

6KD

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



SOYOTM

About This Guide

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

Copyright Notice

Copyright 1997, Soyo Computer Inc. All rights reserved. This manual is copyrighted by Soyo Computer Inc. You may not reproduce, transmit, transcribe, store in a retrieval system, or translate into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, any part of this publication without express written permission of Soyo Computer Inc.

Trademarks

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

Disclaimer

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

Restricted Rights Legend

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

Product Rights

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

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

Edition: November 1997

Version 1.1

6KD SERIAL

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

Table of Contents

Chapter 1: Introduction	1
Key Features	1
Unpacking the Mainboard	2
Electrostatic Discharge Precautions	2
Mainboard Layout w/ Default Settings	3
Chapter 2: Hardware Setup	5
Jumpers	5
JP5: CMOS Clear Jumper	5
CPU Type Configuration	5
Memory Configuration	6
Multi I/O Port Addresses	6
Connectors	7
ATX PW — ATX Power Supply Connectors	7
PS/2 Keyboard Connector	7
PS/2 Mouse Connector	7
IR – IR Connector	8
Keylock & Power LED Connector	8
SPK – Speaker Connector	8
RST – Hardware Reset Control	8
IDE1/IDE2 – On-board Primary/Secondary IDE HDD Connectors	8
COM1/COM2 Connectors	8
IDE LED – IDE HDD LED Connectors	9
FDC Connector	9
PRT – Parallel Port Connector	9
USB1/USB2 – Universal Serial Bus Connector	9
PWRBT – ATX Power Supply On/Off Switch Connector (Momentary Type)	9
JP42, JP43: CPU Cooling Fan Connector	9
JP14 – Wake-On-LAN (WOL) Header	10
JP15 – PCI Audio Card Connector	10
Slot 1 Installation Guide	11
Chapter 3: BIOS Setup	17
Standard CMOS Setup	18
BIOS Features Setup	19
Chipset Features Setup	22
Power Management Setup	25
PNP/PCI Configuration Setup	28
Load BIOS Defaults & Load Setup Defaults	29
Integrated Peripherals	30

Hardware Monitor	32
Supervisor Password	33
IDE HDD Auto Detection	34

Quick Installation Guide 35

Motherboard Layout	35
Memory Configurations	35
Connectors and Jumper Settings	36
Default I/O Settings	36

1 Introduction

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

Key Features

- Processor supports:
 - Intel Pentium II CPU up to 66 MHz host bus frequency (233 ~ 333 MHz)
 - **auto detection of CPU voltage**
 - **supports (Dual) Intel Pentium II processors**
- DRAM controller:
 - **supports 4 strips of 168-pin EDO /SDRAM 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
 - five 32-bit PCI slots (Masters) and two ISA slots
 - **supports Universal Serial Bus—USB onboard**
- 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 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 BIOS
 - **onboard supports for IR function**
 - One 32-bit AGP slot onboard

Unpacking the Mainboard

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

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

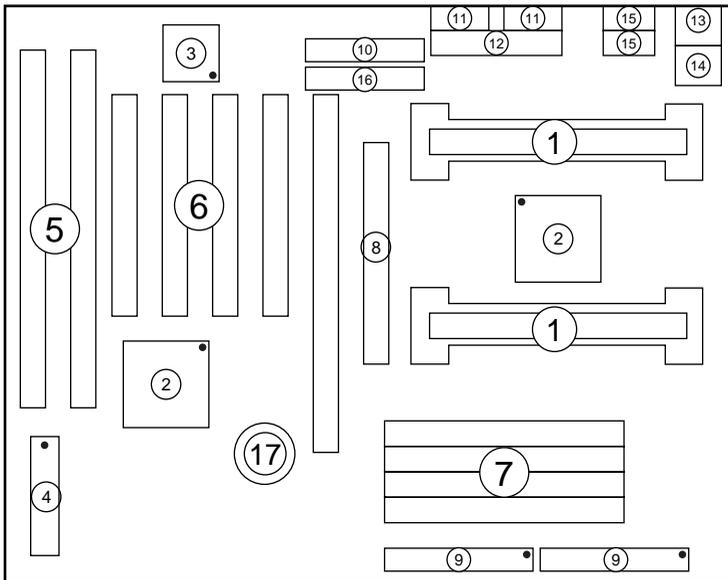


Figure 1-1. Mainboard Layout

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

Default settings are as follows: 686 (PII) 133MHz* 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.

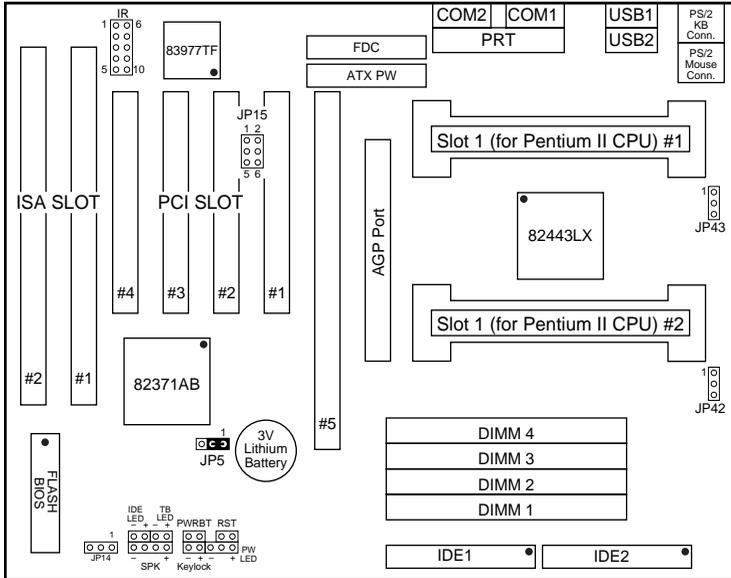


Figure 1–2. Mainboard Default Setting

* There is no 133MHz in the Pentium II CPU family. 133MHz setting is used as default and as a “safe” frequency to allow the board to boot-up at any time when the BIOS settings are erased or reset. Refer to the “CPU Type Configuration” section of Chapter 2.

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)	<table><tr><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	3	2	1			
3	2	1					
							
Clear CMOS data	<table><tr><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td></tr></table>	3	2	1			
3	2	1					
							

CPU Type Configuration

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 Frequency Pentium II" 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 case. 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 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.)

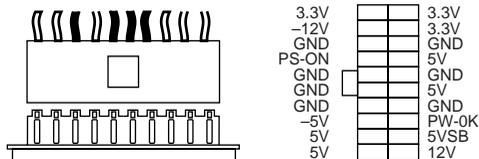
Note: Some sound cards have a default IRQ setting for IRQ7, which may conflict with printing functions. If this occurs do not use sound card functions at the same time you print.

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.



PS/2 Keyboard Connector

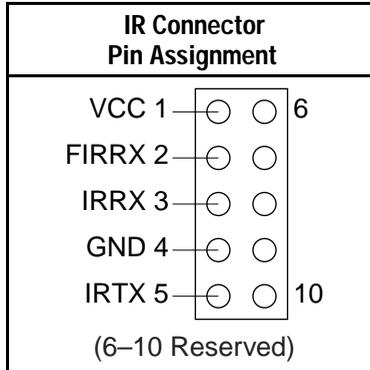
A six-pin female PS/2 keyboard connector is located at the rear of the board. Plug the keyboard jack into this connector.

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 five-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.



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.

JP42, JP43: 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.

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

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.

JP14 – 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.)

JP14 Pin Assignment		
1		5V
2		GND
3		SENSOR

JP15 – PCI Audio Card Connector

This 6-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.

JP15 Pin Assignment					
GNT#	1			2	DGND
KEY	3			4	REQ#
DGND	5			6	SERIRQ

Slot 1 Installation Guide

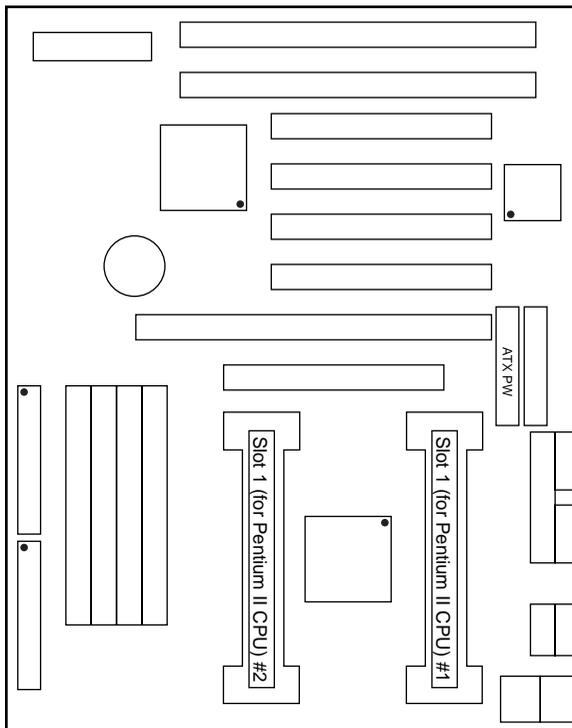
This board provides a non-boxed 686 (PII) CPU retention set to secure the CPU to the board. Follow the steps below to secure this type of CPU on to your motherboard. These steps are the same for both Slot 1 CPUs. In case you use only one CPU you will have to use the termination card that came with the board, we advise you to insert your CPU into slot #1 and insert the termination card into slot #2.



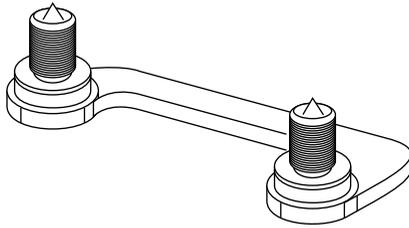
Termination Card

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.

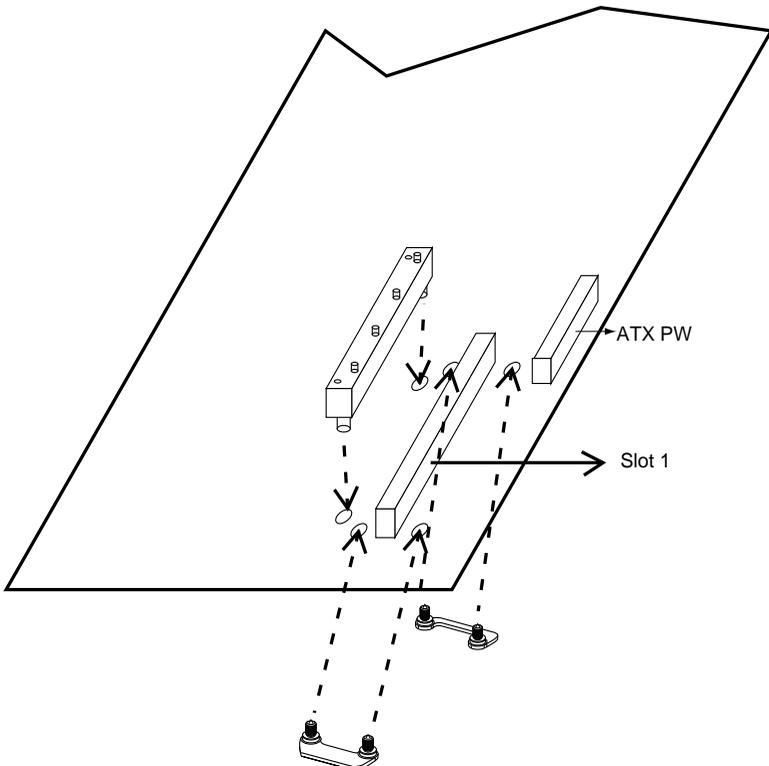


Install the 2 pairs of screws, as shown in the following figure, from the bottom of the motherboard upward onto the mainboard.



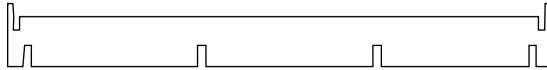
Step 2:

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.

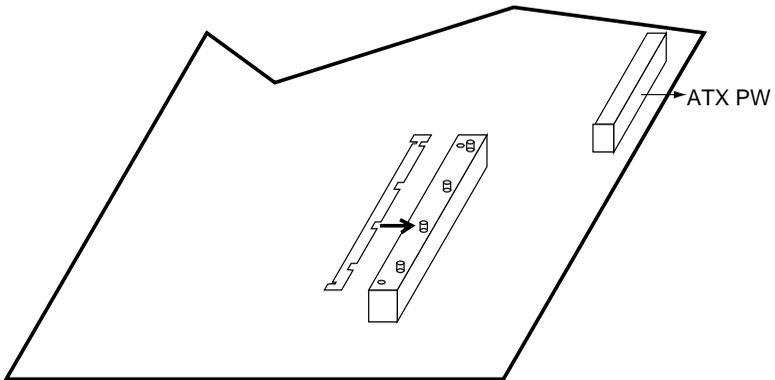


Step 3:

Insert the 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.

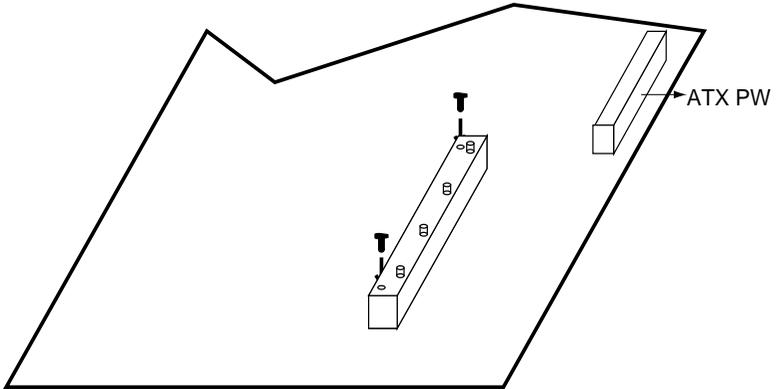


Top View of CPU Support Clip



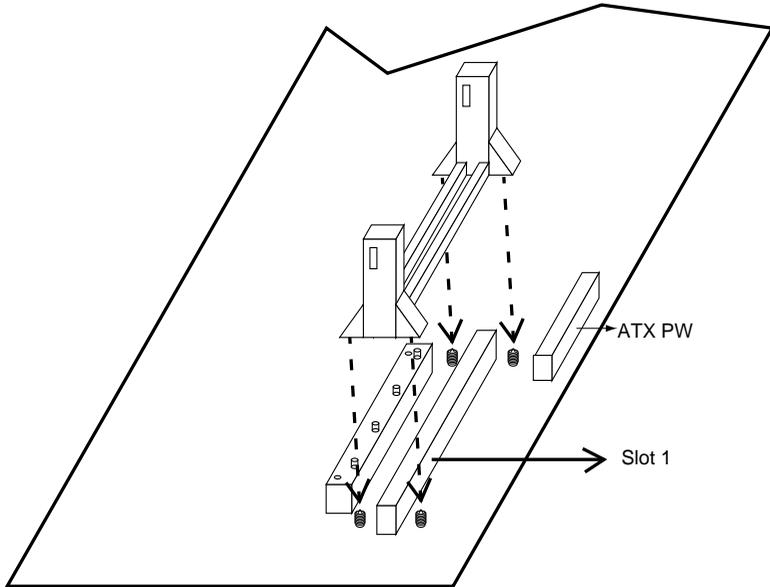
Step 4:

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



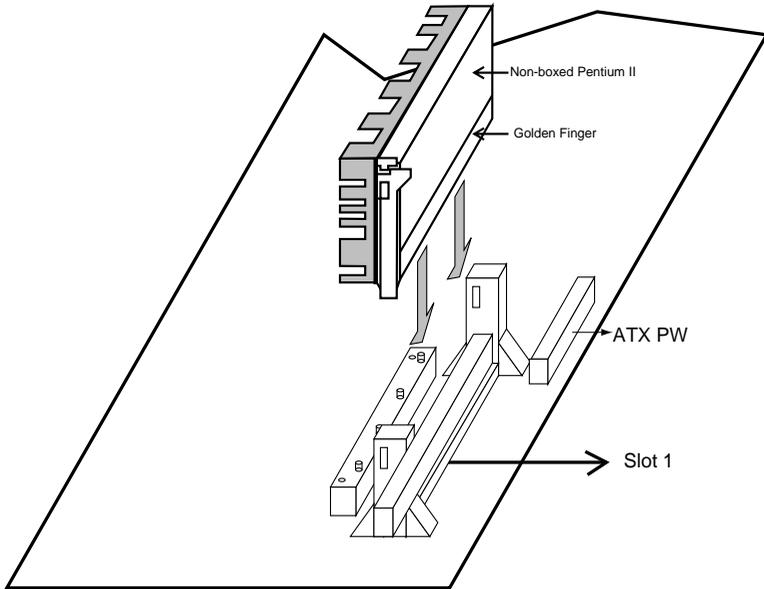
Step 5:

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 6:

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.



3 BIOS Setup

The mainboard's BIOS setup program is the PCI/ISA BIOS from AMI Software Inc. Enter the AMI 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 to enter Setup.
2. Press the key to enter the AMI BIOS program and the main screen appears:

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.13
(C)1997 American megatrends, Inc. All Rights Reserved

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS CMOS SETUP	HARDWARE MONITOR SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PN/PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD SETUP DEFAULTS	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
Esc: Quit ↑ ↓ → ←: Select Item (Shift) F2: Change Color F5: Old Values	
F6: Optional values F7: Fail Safe Values F10 : Save&Exit	
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 Options listed in the Main menu will be described in more detail 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.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.13
(C)1997 American megatrends, Inc. All Rights Reserved

Date (mm:dd:yy) : Thu Oct 16, 1997		Time (hh:mm:ss) : 03 : 33 : 37									
	TYPE	SIZE	CYLS	HEAD	WRoom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode	
Pri Master	: AUTO										On
Pri Slave	: AUTO										On
Sec Master	: AUTO										On
Sec Slave	: AUTO										On
Floppy Drive A : 1.44M, 3.5"		Floppy Drive B : Not Installed								Base Memory: 640Kb	
										Other Memory: 384Kb	
										Extended Memory: 31Mb	
										32Mb	
Month: Jan - Dec		Day: 01 - 31		Year : 1901 : 2099						Esc : Exit	
										↑ ↓ → ← : Select Item	
										PU/PD/+/- : Modify	
										(Shift) F2 : Color	

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

Boot Sector Virus Protection Setting this item to Enabled will make the BIOS verify that the boot sector of your harddisk is not corrupted by a virus, by warning you when a change of the boot sector is detected.

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.**)

AMIBIOS SETUP - BIOS FEATURES SETUP (C)1997 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Disabled	C400, 16K Shadow	Cached
1st Boot Device	Floppy	C800, 16K Shadow	Disabled
2nd Boot Device	IDE-0	CC00, 16K Shadow	Disabled
3rd Boot Device	CDROM	D000, 16K Shadow	Disabled
Try other Boot Devices	Yes	D400, 16K Shadow	Disabled
Initial Display Mode	BIOS	D800, 16K Shadow	Disabled
Floppy Access Control	Read-Write	DC00, 16K Shadow	Disabled
Hard Disk Access Control	Read-Write		
S.M.A.R.T. for Hard Disks	Disabled		
Boot Num-Lock	On		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
PS/2 Mouse Support	Enabled		
Primary Display	Absent		
Password Check	Setup		
Boot To OS/2 > 64MB	No	ESC : Quit	↑ ↓ → ← : Select Item
CPU MicroCode Updation	Enabled	F1 : Help	PU/PD/+/- : Modify
Internal Cache	WriteBack	F5 : Old Values (Shift)F2 : Color	
System BIOS Cacheable	Enabled	F6 : Load BIOS Defaults	
C000, 16K Shadow	Cached	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:

Quick Boot	Set this option to <i>Enabled</i> to shorten the boot-up time. (Some of the Power On Self Tests will not be performed.)
1st Boot Device	Set these options to select the device that you want the system to boot from. Choices are: Floppy, Floptical (RS 120), CD ROM, SCSI device, network, IDE 0, IDE 1, IDE 2, and IDE 2.
2nd Boot Device	
3rd Boot Device	
Try Other Boot Device	Set this option to <i>Yes</i> if you want the system to further check for boot devices if it doesn't find anything in the three options specified above.
Initial Display Mode	Set this option to either <i>Silent</i> or <i>BIOS</i> .
Floppy Access Control	Set this option to enable to write to floppy disks. Choices are either <i>Read/Write</i> or <i>Read Only</i> .
Hard Disk Access Control	Set this option to enable to write to hard disks. Choices are either <i>Read/Write</i> or <i>Read Only</i> .
SMART for Harddisks	Choose <i>Enabled</i> only with SMART enabled harddisks and to make use of the failure warning system that some new harddisk types provide.
Boot-Up Numlock	Set this option to <i>On</i> if you want to automatically set your keyboard to numlock on boot-up.
Floppy Drive Swap	Set this option to <i>Enabled</i> will switch you original Drive A to Drive B.
Floppy Drive Seek	Set this option to either <i>Enabled</i> or <i>Disabled</i> .
PS/2 Mouse Support	Enable this option to use a PS/2 Mouse.
Primary Display	Set this option to either <i>Absent</i> or <i>VGA, EBA</i> .

-
- | | |
|-------------------------------|--|
| Password Check | Always: the system will ask you to enter your password both at boot-up and on entering the BIOS Setup.
Setup: the system only asks you for the password on entering the BIOS Setup. |
| Boot to OS/2 > 64Mb | Set this option to <i>Yes</i> when your operating system is OS/2. |
| CPU Microcode Updating | Set this option to either <i>Disabled</i> or <i>Enabled</i> . |
| Internal Cache | Select the Internal Cache Mode from <i>Disabled</i> , <i>Write Through</i> , or <i>Write Back</i> . |
| System BIOS Cacheable | Setting this option to <i>Enabled</i> speeds up the BIOS operations by keeping the most frequent used routines in cache memory. |
| Shadow Segments | These segments allow you to load the BIOS ROM into RAM (shadowing) to improve BIOS speed. Select one of the following settings for each segment: <i>Disabled</i> , <i>Enabled</i> (load into RAM), <i>Cached</i> (make the segment cacheable.) |
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. It is recommended that you change these settings only if you are familiar with the chipset.

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

AMIBIOS SETUP - CHIPSET FEATURES SETUP (C)1997 American Megatrends, Inc. All Rights Reserved			
Auto Configure EDO DRAM Tim	Enabled	PIIX4 Delayed Transaction	Disabled
EDO DRAM Speed (ns)	60	Clock for DIMM/PCI Slot	Enabled
EDO Read Burst Timing	x222	Clock for Spread Spect.	Disabled
EDO Write Burst Timing	x222	Turbo Mode (75Mhz)	Disabled
EDO RAS Precharge Timing	3 Clocks	CPU Frequency PentiumII	233Mhz
EDO RAS to CAS Delay	3 Clocks	USB Function	Enabled
MA Wait State	Slow	USB Keyboard Legacy support	Disabled
***** SDRAM Timing *****			
SDRAM RAS to CAS Delay	2 Clks		
SDRAM CAS Lattency	3 Clks		
SDRAM RAS Precharge Time	2 Clks		
DRAM Integrity Mode	Non ECC		
VGA Frame Buffer USWC	Disabled		
PCI Frame Buffer USWC	Disabled		
Fixed Memory Hole	Disabled		
CPU To PCI IDE Posting	Enabled	ESC : Quit	↑ ↓ → ← : Select Item
USWC Write I/O Post	Disabled	F1 : Help	PU/PD/+/- : Modify
A.G.P Aperture Size	64MB	F5 : Old Values (Shift)	F2 : Color
USB Passive Release	Enabled	F6 : Load BIOS Defaults	
PIIX4 Passive Release	Enabled	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 Configure EDO DRAM Enable this option (strongly recommended) and the system automatically sets all options for memory management.

EDO RAM Speed(ns) Select the speed of your memory: 70, 60, or 50ns.

EDO Read Burst Timing; EDO Write Burst Timing; EDO RAS Precharge Timing; EDO RAS to CAS Delay; MA Wait State; SDRAM RAS to CAS Delay; SDRAM CAS Latency; SDRAM RAS Precharge Timing;	Use the default setting for all these options.
DRAM Integrity Mode	Non ECC: No error checking at all. EC Only: Checks for parity errors (parity memory necessary) ECC: Checks for and corrects errors (ECC memory necessary)
VGA Frame Buffer USWC; PCI Frame Buffer USWC	Set these options to either <i>Enabled</i> or <i>Disabled</i> .
Fixed Memory Hole	Set this option to <i>Disabled</i> , <i>512Kb-640Kb</i> , or <i>15Mb – 16Mb</i> .
CPU To PCI IDE Posting; USWC Write I/O Post	Use the default setting for these two options.
AGP Aperture Size	Choose from: 4, 8, 16, 21, 64, or 128Mb.
USB Passive Release; PIIX4 Passive Release; PIIX4 Delayed Transaction; Clock for DIMM//PCI Slot	Set these options to either <i>Enabled</i> or <i>Disabled</i> .

- Clock for Spread Spect.** Set this option to either *Disabled* or one of the following spread percentages: 0.5%, 1.0%, 1.5%, or 3.0%.
- Turbo Mode (75Mhz)**
- Enabled: Your Pentium II CPU will run on a 75Mhz busclock which will increase the speed of your system. This busclock falls without the specifications of INTEL, however, so no guarantees of proper functioning are made. In addition you have to use high quality Add-On cards and memory Modules when running the system at a busclock of 75Mhz to avoid problems.
- Disabled: Your system will run on the INTEL specified busclock of 66Mhz.
- CPU Frequency** Select the frequency of your Pentium II CPU from the following: 233, 266, 300, or 333 MHz. The 133MHz setting is the default setting and it allows you to boot-up the system at any time when a wrong setting does not allow the board to boot up.
- USB Function** Enable this option if you plan to use the USB ports.
- USB Keyboard Legacy Support** Set this option to *Enabled* if you use a USB keyboard.

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.

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1997 American Megatrends, Inc. All Rights Reserved			
Power Management/APM	Disabled	CPU Critical Temperature	Disabled
Green Monitor Power State	Stand By	Power Button Function	On/Off
Video Power Down Mode	Suspend	Ring Resume From Soft Off	Enabled
Hard Disk Power Down Mode	Suspend	RTC Alarm Resume From Soft	Disabled
Standby Time Out (Minute)	Disabled	RTC Alarm Date	15
Suspend Time Out (Minute)	Disabled	RTC Alarm Hour	12
Throttle Slow Clock Ratio	50-62.5%	RTC Alarm Minute	30
Modem Use IO Port	N/A	RTC Alarm Second	30
Modem USE IRQ	N/A		
Display Activity	Ignore		
Device 6 (Serial port 1)	Monitor		
Device 7 (Serial port 2)	Monitor		
Device 8 (Parallel port)	Ignore		
Device 5 (Floppy Disk)	Monitor		
Device 0 (Primary Master ID)	Monitor		
Device 1 (Primary Slave ID)	Ignore		
Device 2 (Sec Master ID)	Monitor		
Device 3 (Sec Slave ID)	Ignore		
System Thermal	Ignore		
Thermal Slow Clock Ratio	50-62.5%		
		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 Set this option to *Disabled* to disable all power saving functions and many of the options on this menu will be unavailable.

Green Monitor Power State; These three options can be set to *Disabled*, *Stand by*, or *Suspend* to determine which mode will be entered when the standby and suspend timers run out. *Stand by* is entered when the Standby timer runs out and the clock will be slowed down to a x% of the original clock speed. X is determined by the 'Throttle Slow clock Ratio' setting.

Video Power Down Mode; Suspend mode stops the CPU and is entered when the suspend timer runs out.

Harddisk Power Down Mode

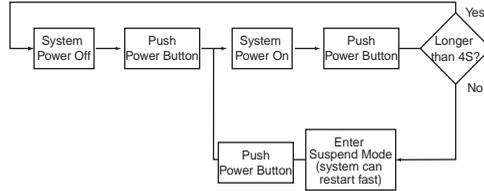
Standby Time out (Minute)	Sets the Standby Timer, ranges from 1 to 60 minutes.
Suspend Time out (Minute)	Sets the Suspend Timer, ranges from 1 to 60 minutes.
Throttle Slow Clock Ratio	Sets the percentage of the original clock speed to which the CPU will slow down when entering the Standby mode.
Modem Use I/O Port	Set this option to the I/O address that your modem is using. Choose from 3F8/COM1, 2F8/COM2, 3E8/COM3, 2E8/COM4, or N/A.
Modem Use IRQ	Set this option to the IRQ number that your modem is using. Choose from 3, 4, 5, 7, 9, 10, 11, or N/A.
Display Activity; Device 6, 7, 8, 5, 0, 1, 2, 3	Choose either <i>Monitor</i> or <i>Ignore</i> for all these devices. Monitor: Makes the BIOS check for activity on these devices, resetting the standby and suspend timers if activity is detected.
System Thermal	Choose <i>Ignore</i> or <i>Monitor</i> . Monitor: CPU slows down to a frequency of x% of the original clock speed. X can be set by changing the <i>Thermal Slow Clock Ratio</i> option below and the critical temperature at which the CPU will slow down can be set by changing the <i>CPU Critical Temperature</i> option.
Thermal Slow Clock Ratio	Sets the percentage of the original clock speed to which the CPU will slow down when overheating.
CPU Critical Temperature	Sets the temperature at which the CPU slows down to avoid overheating problems, however, the system thermal has to be <i>Enabled</i> . The choices are 45, 50, 55, 60, 65, 70, or 75°C.

Power Button Function

On/Off: the system will power on and power off with a short touch on the power button.

Suspend:

Suspend Power Mode State Diagram:

**Ring Resume from Soft Off**

Setting this option to *Enabled* will cause the system to wake up when the modem detects an incoming call.

RTC Alarm Resume from Soft Off

Set this option to *Enabled* will enable the system to wake up at a predetermined time as set by the next four items. The system will compare the settings of the options below to the time in the RTC (as displayed in the Standard CMOS Setup) and wake up at the desired time.

RTC Alarm Date;
RTC Alarm Hour;
RTC Alarm Minute;
RTC Alarm Second

These four options set the date and the time for the system to wake up at a desired moment.

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

PNP/PCI Configuration Setup

This menu controls the system resources. 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.)

AMIBIOS SETUP - PNP/PCI CONFIGURATION (C)1997 American Megatrends, Inc. All Rights Reserved			
Plug and Play Aware O/S	No	Reserved Memory Size	Disabled
Clear NVRAM on Every Boot	No	Reserved Memory Address	C8000
PCI Latency Timer	64		
PCI VGA Palette Snoop	Disabled		
Allocate IRQ to PCI VGA	Yes		
DMA Channel 0	PnP		
DMA Channel 1	PnP		
DMA Channel 3	PnP		
DMA Channel 5	PnP		
DMA Channel 6	PnP		
DMA Channel 7	PnP		
IRQ3	PCI/PnP		
IRQ4	PCI/PnP		
IRQ5	PCI/PnP		
IRQ7	PCI/PnP		
IRQ9	PCI/PnP		
IRQ10	PCI/PnP		
IRQ11	PCI/PnP		
IRQ12	PCI/PnP		
IRQ14	PCI/PnP		
IRQ15	PCI/PnP		
		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 select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:

Plug and Play Aware O/S Choose *Yes* or *No*. When this option is set to *No*, the DMA and IRQ settings will have to be set manually.

Clear NVRAM on Every Boot *Yes*: PnP information will be erased and collected again at every boot.

PCI Latency Timer Choices are 32, 64, 96, 128, 160, 192, 224, or 248.

PCI VGA Palette snoop This option should be set to *Enabled* when video cards, such as 3D accelerators and MPEG decoders, are used to allow a correct decoding of colors.

Allocate IRQ to PCI VGA	Choose either <i>Disabled</i> or <i>Enabled</i> depending on whether or not your VGA card requires an IRQ.
DMA Channel List	Each option on this list can be set to either <i>PnP</i> or <i>ISA/EISA</i> . Default is <i>PnP</i> . If you have an ISA card that requires a DMA channel, set it to <i>ISA/EISA</i> here.
IRQ List	Each option on this list can be set to either <i>PCI/PnP</i> or <i>ISA/EISA</i> . Default is <i>PnP</i> . If you have an ISA card that requires an IRQ, set it to <i>ISA/EISA</i> here.
Reserved Memory Size	Choose from the following settings: 16k, 32k, 64k, or Disabled.
Reserved Memory Address	Set the address through this option.

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 BIOS Defaults & Load Setup Defaults

These two items both set the BIOS settings back to their default values. The difference between the two is that *BIOS Defaults* loads the most conservative values, meaning that it is best to load the BIOS defaults whenever you are experiencing problems; on the other hand, *Setup Defaults* settings are optimized for speed and are usually the best settings to load.

Default settings can be loaded through choosing one of two items after which a message appears:

“Load SETUP Defaults (Y/N)?N”

OR

“Load BIOS Defaults (Y/N)?N”

Pressing <Enter> key will not load the defaults, you need to press Y and then <Enter> key to load the default values.

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.)

AMIBIOS SETUP - INTEGRATED PERIPHERALS (C)1997 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Auto	
OnBoard Serial PortA	Auto	
OnBoard Serial PortB	Auto	
Serial PortB Mode	N/A	
IR Duplex Mode	N/A	
IrDA Protocol	N/A	
IR Port Support	Disabled	
IR Mode Select	N/A	
IR Base Address Select	N/A	
IR IRQ Select	N/A	
IR DMA Select	N/A	
OnBoard Parallel Port	Auto	
Parallel Port Mode	ECP	
EPP Version	N/A	
Parallel Port IRQ	Auto	
Parallel Port DMA	Auto	
K/B Wake-up Function	N/A	
Mouse Wake-up Function	N/A	
OnBoard IDE	Both	
		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 select values. Modify selected fields using the PgUp/PgDn/+/- keys.

A short description of screen items follows:

- On Board FD** Auto: System detects the floppy drive automatically.
- Disabled: Disable the onboard floppy controller.

On Board Serial Port A	Auto: System detects the Serial Port A and assign an address to it automatically. Disabled: Disable the onboard floppy controller. The serial port address can also be chosen manually from the following: 3F8/COM1, 2F8/COM2, 3E8/COM3, 2E8/COM4.
On Board Serial Port B	Auto: System detects the Serial Port B automatically. Disabled: Disable the onboard floppy controller. The serial port address options are the same as those for serial port A, however, do not select the same address for both serial port A and B.
IR Port Support	Select either <i>Enabled</i> or <i>Disabled</i> . Set to <i>Enabled</i> when IR port options below needed to be changed.
IR Mode Select	Select from the following protocols: IrDA, ASK IR, FIR, or CIR.
IR Base Address Select	Select the Base Address from the following addresses: 3E8, 2E8, 3E0, or 2E0.
IR IRQ Select	Choose the IR port IRQ from : 3, 4, 9, 10, or 11.
IR DMA Select	Choose the DMA channel from: 0, 1, 3, or Disabled.

On Board Parallel Port	Choose from: Auto, Disabled, 378, 278, or 3BC. Auto: Set the parallel port to an IO address automatically. Disabled: Disable the onboard parallel port and the parallel port options below will not be available for change.
Parallel Port Mode	Choose from: Normal, Bi-Dir, EPP, or ECP.
EPP Version	If EPP is selected from the above option, choose either 1.7 or 1.9 version here.
Parallel Port IRQ	Choose either IRQ 5 or 7 for the parallel port.
Parallel Port DMA Channel	Choose either DMA channel 1 or 3 if appropriate.
K/B Wake Up Function	Set this option to <i>Enabled</i> to enable the Keyboard Wake Up function.
Mouse Wake-up Function	Set this option to <i>Enabled</i> to enable the Mouse Wake Up function.
Onboard IDE	Set this option to <i>Both</i> for normal use. If need to disable the onboard IDE controllers, choose from the following: Disabled, Primary (disable secondary), Secondary (disable primary).

Hardware Monitor

The hardware Monitor allows you to monitor your system variables, such as temperature, FAN speed, and voltages, all can be monitored through this page. There are no settings that can be changed on this page.

Supervisor Password

The main difference between the User and Supervisor Password is that the Supervisor Password allows access to all BIOS settings, however on

the other hand, the User Password offers only restricted access which means that the Chipset Features Setup, Power Management Setup, and PnP/PCI Configuration are all restricted for a user that entering the BIOS Setup by using only a User Password. The User Password is set to Disabled by default and only after defining a supervisor password the User Password can be defined. The following procedure shows you how to set or change a supervisor password:

1. Choose “SUPERVISOR PASSWORD” from the Main Menu and press <Enter>. If you have already defined a password, type in the password first in order to proceed. 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.

The User Password option is available only after setting the Supervisor password and the procedure of setting the User Password is done the same way as the Supervisor 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.

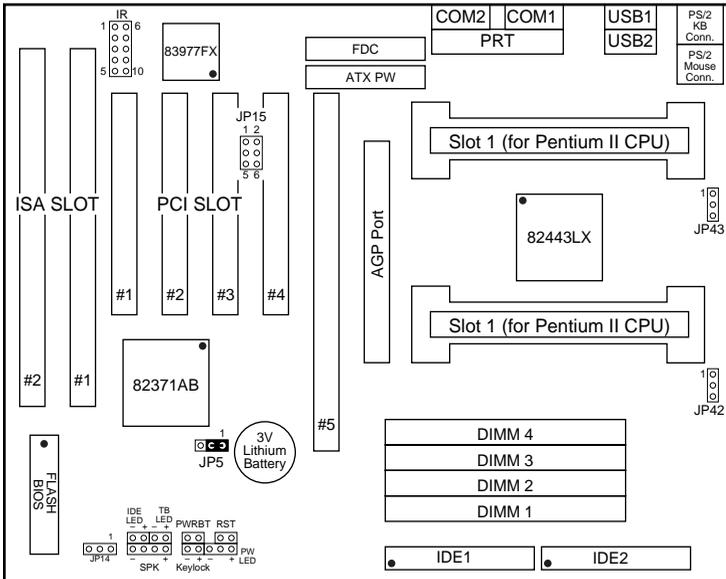
IDE HDD Auto Detection

Selecting this item will make the system automatically scan for all the IDE compatible devices, such as Harddisks and CD ROM drives, which are connected to the system. The correct settings will automatically be stored into Standard CMOS Setup and after finishing the auto detection process, the Standard CMOS Setup page is then displayed for the user to see the results.

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



Memory Configurations

	DIMM BANKS			
	DIMM1	DIMM2	DIMM3	DIMM4
RAM Type	FPM/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: J5		ATX Power Supply: JP15				CPU Cooling Fan: JP42 and JP43			
Retain CMOS data (default)	1-2	please insert the ATX power supply plug into this header.				pin function	1 GND	2 12V	3 sensor
Clear CMOS data	2-3	wake on LAN jumper: J14 Please connect the WOL cable from your LAN card to this jumper.				RST		IDE Led	
USB1 and 2		PRT		SPK		Keylock			
Connect your USB devices to these headers		printer cable header		Connect the cable of speakers to		Connect keyboard lock switch to this			
ATX Power Supply On/Off Switch: PWRBT				this jumper		jumper			
Connect your power switch to this jumper (momentary switct type).				IrDA (Infrared Devices Connector: IR (pin 6-10 reserved))		TB Led		PW Led	
pin	1	2	3	4	5	Connect your Turbo led to this		Connect the power led to this	
function	Vcc	FIRRXX	IRRXX	GND	IRTX	jumper.		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”.