31) or time (hh:mm:ss), and if the date is set to 0, it means that the system will wake up by the alarm everyday.  
Disabled: The system ignores the alarm.
- IRQ8 Clock Event** Choose **Enabled** or **Disabled** (default). Alarm function will be activated when this function is enabled.
- IRQ[3-7,9-15], NMI** Choose **Enabled** (default) or **Disabled**. The BIOS monitors these items for activities. If activity occurs from the Enabled item the system then wakes up.
- Primary/  
Secondary IDE0  
Primary/  
Secondary IDE1** Choose **Enabled** or **Disabled** (default).  
Enabled: enables the power management timers when “no activity” event is detected.
- Floppy Disk/serial  
Port/Parallel Port** Choose **Enabled** or **Disabled**.  
Enabled: enables the power management timers when “no activity” event is detected.

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.

PnP OS Installed : No	PCI IDE IRQ Map To : PCI-AUTO
Resources Controlled By : Manual	Primary IDE INT# : A
Reset Configuration Data : Disabled	Secondary IDE INT# : B
IRQ-3 assigned to : PCI/ISA PnP*	
IRQ-4 assigned to : PCI/ISA PnP*	
IRQ-5 assigned to : PCI/ISA PnP*	
IRQ-7 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-14 assigned to : PCI/ISA PnP*	
IRQ-15 assigned to : PCI/ISA PnP*	
DMA-0 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*	

- \*: 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:

**PNP OS Installed** Set this item to 'No' (default) if the OS you are running does not support PnP configuration. Window 95 is PnP compatible, set this item to 'Yes' in the case you run Windows 95. In case of doubt, set this item to 'No'.

**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.

<b>IRQX and DMAX assigned to</b>	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.
<b>PCI IRQ Activated By</b>	Choose Edge or Level. Most PCI trigger signals are Level. This setting must match the PCI card.
<b>PCI IDE IRQ Map To</b>	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.
<b>Primary IDE INT#</b>	Choose INTA#, INTB#, INTC#, or INTD#. The default setting is INTA#.
<b>Secondary IDE INT#</b>	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	Onboard Parallel Port : 378/IRQ7
IDE Primary Master PIO : Auto	Parallel Port Mode : SPP
IDE Primary Slave PIO : Auto	ECP Mode Use DMA : 3
IDE Secondary Master PIO : Auto	
IDE Secondary Slave PIO : Auto	
IDE Primary Master UDMA : Auto	
IDE Primary Slave UDMA : Auto	
IDE Secondary Master UDMA: Auto	
IDE Secondary Slave UDMA: Auto	
On-Chip Primary PCI IDE : Enabled	
On-Chip Secondary PCI IDE: Enabled	
USB Keyboard Support : Disabled	
POWERON Function : BUTTON ONLY	
Keyboard PowerOn Password: ----	
Hot Key Power ON : Ctrl-F1	ESC : Quit ↑ ↓ → ←: Select Item
KBC Input Clock : 12MHz	F1 : Help PU/PD/+/- : Modify
Onboard FDC Controller : Enabled	F5 : Old Values (Shift)F2 : Color
Onboard Serial Port 1 : Auto	F6 : Load BIOS Defaults
Onboard Serial Port 2 : Auto	F7 : Load Setup Defaults
UR2 Mode : Standard	

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:

<b>IDE HDD Block Mode</b>	Choose Enabled (default) or Disabled. Enabled invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.
<b>IDE Primary Master PIO</b>	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.
<b>IDE Primary Slave PIO</b>	
<b>IDE Secondary Master PIO</b>	
<b>IDE Secondary Slave PIO</b>	
<b>IDE Primary Master UDMA</b>	Auto: if you want to use a hard disk that is capable of making use of UDMA (Ultra DMA 33).
<b>IDE Primary Slave UDMA</b>	Disabled: will make sure that the UDMA protocol is not used in communicating with the harddisk <i>Auto (Default)</i> is recommended.
<b>IDE Secondary Master UDMA</b>	
<b>IDE Secondary Slave UDMA</b>	
<b>On-chip Primary/Secondary PCI IDE</b>	
<b>USB Keyboard Support</b>	Set to <i>Enabled</i> if you want to make use of an USB keyboard.
<b>POWER On Function</b>	If you enable the PS/2 keyboard wake up function by closing JP12 (possible only if you use an ATX power supply), you can set the appropriate action through this item. Refer to the table on the next page for details.
<b>KB POWER On Password</b>	If you selected password from the item above, you can set your password through this item.

**Hot Key Power On**

If you select “Hot Key” from the item above, you will have to choose a key combination that will wake up the system here. Choose from Ctrl-F1 to Ctrl-F12.

Setting	Explanation
BUTTON ONLY (default)	This setting disables the wake-up function.
Password	If you choose this option, you will have to set your password in the “KB Power On Password” item below. You will be able to wake up the system by entering the password or by pressing the power button.
Hot Key	If you choose this option, you will have to set the key combination that will wake up the system in the “Hot key Power On” item below.
<i>Note: Please open JP12 if you choose “BUTTON ONLY.”</i>	

**KBC Input Clock**

This item controls the frequency of the clock signal to the Keyboard. Default is 12MHz. Set this item to 8MHz if you experience problems with your keyboard.

**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 not set port 1 & 2 to the same value except for Disabled.

COM 1/3F8H		COM3/3E8H
COM 2/2F8H		COM4/2E8H
(default)		

**UR 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
- Parallel Port 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** If you set your parallel port to ECP mode, please select either DMA Channel 3 (default) or 1.

## 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.*



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## User Password

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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:

**“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 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	----

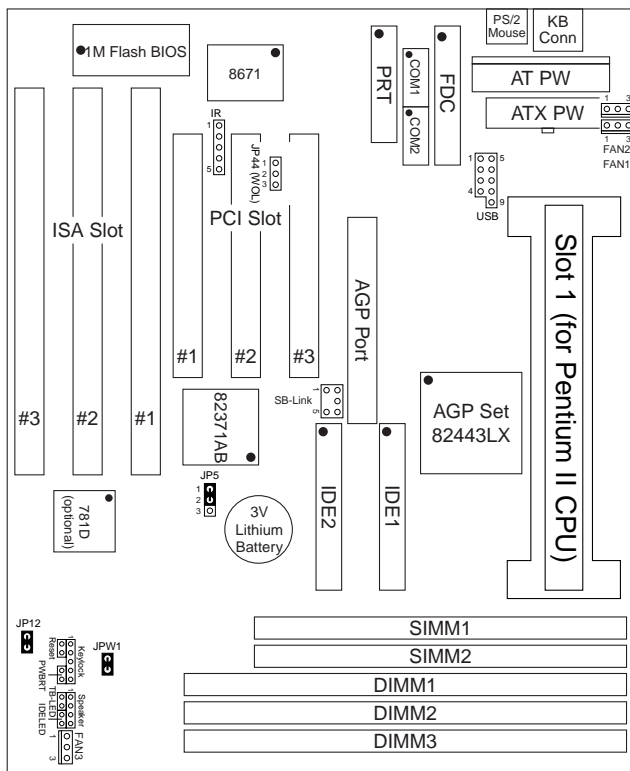
Do you accept this drive C (Y/N)? N

ESC : Skip

# 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 Settings

The 6KL does not use any jumpers to set the CPU frequency, CPU settings are changed through the BIOS. In order to change your CPU type, please press the <Delete> key during boot up. Select the 'Chipset Features setup' menu. There you will find an item called "CPU speed and this item will allow you to set your board to the correct CPU frequency. The Pentium II should have a clear indication on it's cover

that specifies it's working frequency. The possible settings are: 133, 233, 266, 300, and 333. The 133 MHz setting is used as default so whenever the BIOS settings are erased or reset the board will be able to boot up. There is however no Pentium II of that frequency. If the CPU frequency was set too high and the board refuses to start up, you can always load the default values by pressing the <Insert> key during boot up.

## Memory Configurations

	SIMM Bank	DIMM Bank		
	SIMM 1	DIMM 1	DIMM 2	DIMM 3
RAM Type	EDO	EDO/SDRAM	EDO/SDRAM	EDO/SDRAM
Size (MB)	2 x 8/16/32/64	8/16/32/64/128	8/16/32/64/128	8/16/32/64/128

*Note: The 6KL requires DIMMs with an access time of 70 ns or less, it supports memory of a size from 8 to 384Mb and you may use any combination of DIMMs in the banks. The SIMM bank can not be used together with DIMM banks. The SIMM bank requires 2 EDO SIMM modules of the same size (max 64MB for a 128MB total.)*

## Connectors and Jumper Settings

CMOS clear: JP5			PCI Audio Card Connector: SB-Link			CPU Cooling Fans: FAN 1/2/3				
Retain CMOS data (default)	2-3		Some PCI Audio cards need a DMA channel, connect the cable to SB-Link			pin	1	2	3	
						function	GND	12V	sensor	
Clear CMOS data	1-2		Wake on LAN jumper: JP44 Please connect the WOL cable from your LAN card to this jumper.			FAN 1:	FAN 2:		FAN 3:	
						CPU fan	Power Supply fan		CASE fan	
USB		TB Led		SPK		RESET		IDE Led		
Connector your USB devices to this header		Connect your Turbo LED this jumper		Connect the cable of speakers to this jumper		Connect the reset button to this jumper		Connect HDD led to this jumper		
IrDA (Infrared Devices Connector): IR					JPW1: ATX Power Select		Keylock		.JP12: Keyboard Wake Up	
pin	1	2	3	4	5	Open this jumper if your ATX power supply is non-standard	For connecting the power LED and the keyboard lock switch	Wake Up Enabled		1-2
function	+5V	FIRRX	IRRX	GND	IRTX			Wake Up Disabled		2-3
ATX Power On/Off: PWRBT				ATX PW		AT PW				
Connect your power switch to this jumper (momentary switch type)				Connector for the ATX power supply plug		Connector for the AT power supply plug				

## 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".*