AB52P

**Pentium 4/Celeron
478-pin Processor
Based MAIN BOARD**

User's Manual

Shuttle® AB52P

Pentium 4/Celeron , 478-pin processor based Mainboard
Manual Version 1.0

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M783

Statement of Shuttle Mainboard via the EMI Test

Shuttle mainboards have been via the EMI test in terms of series of regulations: EN55022/CISPR22/AS/NZS3548 Class B, EN55024 (1998/AS/NZS), EN4252.1 (1994), EN61000, ANSI C63.4 (1992), CFR47 Part 15 Subpart B, and CNS13438 (1997). The items tested are illustrated as follows:

(A) Voltage: AC 110V/60HZ & AC 230V/50HZ

(B) Tested Product Information:
      Product Name: PC Mainboard
      Status: Sample
      Model Name: AB52P
      S/N:
      CPU:
          External Frequency: 100 MHz
              Intel Pentium 4: 1.6GHz/1.8GHz/2.0GHz/2.2GHz/2.4GHz
          External Frequency: 133 MHz
              Intel Pentium 4: 2.26GHz/2.40GHz/2.53GHz/2.26GHz/2.80GHz/3.06GHz
      Keyboard Port: one port with 6 pins
      Mouse Port: one port with 6 pins
      USB Port: two ports with 4 pins respectively
      Parallel Port: one port with 25 pins
      Serial Port: two ports with 9 pins respectively
      MIDI/Game Port: one port with 15 pins
      Line-Out & Line-In & Mic-In Ports: one port for each
      DDR Memory: 128 MB *2

All CPUs have completely been tested, and values offered by the worst EMI combination of CPU external frequency are listed as follows:

Test Mode	External Frequency	CPU	Power Supply	Case Open/Closed
1	100MHz	Pentium4 2.4GHz	ENP-0730(ATX12V)	Closed
2	100MHz	Pentium4 2.4GHz	ENP-0730(ATX12V)	Open
3	133MHz	Pentium4 3.06GHz	ENP-0730(ATX12V)	Closed
4	133MHz	Pentium4 3.06GHz	ENP-0730(ATX12V)	Open

(C) Remedy for the Tested Product & Its EMI Interference:
      Remedy: N/A
      EMI Interference:
          Crystal: 32.768 KHz(X2)/14.318MHz(X1)/24.576MHz(X3)
          Clock Generator: CLK1

(D) Supported Host Peripherals:

Host Peripheral	Product Name	Model Name	FCC ID
#1	Genuine Chassis	IW-S500	
#2	Power Supply	Enhance (ENP-0730)	3872B443
#3	WD HDD	WD300-ATA100	3902B934
#4	Mitsumi FDD	D353M3	62007003
#5	ASUS CD-ROM Player	CD-S500/A	
#6	WINFAST VGA Card	ABB12276	3892C520

TABLE OF CONTENTS

WHAT'S IN THE MANUAL

1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the 3.1 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle AB52P mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle AB52P mainboard. You will find that installing your new Shuttle AB52P mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated AB52P mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections 3.2 Jumper Settings and Chapter 4 Drivers/Software Utilities to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains the relevant information on how to tune up your system to achieve higher performance.

System Integrator

You have wisely chosen Shuttle AB52P to construct your system. Shuttle AB52P incorporates all the state-of-the-art technology of the Brookdale chipset from Intel. It integrates the most advanced functions you can find to date in a compact ATX board.

1.2 Item Checklist

Check all items with you AB52P mainboard to make sure nothing is missing. The complete package should include:

✱ One piece of Shuttle AB52P Mainboard
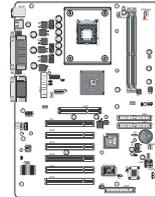
✱ One piece of ATA 100/66/33 Ribbon Cable

✱ One piece of Floppy Ribbon Cable

✱ One piece of twin ports USB Cable (optional)
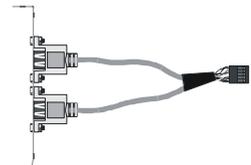
✱ AB52P User's Manual

✱ One piece of Bundled CD-ROM with containing:
- ➢ AB52P user's manual saved in PDF format
- ➢ Intel Chipset System Driver
- ➢ IDE driver
- ➢ Audio driver
- ➢ USB2.0 driver
- ➢ Award Flashing Utility

2 FEATURES

AB52P mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

2.1 Specifications

✶ CPU Support

Intel Pentium 4/Celeron, 478-pin processors with 400/533 MHz FSB.

✶ Chipset

Features Intel i82845 (MCH) N.B. and Intel 82801BA (ICH2) S.B..

✶ CPU FSB Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100MHz to 133MHz).

✶ On Board Channel Hardware Audio Controller

The AC' 97 Audio codec is compliant with the AC'97 2.2 specification, and supports 18-bit ADC(Analog Digital Converter) and DAC(Digital Analog Converter) resolution as well as 18-bit stereo full-duplex codec with independent and variable sampling rates.

✶ Versatile Memory Support

This mainboard can accommodate 2.5V DDR SDRAM. It accommodates two unbuffered 2.5V 184 pin slots to support to 2GB of PC 1600, PC2100 or PC2700 compliant DDR SDRAM module.

✶ Expansion Slots

Provides one 32-bit AGP slot which supports 4X AGP devices.(support 1.5V only)
Provides six 32-bit PCI slots.

✶ 4 USB 2.0 Interface Onboard

2 X USB connectors on back-panel and one sets of dual USB ports headers on mid-board.

✶ I/O Interface

Provides a variety of I/O interfaces:

➤ 1 X Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, or 2.88MB format or for 5.25-inch FDD with 360K or 1.2MB format.
➤ 1 X PS/2 mouse connector.

- ➢ 1 X PS/2 Keyboard connector.
- ➢ 2 X USB ports.
- ➢ 2 X DB9 Serial connectors 16550 UART compatible.
- ➢ 1 X DB25 Parallel port supports Standard Parallel Port and Bi-directional (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) data transmission schemes.
- ➢ 1 X Line-Out port. (share with Front-out port)
- ➢ 1 X Line-In port. (share with Rear-out port)
- ➢ 1 X Mic-In port. (share with Center/Bass port)
- ➢ 1 X MIDI/GAME port.

✹ PCI Bus Master IDE Controller Onboard

Two Ultra DMA 100/66/33 Bus Master Dual-channel IDE ports provide support to a maximum of four IDE devices (one Master and one Slave per channel). The IDE Bus implements data transfer speeds of up to 100/66/33 MB/sec and also supports Enhanced PIO Modes.

80-pin Cable Backward Compatible Legacy ATAPI Devices, ATAPI IDE CD-ROM, CD-R, CD-RW, and LS-120 Supports.

✹ ATX Power Supply Connector

ATX power supply unit can connected to the onboard 20-pin Pentium 4 standard ATX power connectors, supporting Suspend and Soft-On/Off by dual-function power button.

✹ System BIOS

Provides licensed Award BIOS V6.0 PG on Intel Firmware Hub 2Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

✹ ATX Form Factor

System board conforms to ATX specification.
Board dimension: 305mm X 220mm.

✹ Advanced Features

- ➢ Low EMI - Built in spread spectrum and automatic clock shut-off of unused PCI/DDR-SDRAMS slots to reduce EMI.
- ➢ Dual Function Power Button - The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode. When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.

➢ Modem Ring Power-On - The system can be powered on automatically by the activation of modem ringing.

➢ CPU Clock Setting - This item allows users to adjust CPU Host Clock in BIOS.

➢ CPU Multiplier Setting - This item allows users to adjust CPU Multiplier in BIOS.

✸ Intelligent Features

➢ Voltage Monitoring - Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through mainboard components. System voltages include CPU Vcore, +3.3v, +5V, +12V, Battery on system etc.

➢ Fan Status Monitoring - To prevent CPU from overheating, the CPU fan is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required.)

➢ Temperature Monitoring - This item allows users to make sure whether the CPU or system runs in a suitable temperature.

3 HARDWARE INSTALLATION

Before removing or installing any of these devices including CPU, DIMMs, Add-On Cards, Cables, please make sure to unplug the onboard power connector.

This section outlines how to install and configure your mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of AB52P
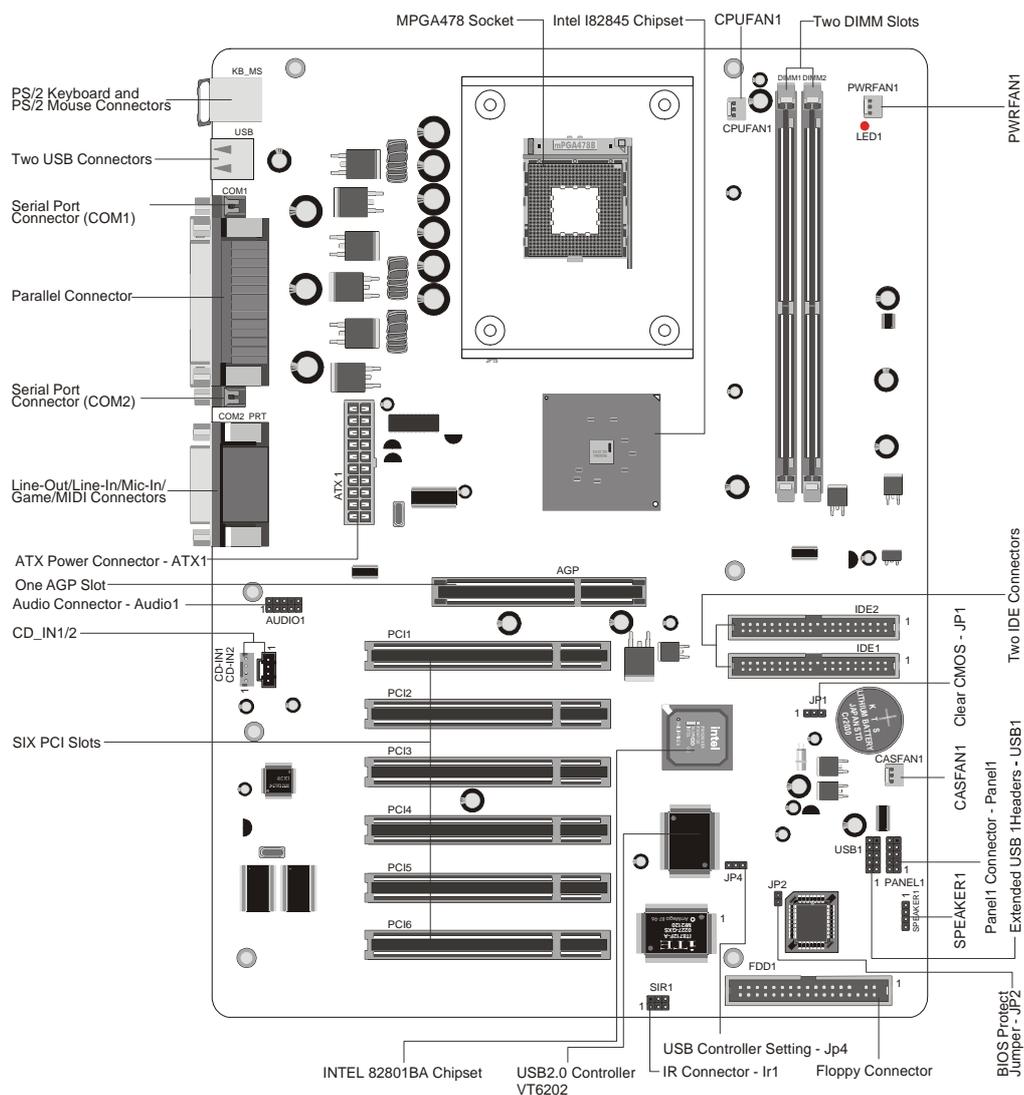
Step 1

CPU Installation:

This mainboard supports Intel Pentium 4/Celeron , Socket 478 series CPU. Please follow the step as below to finish CPU installation.

Be careful of CPU orientation when you plug it into CPU socket.

1. Pull up the CPU socket lever and up to 90-degree angle.

CPU socket lever up to 90 degree
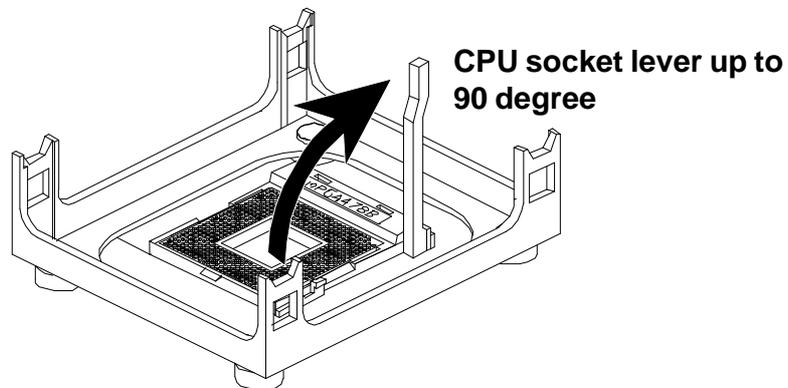
2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.

CPU pin 1 and cut edge
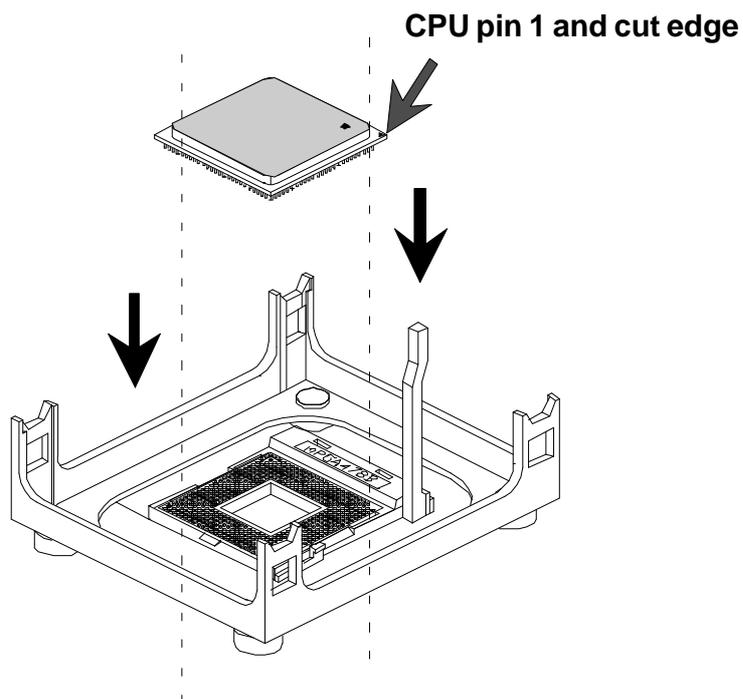
3. Press down the CPU socket lever and finish CPU installation.
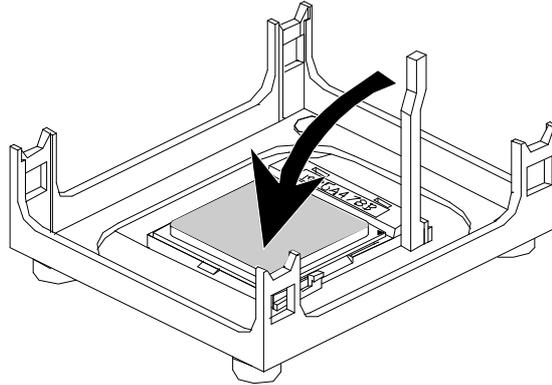
> Note: If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU.

4. The Intel Pentium 4/Celeron processor requires a set of heatsink/fan to en sure proper cooling of the processor. If heatsink/fan have not been already bundled with your CPU, you must purchase the heatsink/fan separately and have it installed. Plug the cable through the heatsink/fan in the CPU fan power connector located nearby. Note that there are several types of CPU fan connectors. Normally, if your mainboard supports the hard ware moni toring function, a 3-pin fan power connector should allow your system to detect the CPU fan's speed. The CPU fan can also run with a 2-pin fan power connector, however, detection of CPU fan's speed is not supported. Another type of CPU fan may feature a large 4-pin fan power connector, which does not support CPU fan's speed detection and must be directly connected to the system's power supply unit.

Step 2.

Set Jumpers

This mainboard is jumperless! The default jumper settings have been set for the common usage standard of this mainboard. Therefore, you do not need to reset the jumpers unless you require special adjustments as any of the following cases:

1. Clear CMOS
2. BIOS Protect
3. USB 2.0 Controller Setting

For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their system, section 3.2 Jumper Settings will provide detailed information on how to configure your mainboard manually.

Step 3

Install DDR SDRAM System Memory

To install memory, insert DDR-SDRAM memory module(s) in any one or two DIMM banks. Note that SDRAM modules are directional and will not go in the DIMM banks if they are not properly oriented. After the module is fully inserted into the DIMM bank, lift the clips of both sides of the DIMM bank to lock the module in place.
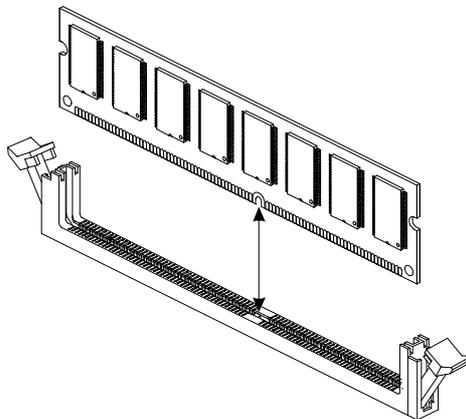
Step 4

Install Internal Peripherals in System Case

Before you install and connect the mainboard into your system case, we recommend that you first assemble all the internal peripheral devices into the computer housing, including but not limited to the hard disk drive (IDE/ HDD), floppy disk drive (FDD), CD-ROM drive, and ATX power supply unit. This will greatly facilitate in making the connections to the mainboard described below.

To install IDE & FDD drives, follow this procedure:

1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM, have to set jumpers to Master or Slave mode depending on whether you install more than one device of each kind.)

2. Connect IDE cable and FDD cable on the back-panel of the internal peripheral devices to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.

3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

Step 5

Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose correct mounting holes, the key point is to keep the back-panel of the mainboard in a close fit with your system case, as shown below.
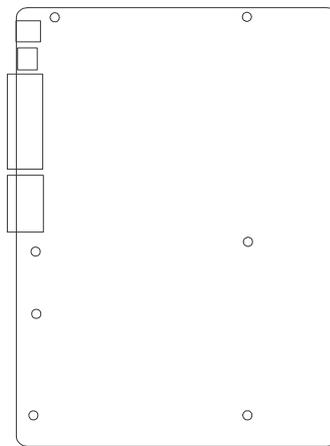
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical shorts between the board and the metal frame of the chassis. (If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

Note: In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and then fix the mainboard. If there aren't enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

Step 6

Connect Front Panel Switches

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDD LED, Power LED, Reset Switch, PC Speaker devices etc.) These cables serve to connect the front-panel switches to the mainboard's front-panel connectors group, as shown below.
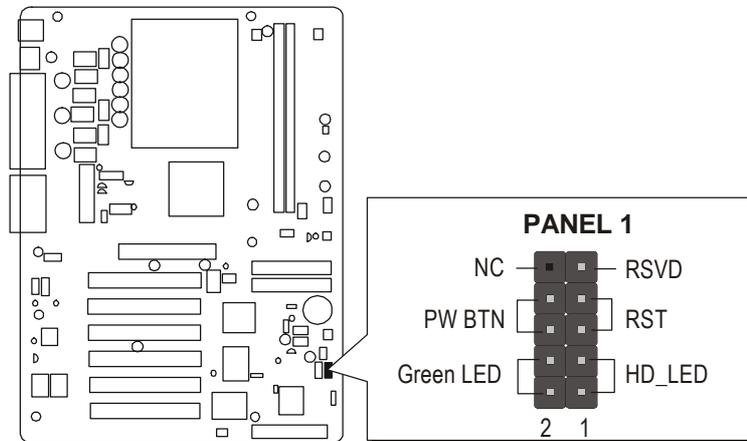
PANEL1

1. HD_LED
2. RST
3. Green LED
4. PW BTN
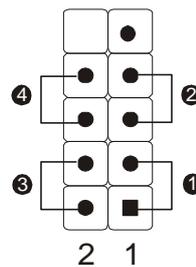
Step 7

Connect IDE and Floppy Disk Drives

1. IDE cable connector
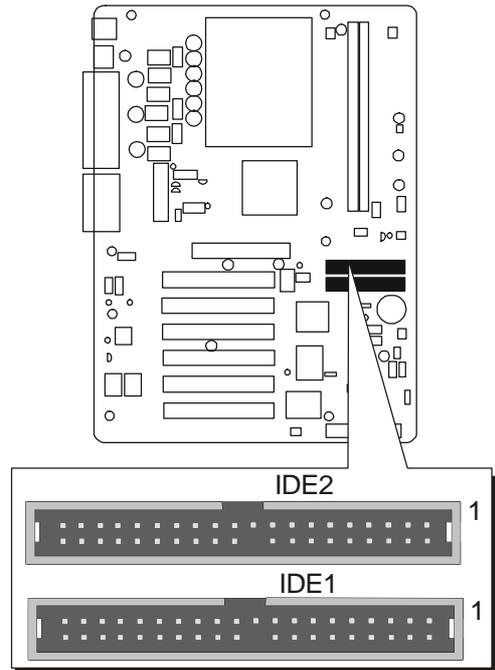
2. Floppy cable connector
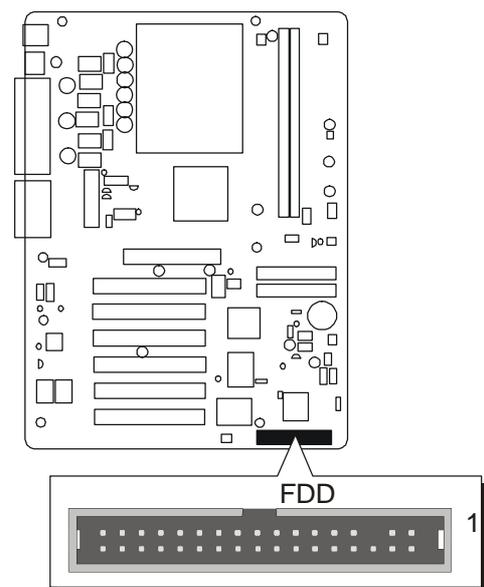
Step 8

Connect Other Internal Peripherals

1. CD-IN connectors
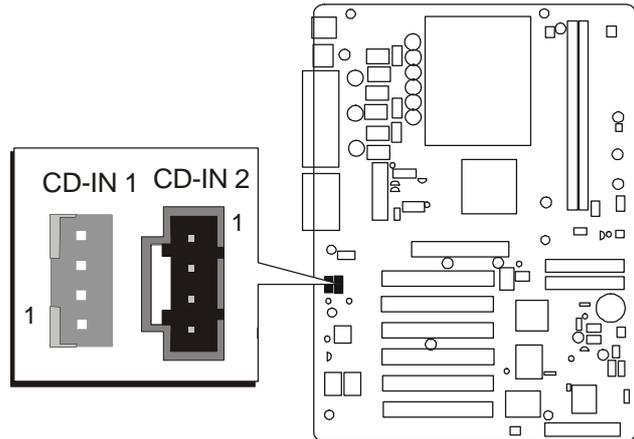
2. IR header
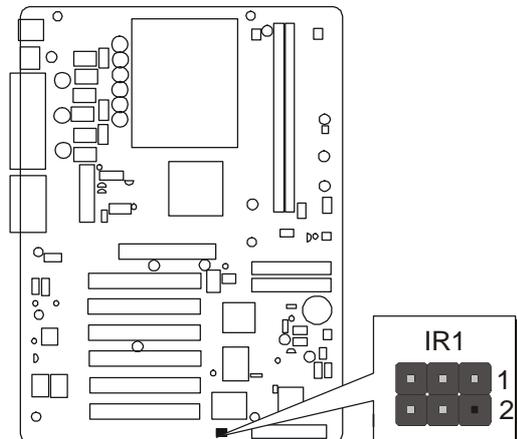
3. Extended USB header
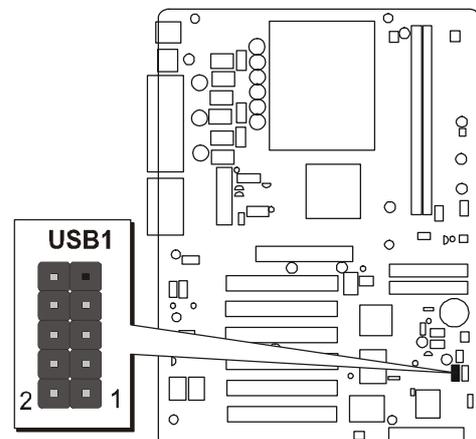
4. Speaker connector

SPEAKER 1
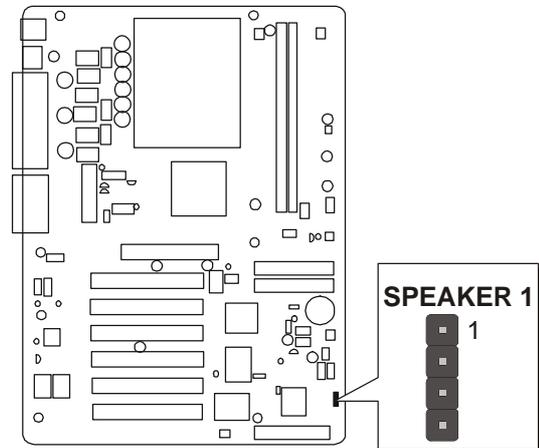
5. Audio connector

AUDIO1
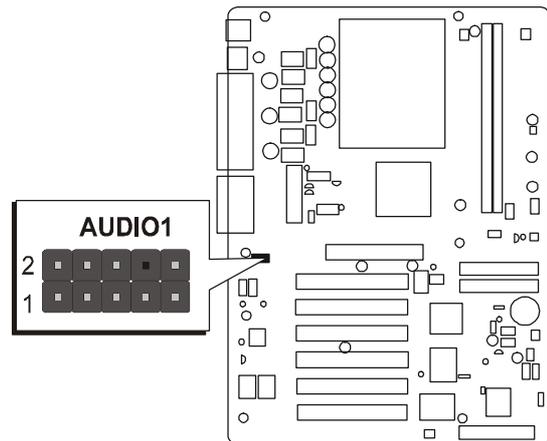
Step 9

Connect the Power Supply

1. System power connector

ATX 1
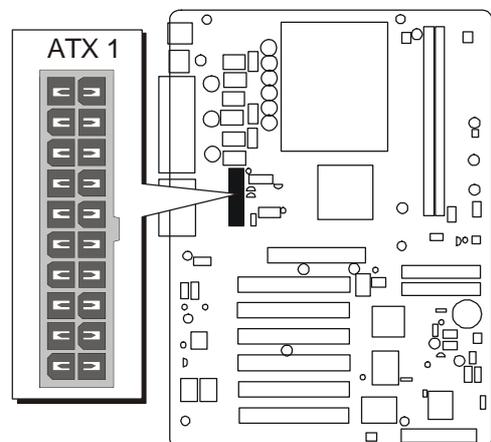
Step 10

Install Add-on Cards in Expansion Slots

1. Accelerated Graphics Port (AGP) Card
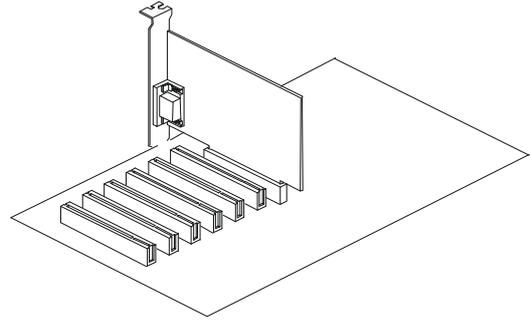
2. PCI Card
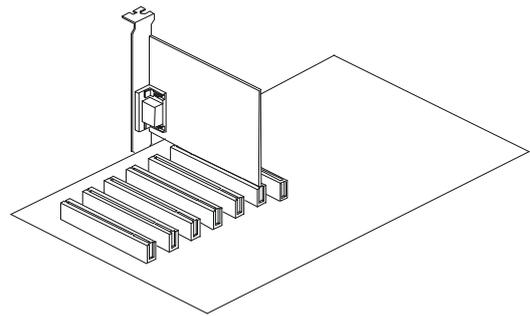
Step 11

Connect External Peripherals to Back-Panel

You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back-panel.
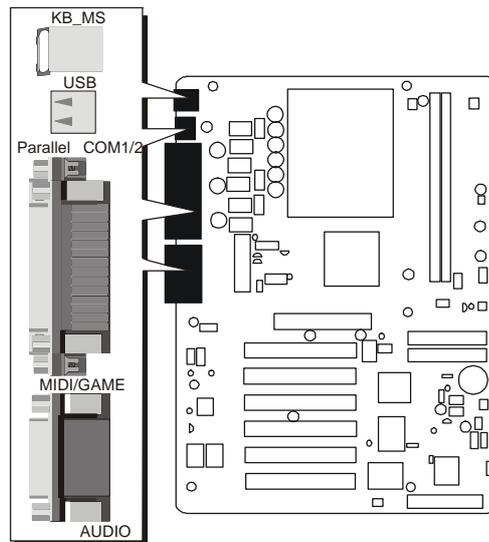
1. PS/2 Mouse and PS/2 Keyboard
2. USB Ports
3. Parallel Port
4. COM Ports
5. MIDI/GAME Port
6. Audio Line-Out /Line-In/Mic-In Ports
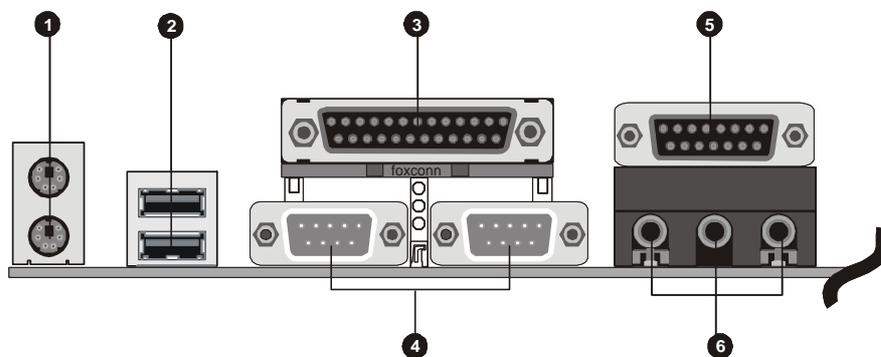
Step 12

First Time System Boot Up

To assure the completeness and correctness of your system installation, you may check the above installation steps once again before you boot up your system for the first time.

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.

2. Turn on the system power.

3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available to the extended partition. The FDISK utility will assign a drive letter (i.e., C:, D:, E:,...) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

> Note: DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only install your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you've created. When formatting the primary partition (C:), make sure to use the FORMAT C: /S command.

> Note: FORMAT C: /S can transfer all the necessary system files into the primary partition of your hard disk. Then, your HDD will become a bootable drive.

5. Install all the necessary drivers for CD-ROM, Mouse, etc.

6. Setup the complete operating system according to your OS installation guide.

Step 13

Install Drivers & Software Components

Please note that all the system utilities and drivers are designed for Win 9x/2000/ME/NT operating systems only. Make sure your operating system is already installed before running the drivers installation CD-ROM programs.

1. Insert the AB52P bundled CD-ROM into your CD-ROM drive. The auto-run program will display the drivers main installation window on screen.
2. Select the "Install Mainboard Software" bar to run into sub-menu.
3. Choose "Install Intel Chipset Driver" and complete it.
4. Choose "Install Intel Ultra ATA Driver" and complete it.
5. Choose "Install Audio Driver" and complete it.
6. Choose "Install USB2.0 Driver" and complete it.
7. Return to the main installation window and exit from the auto-run drivers installation program.

3.2 Jumper Settings

Several hardware settings are made through the use of mini jumpers to connect jumper pins on the mainboard. Pin #1 could be located at any corner of each jumper, you just find the location with a white right angle which stands for pin 1#. There are several types of pin 1# shown as below:

3-pin and multi (＞3) pin jumpers shown as following:
Pin #1 to the left:

1 ■ ■ ■

1 ■ ■ ■ ■

Pin #1 on the top:

1 ■
■
■

Pin #1 to the right:

■ ■ ■ 1

Pin #1 on the bottom:

■
■
1 ■

Jumpers with two pins are shown as ▬▬ for Close [On] or ■ ● for Open [Off]. To Short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

Caution!
1. Do not remove the mainboard from its antistatic protective packaging until you are ready to install it.
2. Carefully hold the mainboard by its edges and avoid touching its components. When putting the mainboard down, place it on top of its original packaging film, on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent electrostatic discharge (ESD) whenever handling this equipment.

Jumpers & Connectors Guide

Use the mainboard layout on page 10 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:
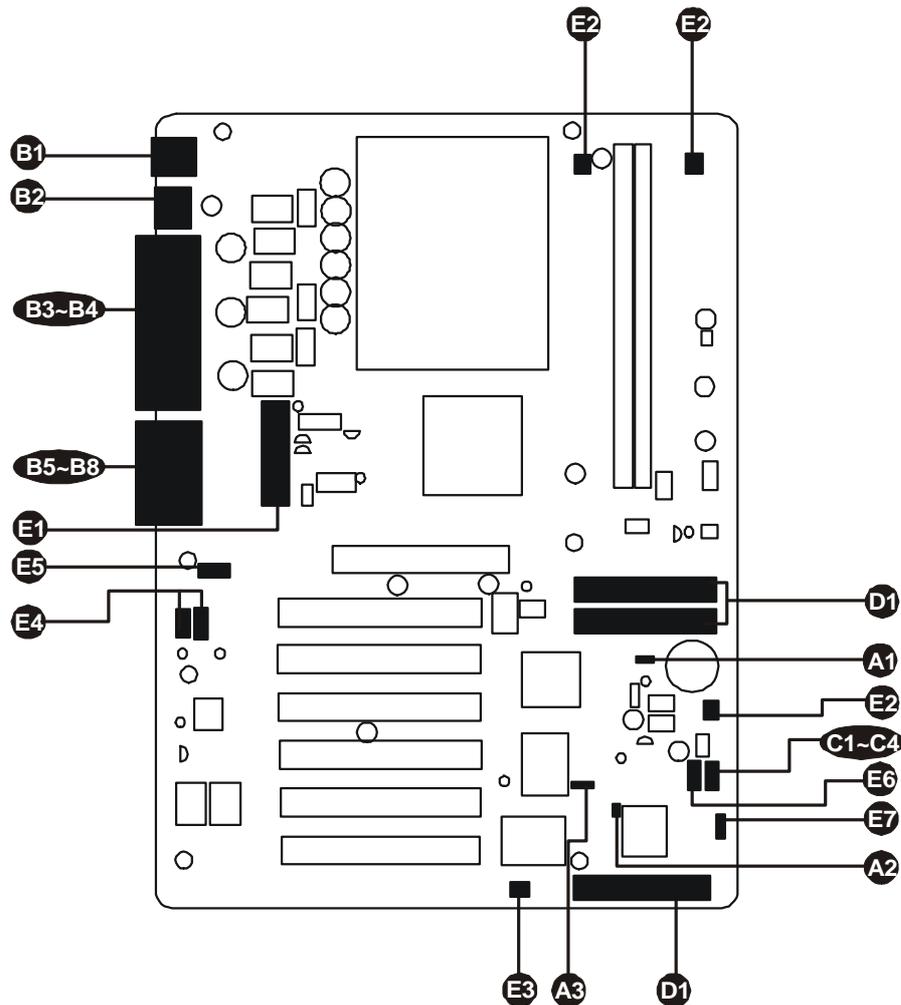
CPU/Memory/Expansion Slots

Socket478　　　　　: CPU Socket for Pentium 4/Celeron processors

DIMM1/2　　　　　: Two DIMM Slots for 128, 256, 512 MB, and 1GB of
　　　　　　　　　　 2.5V DDR SDRAM
　　　　　　　　　　 (The total installed memory does not exceed 2GB)

AGP　　　　　　　: One4 X AGP (Accelerated Graphics Port) Slot

PCI　　　　　　　: Six 32-bit PCI Expansion Slots

Jumpers

(A1) JP1 : Clear CMOS setting

(A2) JP2 : BIOS flash protect jumper

(A3) JP4 : Disable USB Function jumper

Back Panel Connectors

(B1) KB : PS/2 keyboard port

(B1) MS : PS/2 mouse port

(B2) USB : 2 USB (Universal Serial Bus) ports

(B3) LPT1 : Parallel port (DB25 female)

(B4) COM1/2 : Serial ports 1/2 (DB9 male)

(B5) GAME/MIDI : GAME/MIDI Port

(B6) LINE_OUT : Line-Out (Front-Out) port

(B7) LINE_IN : Line-In (Rear-Out) port

(B8) MIC_IN : Mic-In port

Front Panel Connectors

(C1) HDD_LED : IDE drive active LED

(C2) RST : Hardware reset switch

(C3) Green LED : Green LED

(C4) PW BTN : ATX power on/off momentary type switch

Internal Peripherals Connectors

(D1) FDD1 : Floppy disk drive interface

(D1) IDE1 : IDE primary interface (Dual-channel)

(D1) IDE2 : IDE secondary interface (Dual-channel)

Other Connectors

(E1) ATX1 : ATX power connector

(E2) FAN1/2/3 : CPUFAN1/PWRFAN1/CASFAN1 connectors

(E3) IR1 : IR header

(E4) CD_IN1/2 : CD_IN connectors

(E5) AUDIO1 : Audio headers

(E6) USB1 : Extended USB header

(E7) SPEAKER1 : Internal speaker in housing

☞ *Jumpers*

Ⓐ❶ Clear CMOS Setting (JP1)

JP1 is used to clear CMOS data. Clearing CMOS will result in the permanently erasing previous system configuration settings and the restoring original (factory-set) system settings.

1
 Pin 1-2 (Default)

1
 Pin 2-3 (Clear CMOS)
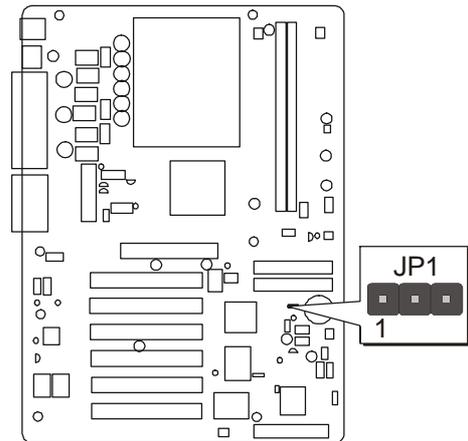
Step 1. Turn off the system power (PC-> Off).

Step 2. Remove ATX Power cable from ATX Power connector.

Step 3. Remove jumper cap from JP1 pins 1-2.

Step 4. Place the jumper cap on JP1 pin 2-3 for a few seconds.

Step 5. Return the jumper cap to pin 1-2.

Step 6. Plug ATX Power cable into ATX Power connector.

Step 7. Turn on the system power (PC-> On).

Ⓐ❷ BIOS Flash Protection Setting (JP2)

JP2 is used to protect the BIOS from being unintentionally flashed. Short this jumper for protection and open this jumper when you want to flash the BIOS.

 Open: Flash enabled

 Short: Flash protect
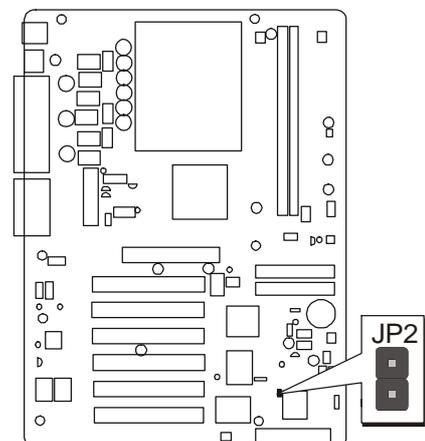
Ⓐ USB 2.0 Function Setting (JP4)

Use this jumper to enable or disable the onboard USB 2.0 function.

1

Pin 1-2 (Enable USB2.0
function)

1

Pin 2-3 (Disabled)

JP4

1
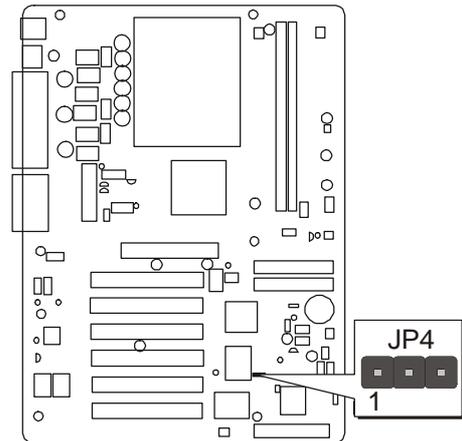
☞ *Back-Panel Connectors*

B1 PS/2 Keyboard & PS/2 Mouse Connectors

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a tower where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 keyboard and mouse jacks into their corresponding connectors.

PS/2 Mouse

PS/2 keyboard
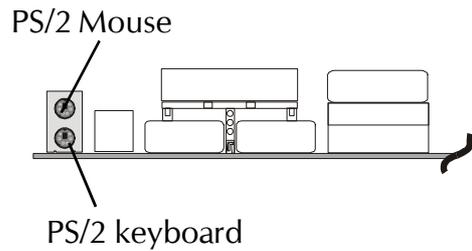
B2 USB1/USB2 Port Connectors

This mainboard offers 2 USB ports on back panel. Plug each USB device jack into an available USB1/USB2 connector.

USB Port 2

USB Port 1
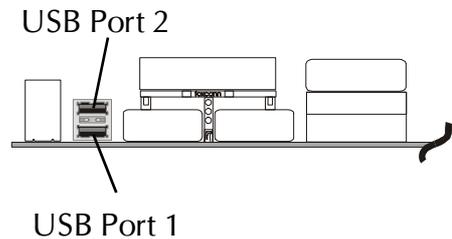
B3 Parallel Port Connector

One DB25 female parallel connector is located at the rear panel of the mainboard.

Plug the connection cable from your parallel device (printer, scanner, etc.) into this connector.

Parallel Port
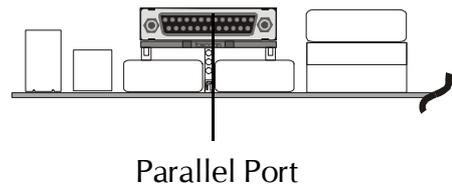
B4 COM1/2 Port Connectors

This mainboard can accommodate two serial device on COM1/2. Attach a serial device cable to the DB9 serial port COM1/2 at the back panel of your computer.

COM1 Port   COM2 Port
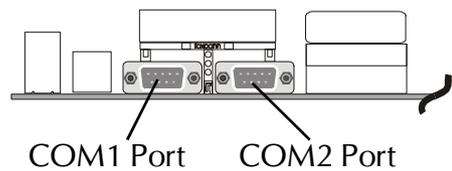
B5 MIDI/GAME Port Connector

The MIDI/GAME port is a 15-pin female connector. This port can be connected to any IBM PC compatible game with a 15-pin D-sub connector.

MIDI/GAME Port
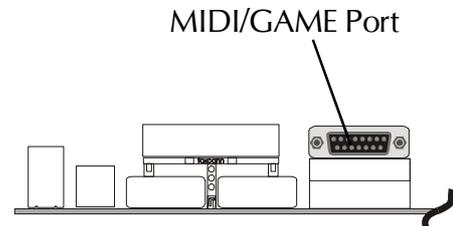
MIDI Instrument Connection
You will need a MIDI adapter to connect a MIDI compatible instrument to the sound card. The MIDI adapter can in turn be connected to the Joystick/MIDI port. You will also need the MIDI sequencing software to run MIDI instruments with your computer etc. into this connector.

**B6 Line-Out Port Connector
(share with Front-out port)**

Line-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers

Line-Out
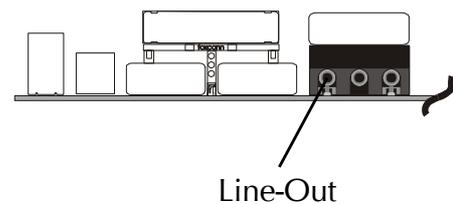
**B7 Line-In Port Connector
(share with Rear-out port)**

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.

Line-In
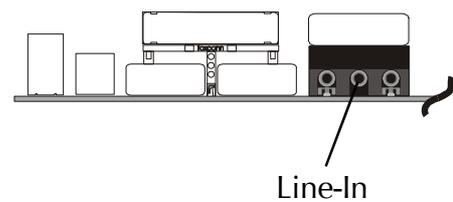
**B8 Mic-In Port Connector
(share with Center/Bass port)**

Mic-In is a 1/8-inch jack that provides a mono input. It can use a dynamic mono or stereo microphone with a resistance of not more than 600 Ohms.

Mic-in
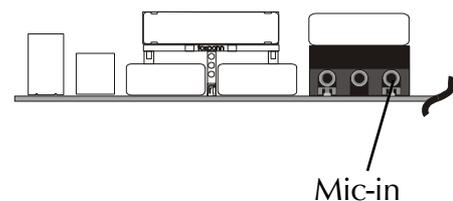
☞ *Front-Panel Connectors*

❶ **HDD LED Connector (HD_LED)**

Attach the connector cable from the IDE device LED to the 2-pin (HD_LED) header. The HDD LED lights up whenever an IDE device is active.
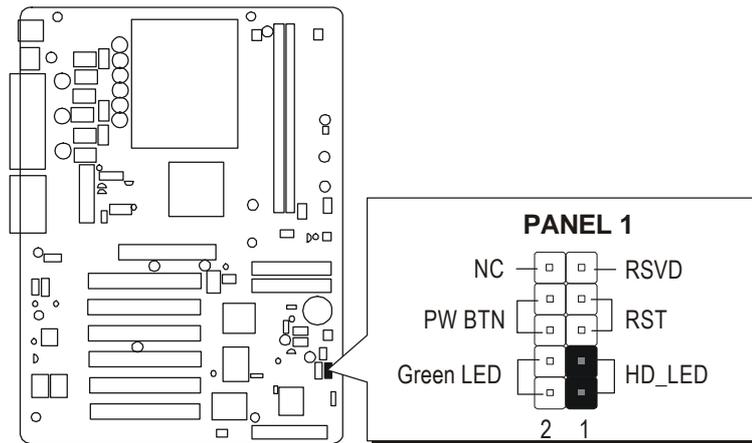
Note: Please notice all the LED connectors are directional. If your chassis's LED does not light up during running, please simply change to the opposite direction.

❷ **Hardware Reset Connector (RST)**

Attach the 2-pin hardware reset switch cable to the (RST) header. Pressing the reset switch causes the system to restart.
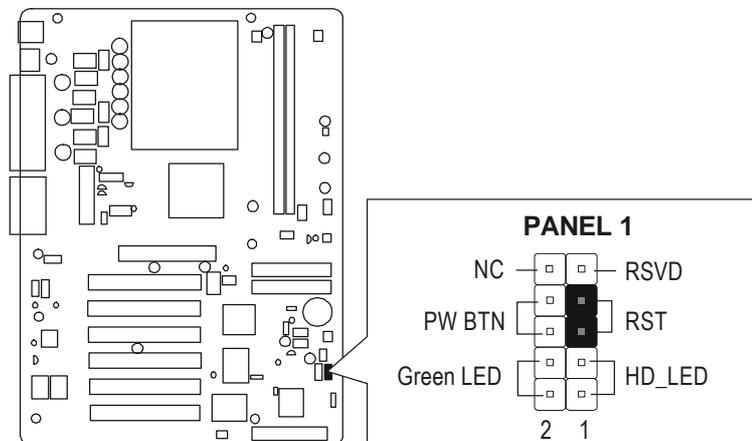
☎ Green LED Connector (Green_LED)

The Green-LED(Green_LED) indicates that the system is currently in one of the power saving mode(Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off. Attach a 2-pin Green LED cable to Green LED header.
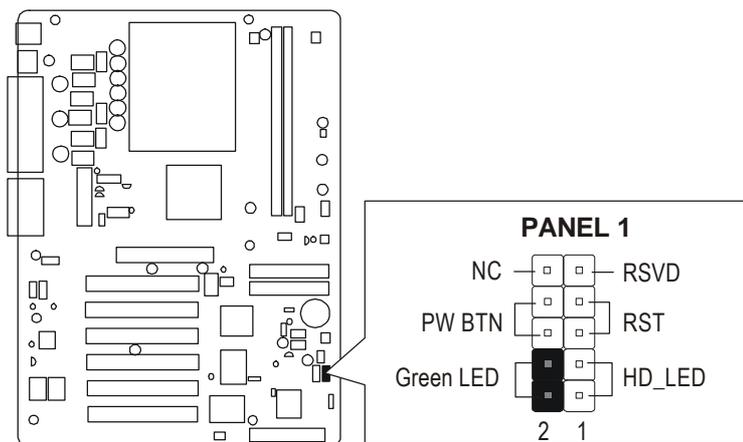
☎ ATX Power On/Off Switch Connector (PW_BTN)

The Power On/Off Switch is a momentary type switch used for turning on or off the system ATX power supply. Attach the connector cable from the Power Switch to the 2-pin (PW_BTN) header on the mainboard.
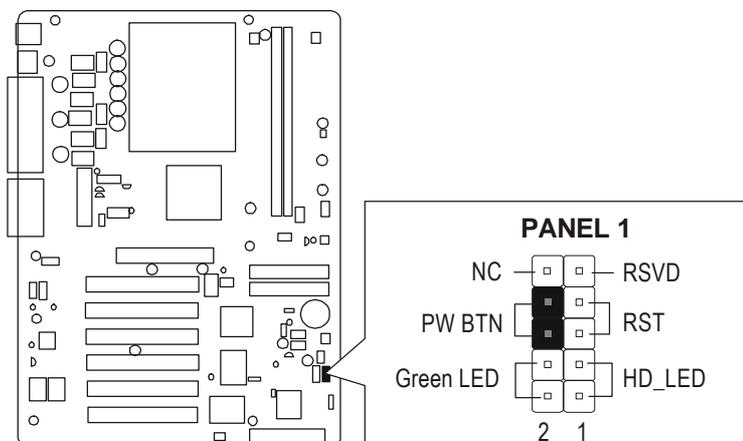
) *Internal Peripherals Connectors*

D1 Enhanced IDE and Floppy Connectors

The mainboard features two 40-pin dual-channel IDE device connectors (IDE1/IDE2) providing support for up to four IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.).

This mainboard also includes one 34-pin floppy disk controller (FDD1) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA 100/66/33 ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.
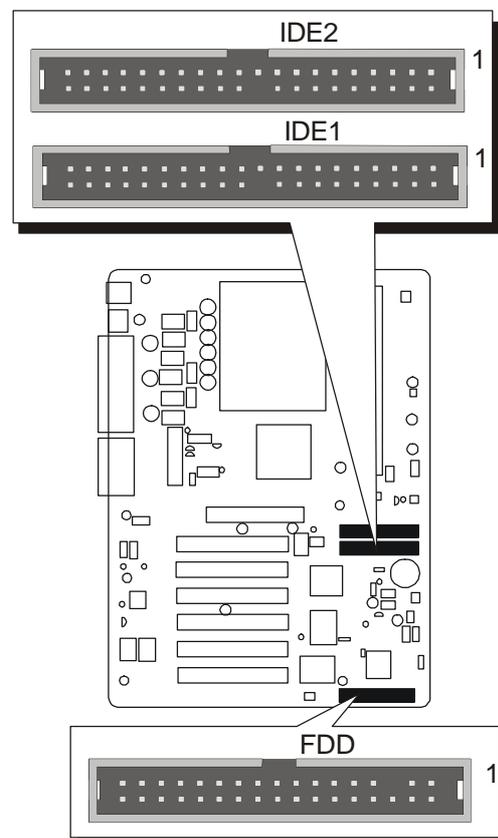
Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable.

☞ *Other Connectors*

㉛ ATX Power Supply Connector (ATX1)

This motherboard uses 20-pin Pentium 4 standard ATX power header ATX1.
Please make sure you plug in the right direction.

ATX1
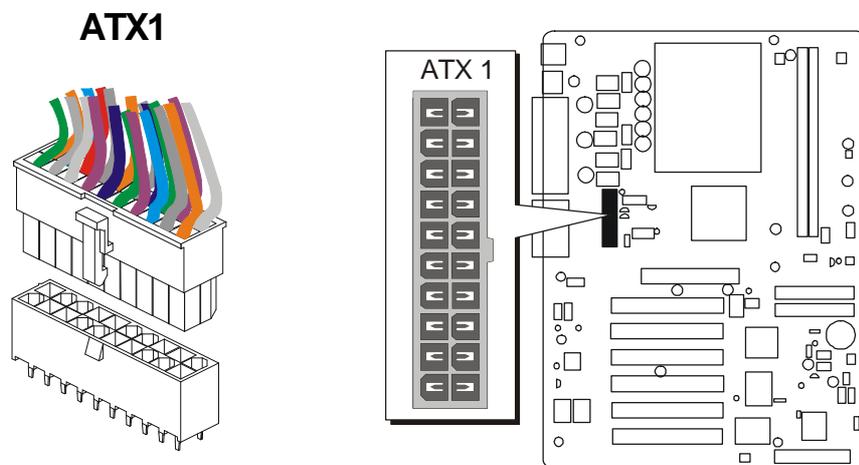
Note 1: The ATX power connector is directional and will not go in unless the guides
match perfectly making sure that pin#1 is properly positioned.

Note 2: Make sure the latch of the ATX power connector clicks into place to ensure a
solid attachment.

Note 3: Your ATX power supply must be supplied to ACPI + 5V standby power and
at least 720mA compatible.

Note 4: Make sure your power supply have enough power for higher speed processor
installed.

🄲 CPU, CAS, and PWR Fan connectors (CPUFAN1/CASFAN1/ PWRFAN1)

The mainboard provides four onboard 12V cooling fan power connectors to support CPU(CPUFAN1) , CAS(CASFAN1) and PWR(PWRFAN1) cooling fans.

GND   +12V   SENSE

1

PWRFAN1

CPUFAN1

CASFAN1
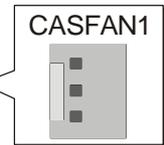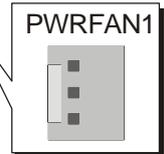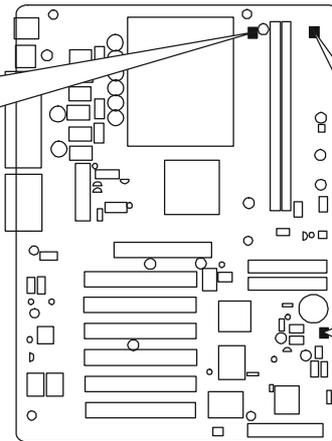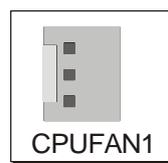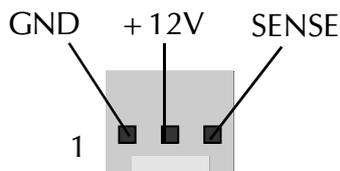
Note:
Both cable wiring and type of plug may vary , which depends on the fan maker. Keep in mind that the red wire should always be connected to the +12V header and the black wire to the ground (GND) header.

🄳 IR Header (IR1)

If you have an Infrared device, this mainboard can implement IR transfer function. To enable the IR transfer function, follow these steps:

Pins Assignment:
1 = Not assigned
2 = KEY
3 = +5V
4 = GND
5 = IRTX
6 = IRRX

IR1
1
2
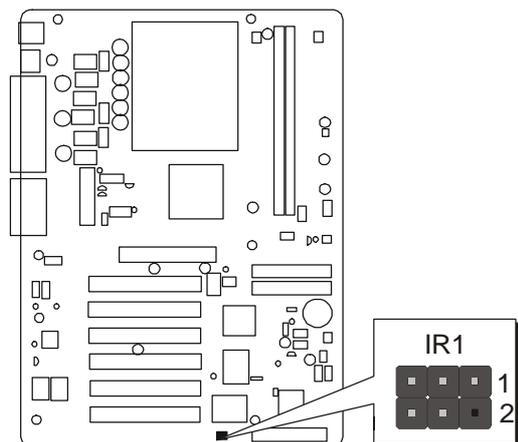
Note: Before connect your IR device, please be sure each IR on board pin allocation is matchable with the pin of the IR device. Otherwise, incorrect IR connection may do damage to your IR device.

Step 1.   Attach the 6-pin infrared device cable to SIR1.
               (Refer to the above diagram for IR pin assignment.)
Step 2.   This mainboard support IrDA, or Normal transfer modes.

E4 CD_IN Connectors (CD_IN1/2)

Port CD_IN1/2 is used to attach an audio connector cable from the CD-ROM drive.

CD-IN 1 CD-IN 2
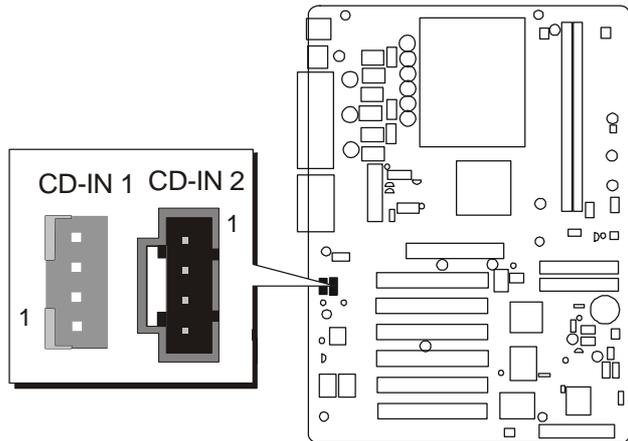
E5 Audio Connector (Audio1)

This header allows the user to install auxiliary front-oriented micorophone and line-out ports for easier access. Either the Front-oriented AUDIO1 or the Mic and Line-out connector on back panel are available at the same time. If you would like to use AUDIO1 on front panel, please remove all jumpers from it and install yours special extrac Mic/Line-out cable instead.
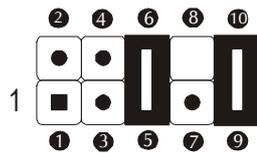
Two mini jumpers must be setted on pin 5-6 and pin 9-10, when this header is not used.

AUDIO1
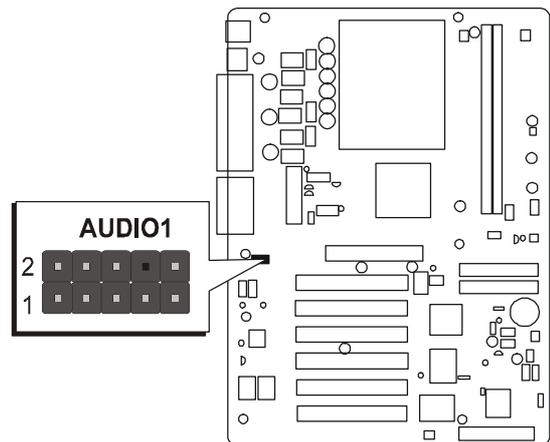
Pin Assignments:

1 = AUD_MIC	2 = AUD_GND
3 = AUD_MIC_BIAS	4 = AUD_VCC
5 = AUD_FPOUT_R	6 = AUD_RET_R
7 = HP_ON	8 = KEY
9 = AUD_FPOUT_L	10 = AUD_RET_L

E6 **Extended USB Header (USB1)**

The headers are used to connect the cable attached to USB connectors which are mounted on front panel or back panel. But the USB cable is optional at the time of purchase.
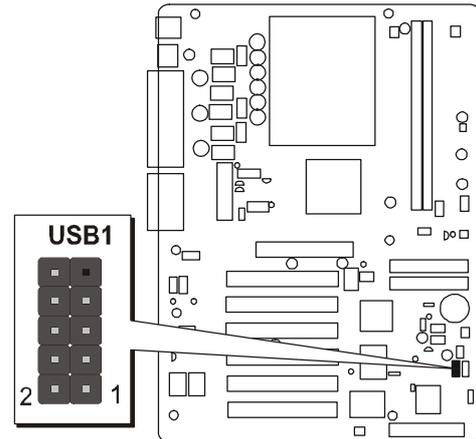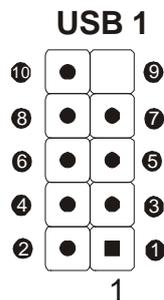
Pins Assignment:

1 = VREG_FP_USBPWR0	2 = VREG_FP_USBPWR0
3 = USB_FP_P0-	4 = USB_FP_P1-
5 = USB_FP_P0+	6 = USB_FP_P1+
7 = GND	8 = GND
9 = KEY	10 = USB_FP_OC0

E7 **Speaker Connector (SPEAKER1)**

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPEAKER1).
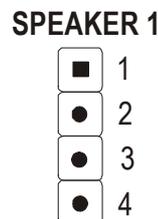
Pins Assignment:

1 = Signal
2 = B_Z
3 = N/C
4 = VCC
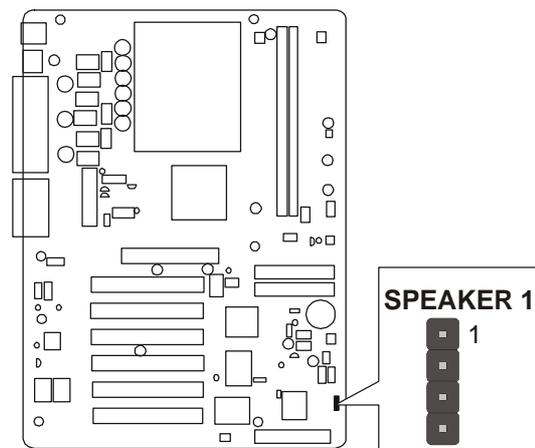
3.3 System Memory Configuration

The AB52P mainboard has two 184-pin DIMM banks that allow you to install from 128MB up to 1GB of system memory.

Each 184-pin DIMM (Dual In-line Memory Module) bank can accommodate, 128MB, 256MB, 512MB, and 1GB of PC1600/PC2100/PC2700 compliant 2.5V single or double side unbuffered with or without ECC DDR SDRAM modules. DIMM slots are arranged in two banks, each memory bank made of one bank and providing a 64-bit wide data path.

1. Install Memory:

Install memory in any or all of the banks. The combination shown as follows.

DIMM Socket	Memory Modules	Module Quantity
DIMM 1	128MB, 256MB, 512MB, and 1GB, 184-pin 2.5V DDR SDRAM DIMM	x 1
DIMM 2	128MB, 256MB, 512MB, and 1GB, 184-pin 2.5V DDR SDRAM DIMM	x 1

Maximum installed memory is 2GB.

Note: You do not need to set any jumper to configure memory since the BIOS utility can detect the system memory automatically. You can check the total system memory value in the BIOS Standard CMOS Setup menu.

2. Upgrade Memory:

You can easily upgrade the system memory by inserting additional DDR SDRAM modules in available DIMM banks. The total system memory is calculated by simply adding up the memory in all DIMM banks After upgrade, the new system memory value will automatically be computed and displayed in the field "Standard CMOS Setup" of BIOS setup program.

4 SOFTWARE UTILITY

4.1 Mainboard CD Overview

Note: The CD contents attached in AB52P mainboard are subject to change without notice.

To start your mainboard CD disc, just insert it into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

Navigation Bar Description:

☞ Install Mainboard AB52P Software - Installing Intel chipset, Ultral ATA , Audio, and USB2.0 drivers.

☞ Manual - AB52P Series mainboard user's manual in PDF format.

☞ Link to Shuttle Homepage - Link to shuttle website homepage.

☞ Browse this CD - Allows you to see contents of this CD.

☞ Quit - Close this CD.
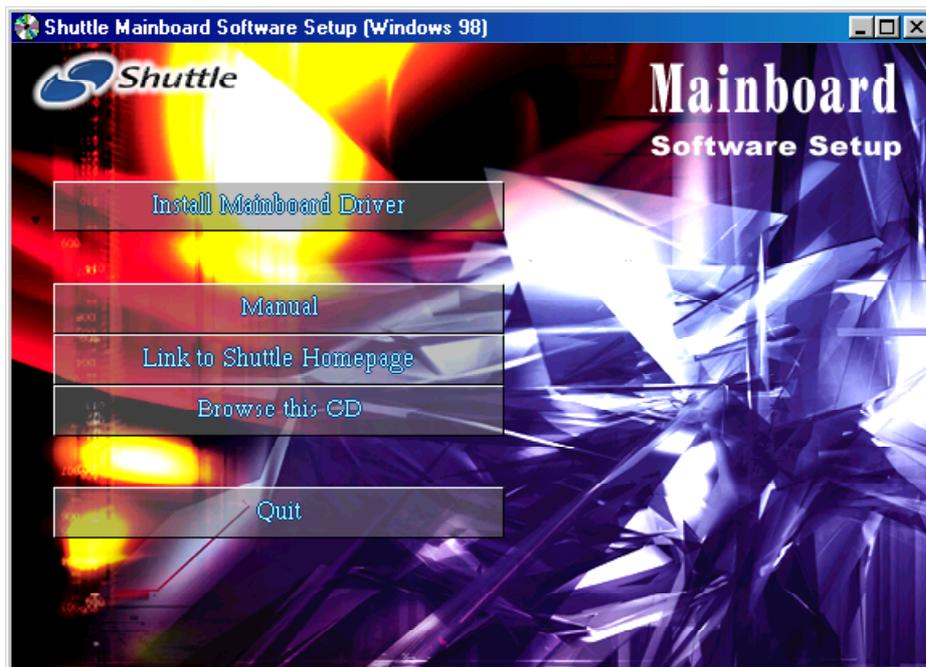
4.2 Install Mainboard Software

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Install Mainboard Driver" bar to run into sub-menu.

The Mainboard AB52P Software include:

[4.2.A]	Install Intel Chipset Driver
[4.2.B]	Install Intel Ultra ATA Driver
[4.2.C]	Install Audio Driver
[4.2.D]	Install USB2.0 Driver
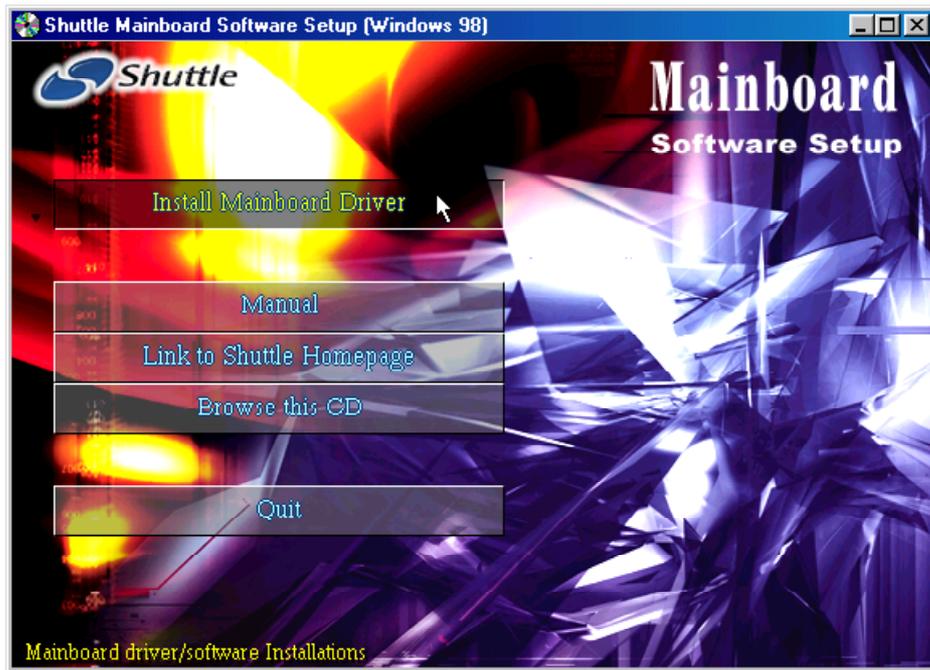
4.2.A Install Chipset System Driver

Select using your pointing device (e.g. mouse) on the "Install Intel Chipset Driver" bar to install chipset system driver.

Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.B Install IDE Driver

Select using your pointing device (e.g. mouse) on the "Install Intel Ultra ATA Driver" bar to install Ultra ATA IDE driver.
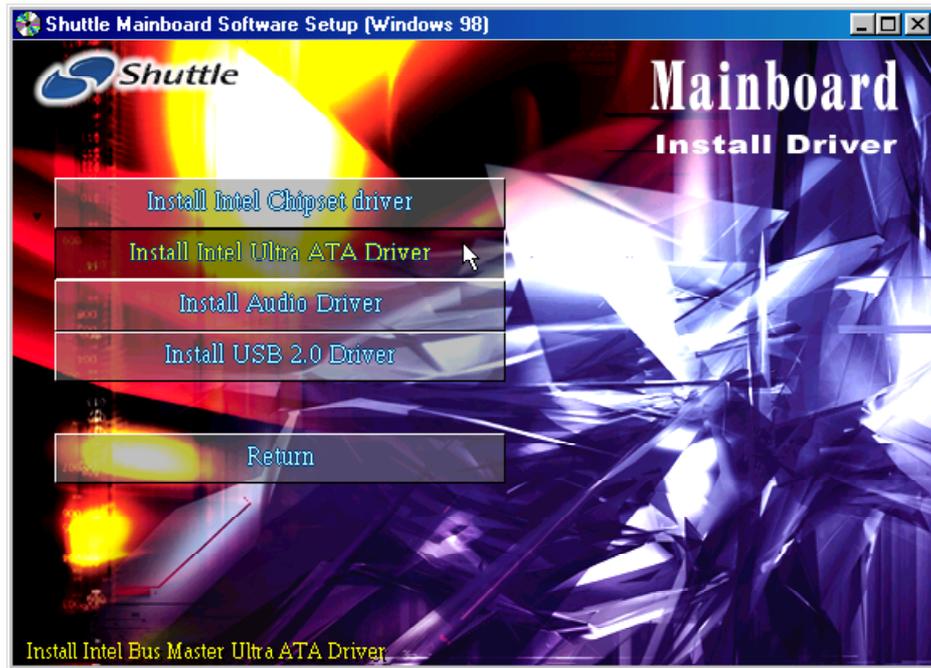
Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.C Install Audio Driver

Select using your pointing device (e.g. mouse) on the "Install Audio Driver "bar to install audio driver.

Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.D Install USB2.0 Driver

Select using your pointing device (e.g. mouse) on the "Install USB2.0 Driver "bar to install USB2.0 driver.
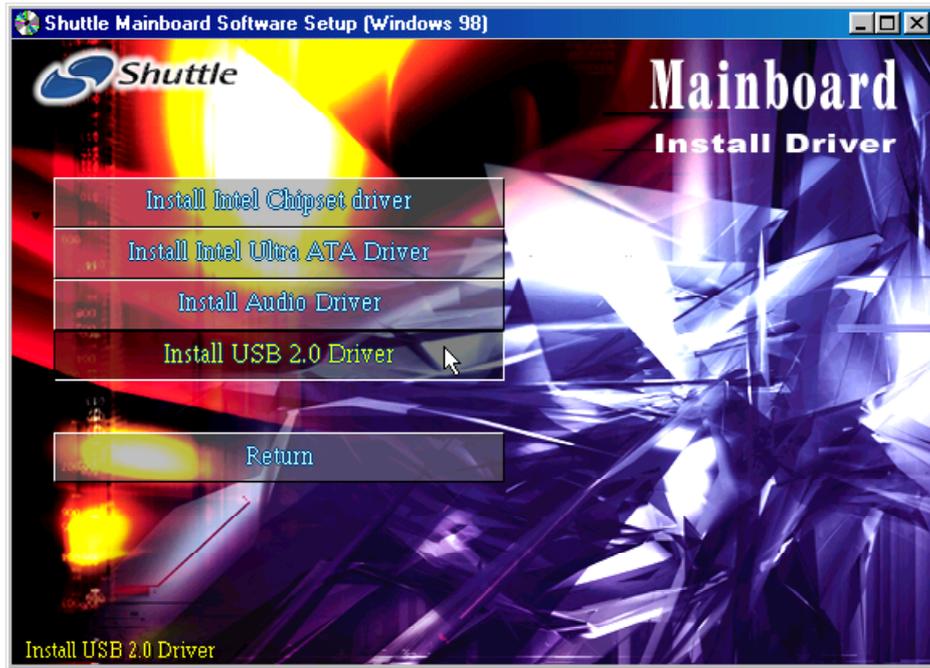
Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.3 View the User's Manual

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on AutoRun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Manual" bar.

Then Online Information windows will appear on your screen. Click on the "Install Acrobe Reader" bar if you need to install acrobe reader.

Then click on "AB52P Manual" bar to view user's manual.

5 BIOS SETUP

AB52P BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

The system BIOS is managing and executing a variety of hardware related functions in the system, including:

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

Step 1.   Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.

Step 2.   Press <Del> key immediately, or at the following message:
Press DEL to enter SETUP, or simultaneously press <Ctrl>, <Alt>, <Esc> keys

Note1. If you miss trains of words meationed in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the <RESET> switch located at the computer's front-panel. You may also reboot by simultaneously pressing the <Ctrl>, <Alt>, <Del> keys.

Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:
"Press F1 to Continue, DEL to Enter Setup"

Step 3.   As you enter the BIOS program, the CMOS Setup Utility will prompt you the Main Menu, as shown in the next section.

5.2 The Main Menu

Once you enter the AwardBIOS(tm) CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

```
          CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
  ┌──────────────────────────────────┬──────────────────────────────────┐
  │ ► Standard CMOS Features          │ ► Frequency/Voltage Control       │
  │ ► Advanced BIOS Features          │   Load Fail-Safe Defaults         │
  │ ► Advanced Chipset Features        │   Load Optimized Defaults         │
  │ ► Integrated Peripherals          │   Set Supervisor Password         │
  │ ► Power Management Setup           │   Set User Password               │
  │ ► PnP/PCI Configurations          │   Save & Exit Setup               │
  │ ► PC Health Status                │   Exit Without Saving             │
  ├──────────────────────────────────┴──────────────────────────────────┤
  │ Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item        │
  │ F10 : Save & Exit Setup                                              │
  ├──────────────────────────────────────────────────────────────────────┤
  │                   Time, Date, Hard Disk Type...                       │
  └──────────────────────────────────────────────────────────────────────┘
```

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configurations

This entry appears if your system supports PnP / PCI.

PC Health Status

This entry shows the current system temperature, Voltage, and FAN speed.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance of your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

Supervisor / User Password

Use this menu to change, set, or disable supervisor/user password. It allows you to limit access to the system and Setup, or only to Setup.

Save & Exit Setup

Save CMOS value changes in CMOS and exit from setup.

Exit Without Saving

Abandon all CMOS value changes and exit from setup.

☞ *Standard CMOS Features*

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
          CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                            Standard CMOS Features
 ┌─────────────────────────────────────────────────────┬──────────────────┐
 │  Date (mm:dd:yy)          Mon, Mar 17 2003           │    Item Help     │
 │  Time (hh:mm:ss)          14 : 39 : 59               ├──────────────────┤
 │                                                      │  Menu Level   ▶  │
 │  ▶ IDE Primary Master                                │                  │
 │  ▶ IDE Primary Slave                                 │  Change the day, │
 │  ▶ IDE Secondary Master                              │  month,          │
 │  ▶ IDE Secondary Slave                               │  year and century│
 │                                                      │                  │
 │  Drive A                  [1.44M, 3.5 in.]           │                  │
 │  Drive B                  [None]                     │                  │
 │  Floppy 3 Mode Support    [Disabled]                 │                  │
 │                                                      │                  │
 │  Video                    [EGA/VGA]                  │                  │
 │  Halt On                  [All Errors]               │                  │
 │                                                      │                  │
 │  Base Memory                     640K                │                  │
 │  Extended Memory               65535K                │                  │
 │  Total Memory                   1024K                │                  │
 ├─────────────────────────────────────────────────────┴──────────────────┤
 │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
 │    F5: Previous Values      F6: Fail-Safe Defaults   F7: Optimized Defaults   │
 └─────────────────────────────────────────────────────────────────────────┘
```

Date
<Month>　　<DD>　　<YYYY>

Set the system date. Note that the 'Day' automatically changes when you set the date.

Time
<HH : MM : SS>

The time is converted based on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

IDE Primary Master

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Primary Slave

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Secondary Master

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Secondary Slave

Options are in its sub menu.

Press <Enter> to enter the sub-menu of detailed options.

Drive A/Drive B

Select the type of floppy disk drive installed in your system.

➢ The choice: None, 360K, 5.25 in, 1.2M, 5.25 in, 720K, 3.5 in, 1.44M, 3.5 in, or 2.88M, 3.5 in.

Floppy 3 Mode Support

Floppy 3 mode refers to a 3.5-inch diskette with a capacity of 1.2MB. Floppy 3 mode is sometimes used in Japen.

➢ The choice: Disable, Drive A, Drive B, or Both.

Video

Select the default video device.

➢ The choice: EGA/VGA, CGA 40, CGA 80, or MONO.

Halt On

Select the situation in which you want the BIOS to stop the POST process and notify you.

➢ The choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key.

Base Memory

Displays the amount of conventional memory detected during boot up.

➢ The choice: N/A.

Extended Memory

Displays the amount of extended memory detected during boot up.

➢ The choice: N/A.

Total Memory

Displays the total memory available in the system.

➢ The choice: N/A.

* *

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

IDE HDD Auto-Detection

Press <Enter> to auto-detect HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

➢ Press Enter

IDE Primary Master

Selecting 'manual' lets you set the remaining fields on this screen and select the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc., Note: PRECOMP=65535 means NONE !

➢ The choice: None, Auto, or Manual.

Access Mode

Choose the access mode for this hard disk.

➢ The choice: CHS, LBA, Large, or Auto.

Capacity

Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

➢ Auto-Display your disk drive size.

The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'

Cylinder

Set the number of cylinders for this hard disk.

➢ Min = 0, Max = 65535

Head

Set the number of read/write heads.

➢ Min = 0, Max = 255

Precomp

Warning: Setting a value of 65535 means no hard disk.

➢ Min = 0, Max = 65535

Landing zone

Set the Landing zone size.

➢ Min = 0, Max = 65535

Sector

Number of sector per track.

➢ Min = 0, Max = 255

****

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.

```
              CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                              Advanced BIOS Features
┌─────────────────────────────────────────────────────┬────────────────────────┐
│   CPU L1 & L2 Cache         [Enabled]             ▲  │       Item Help        │
│   Quick Power On Self Test  [Enabled]                │                        │
│   First Boot Device         [Floppy]                 │ Menu Level   ▶         │
│   Second Boot Device        [HDD-0]                  │                        │
│   Third Boot Device         [CDROM]                  │ Allows you to choose   │
│   Boot Other Device         [Enabled]                │ the VIRUS warning      │
│   Swap Floppy Drive         [Disabled]               │ feature for IDE Hard   │
│   Boot Up Floppy Seek       [Disabled]               │ Disk boot sector       │
│   Boot Up NumLock Status    [On]                     │ protection. If this    │
│   Gate A20 Option           [Fast]                   │ function is enabled    │
│   ATA 66/100 Cable Msg      [Enabled]                │ and someone attempt to │
│   Typematic Rate Setting    [Disabled]               │ write data into this   │
│ x Typematic Rate (Chars/Sec) 6                       │ area , BIOS will show  │
│ x Typematic Delay (Msec)     250                     │ a warning message on   │
│   Security Option           [Setup]                  │ screen and alarm beep  │
│   APIC Mode                                          │                        │
│   OS Select For DRAM > 64MB [Non-OS2]                │                        │
│   HDD S.M.A.R.T. Capability [Disabled]               │                        │
│   Report No FDD For WIN 95  [Yes]                    │                        │
│   Small Logo(EPA) Show      [Enabled]             ▼  │                        │
├─────────────────────────────────────────────────────┴────────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help  │
│    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults     │
└───────────────────────────────────────────────────────────────────────────────┘
```

CPU L1&L2 Cache

All processors that can be installed in this mainboard use internal level1(L1) and external 2(L2) cache memory to imporve performance. Leave this item at the default value for better performance.

➢ The choice: Enabled or Disabled.

Quick Power On Self Test

This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.

➢ The choice: Enabled, or Disabled.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

➢ The Choice: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1 ~ HDD- 3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, Disabled.

Boot Other Device

Select Your Boot Device Priority.

➢ The choice: Enabled or Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignment.

➢ The choice: Enabled or Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot-Up. Disabling speed boots up.

➢ The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

➢ The choice: Off or On.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used for above 1MBye of address memory. Initially, the gate A20 was handled via a pin on the keyboard. Today, while a keyboard still provides this support, it is more common and much faster in setting ro Fast for the system chipset to provide support for gate A20.

➢ The choice: Normal, or Fast.

ATA 66/100 Cable Msg

This choice is enable or disable.

➢ The choice: Enabled or Disabled.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

➢ The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

This item sets how many times the keystroke will be repented in a second when you hold the key down.

➢ The choice: 6, 8, 10, 12, 15, 20, 24, or 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

➢ The choice: 250, 500, 750, or 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System   The system will not boot and access to Setup will be denied if the correct password is not entered promptly.

Setup   The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

➢ The choice: System or Setup.

Note: To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Do not type anything and just press <Enter>; it will disable secu rity. Once the security is disabled, the system will boot, and you can enter Setup freely.

APIC Mode

Selects enable/disable IO APIC function

OS Select For DRAM > 64MB

Selects the operating system that is running with greater than 64MB of RAM in the system.

➢ The choice: Non-OS2 or OS2.

HDD S.M..A.R.T. Capability

The S.M.A.R.T(Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

➢ The choice: Enabled or Disabled.

Report No FDD For Win 95

Whether report no FDD runs for Win 95 or not.

➢ The choice: Yes or No.

Small Logo(EPA) Show

This item allows you to enable/disable the EPA Logo.

➢ The choice: Enabled or Disabled.

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.

```
         CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                          Advanced Chipset Features
 ┌──────────────────────────────────────────────┬─────────────────────────┐
 │  DRAM Timing Selectable                       │       Item Help         │
 │  CAS Latency Time            [2.5]            ├─────────────────────────┤
 │  Active to Precharge Delay   [7]             │  Menu Level    ►        │
 │  DRAM RAS# to CAS# Delay     [3]             │                         │
 │  DRAM RAS# Precharge         [3]             │                         │
 │  DRAM Data Integrity Mode    [Non-ECC]        │                         │
 │  Memory Frequency For                         │                         │
 │  System BIOS Cacheable       [Disabled]       │                         │
 │  Video RAM Cacheable         [Disabled]       │                         │
 │  Memory Hole At 15M-16M      [Disabled]       │                         │
 │  Delayed Transaction         [Enabled]        │                         │
 │  Delay Prior to Thermal      [16 Min]         │                         │
 │  AGP Aperture Size (MB)      [64]             │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 └──────────────────────────────────────────────┴─────────────────────────┘
   ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
      F5: Previous Values      F6: Fail-Safe Defaults   F7: Optimized Defaults
```

DRAM Timing Selectable

This value in this field depends on performance parameters of the installed memory chips(DRAM).

CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Don't reset this field from the default value specified by the system designer.

➢ The Choice: 1.5, 2, 2.5, or 3.

Active to Precharge Delay

This item select the SDRAM Active to Precharge Delay. (7T, 6T, or 5T)

➢ The Choice: 7, 6, or 5.

DRAM RAS# to CAS# Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, and you can use it when DRAM is written to, read from, or refreshed. Faster performance is gained in high speed, more stable performance, in low speed. This field is applied only when synchronous DRAM is installed in the system.

➢ The Choice: 3 or 2.

DRAM RAS# Precharge

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be-incompleted, and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field is applied only when synchronous DRAM is installed in the system.

➢ The Choice: 3 or 2.

DRAM Data Integrity Mode

This item enable/disable DDR SDRAM ECC support. Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

➢ The Choice: Non-ECC or ECC.

Memory Frequency For

This item sets the main memory frequency. When you use an external graphics card, you can adjust this to enable the best performance for your system.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

➢ The choice: Enabled or Disabled.

Video RAM Cacheable

Selecting Enabled allows caching of the video RAM , resulting in better system performance. However, if any program is written to this memory area, a system error may result.

➢ The Choice: Enabled or Disabled.

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

➢ The Choice: Enabled or Disabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delayed transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

➢ The Choice: Enabled or Disabled.

Delay Prior to Thermal

This item select the Delay time before thermal controller activate from temperature too high.

➢ The Choice: 4 Min, 8 Min, 16 Min, or 32 Min.

AGP Aperture Size (MB)

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

➢ The Choice: 4, 8, 16, 32, 64, 128, or 256.

✎ *Integrated Peripherals*

These options display items that define the operation of peripheral comopnents on the system's input/output ports.

```
        CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                          Integrated Peripherals
┌─────────────────────────────────────────────────┬──────────────────────────┐
│ On-Chip Primary  PCI IDE [Enabled]            ▲  │        Item Help         │
│ IDE Primary Master PIO    [Auto]                 │                          │
│ IDE Primary Slave  PIO    [Auto]                 │ Menu Level    ►          │
│ IDE Primary Master UDMA   [Auto]                 │                          │
│ IDE Primary Slave  UDMA   [Auto]                 │                          │
│ On-Chip Secondary PCI IDE [Enabled]              │                          │
│ IDE Secondary Master PIO  [Auto]                 │                          │
│ IDE Secondary Slave  PIO  [Auto]                 │                          │
│ IDE Secondary Master UDMA [Auto]                 │                          │
│ IDE Secondary Slave  UDMA [Auto]                 │                          │
│ USB Keyboard Support      [Disabled]             │                          │
│ AC97 Audio                [Auto]                 │                          │
│ Init Display First        [PCI Slot]             │                          │
│ IDE HDD Block Mode        [Enabled]              │                          │
│ POWER ON Function         [Hot KEY]              │                          │
│ KB Power ON Password      [Enter]                │                          │
│ Hot Key Power ON          [Ctrl-F12]             │                          │
│ Onboard FDC Controller    [Enabled]              │                          │
│ Onboard Serial Port 1     [3F8/IRQ4]             │                          │
│ Onboard Serial Port 2     [2F8/IRQ3]             │                          │
│ UART Mode Select          [Normal]               │                          │
│ UR2 Duplex Mode           [Half]                 │                          │
│ Onboard Parallel Port     [378/IRQ7]             │                          │
│ Parallel Port Mode        [ECP]                  │                          │
│ ECP Mode Use DMA          [3]                    │                          │
│ Game Port Address         [201]                  │                          │
│ Midi Port Address         [330]                  │                          │
│ Midi Port IRQ             [10]                ▼  │                          │
├─────────────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
│    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults    │
└─────────────────────────────────────────────────────────────────────────────┘
```

On-Chip Primary PCI IDE

The integrated peripherals controller contains an IDE interface with support to two IDE channels. Select Enabled to activate each channel separately.
  ➢ The choice: Enabled or Disabled.

IDE Primary Master/Slave PIO

The two IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the two IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
  ➢ The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4.

IDE Primary   Master/Slave UDMA

Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA33/66/ 100, select Auto to enable BIOS support.
  ➢ The Choice: Auto or Disabled.

On-Chip Secondary PCI IDE

The integrated peripherals controller contains an IDE interface with support to two IDE channels. Select Enabled to activate each channel separately.
➢ The choice: Enabled or Disabled.

IDE Secondary Master/Slave PIO

The two IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the two IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
➢ The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4.

IDE Secondary Master/Slave UDMA

Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA33/66/100, select Auto to enable BIOS support.
➢ The Choice: Auto or Disabled.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
➢ The choice: Enabled or Disabled.

AC97 Audio

Enables and disables the onboard audio chip. Disable this item if you are going to install a PCI audio add-on card.
➢ The choice: Audio or Disabled.

Init Display First

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the mainboard.
➢ The choice: PCI Slot or AGP .

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
➢ The choice: Enabled, or Disabled

POWER ON Function

Enables you to set power on parameters.

➢ The choice: Password. Hot-KEY, Mouse move, Mouse Click, Any KEY, Button Only, Keyboard 98.

KB Power on Password

When the POWER ON Function is set to Password, use this item to set the password.

➢ The choice: Press "Enter".

Hot Key Power ON

When the "Power On Function" is set to Hot Key, use this item to set the hot key combination that turns on the system.

➢ The choice: Ctrl-F1 ～ Ctrl-F12.

Onboard FDC Controller

This item specifices onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector. Choose the "Disabled" settings if you have a separate control card.

➢ The choice: Enabled Disabled.

Onboard Serial Port1/Port2

Select an address and corresponding interrupt for the first and second serial ports.

➢ The choice: 3E8/IRQ4, 2E8/IRQ3, 3F8/IRQ4, 2F8/IRQ3,Auto, or Disabled.

UART Mode Select

The main board support IrDA infrared through COM 2 port.

➢ The choice: IrDA or Normal.

UR2 Duplex Mode

This item specifies onboard infrared transfer mode to full-duplex.

➢ The choice: Full, or Half.

Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address setting.

➢ The choice:: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, or Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

➢ The choice: SPP, EPP, ECP, or ECP+EPP.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

➢ The choice: 1 or 3.

Game Port Address

This item sets the I/O address for the Game Port .

➢ The choice: Disabled, 201, or 209.

Midi Port Address

This item sets the I/O address for the Midi function.

➢ The choice: Disabled, 330, or 300.

Midi Port IRQ

This item sets the interrupt request for the Midi function.

➢ The choice: 5 or 10.

☞ *Power Management Setup*

```
       CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                          Power Management Setup
  ┌──────────────────────────────────────────────┬──────────────────────┐
  │ ACPI Function            Enabled           ▲  │      Item Help        │
  │ ACPI Suspend Type        [S1(POS)]            │                       │
  │ Power Management         [Min Saving]         │ Menu Level   ►        │
  │ Video Off Method         [DPMS]               │                       │
  │ Video Off In Suspend     [Yes]                │                       │
  │ Suspend Type             [Stop Grant]         │                       │
  │ MODEM Use IRQ            [3]                   │                       │
  │ Suspend Mode             1 Hour               │                       │
  │ HDD Power Down           15 Min               │                       │
  │ Soft-Off by PWR-BTTN     [Instant-Off]        │                       │
  │ Wake-Up by PCI card      [Enabled]            │                       │
  │ Power On by Ring         [Disabled]           │                       │
  │ Resume by Alarm          [Disabled]           │                       │
  │ x  Date(of Month) Alarm    0                  │                       │
  │ x  Time(hh:mm:ss) Alarm    0 :  0 :  0        │                       │
  │                                               │                       │
  │ ** Reload Global Timer Events **              │                       │
  │ Primary IDE 0            [Disabled]           │                       │
  │ Primary IDE 1            [Disabled]           │                       │
  │ Secondary IDE 0          [Disabled]           │                       │
  │ Secondary IDE 1          [Disabled]           │                       │
  │ FDD,COM,LPT Port         [Disabled]           │                       │
  │ PCI PIRQ[A-D]#           [Disabled]           │                       │
  │ PWRON After PWR-Fail     [Off]             ▼  │                       │
  ├──────────────────────────────────────────────┴──────────────────────┤
  │ ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
  │   F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults │
  └───────────────────────────────────────────────────────────────────────┘
```

The Power Management Setup allows you to configure your system to
most effectively saving energy while operating in a manner consistent
with your own style of computer use.

ACPI Function
This item allows you to enable/disable the Advanced Configuration and
Power Management (ACPI)

➢ The choice: Enabled.

ACPI Suspend Type
Use this item to define how your system suspends. In the default, S1
(POS), the suspend mode is equivalent to a software power down. If
you select S3 (STR), the suspend mode is a suspend to RAM,i.e., the
system shouts down with the exception of a refresh current to the
system memory.

➢ The choice: S1(POS), or S3(STR).

Power Management
This category allows you to select the type (or degree) of power saving
and is directly related to the following modes:

Min Saving   Minimum power management.

  Suspend Mode = 1 hr.
  HDD Power Down = 15min.

Max Saving   Maximum power management.
                           Suspend Mode = 1min.
                           HDD Power Down = 1min.
        User Define   Allows you to set each mode individually. When this
                           item not disabled, each of the ranges are from 1 min.
                           to 1 hr. except for HDD Power Down which ranges
                           from 1 min. to 15 min. and disable.
        ➢ The choice: User Define, Min Saving, or Max Saving.

Video Off Method
   This determines the manner in which the monitor is blanked.
        V/H SYNC + Blank   This selection will cause the system to turn off
                           the vertical and horizontal synchronization
                           ports and write blanks to the video buffer.
        Blank Screen   This option only writes blanks to the video
                           buffer.
        DPMS   Initial display power management signaling.
        ➢ The choice: V/H SYNC + Blank, Blank Screen, or DPMS.

Video Off In Suspend
   This item determines the manner in which the monitor is blanked.
   ➢ The choice: Yes or No.

Suspend Type
   This item allows you to select the Suspend Type.
   ➢ The choice: PwrOn Suspend, Stop Grant.

MODEM Use IRQ
   This item determines the IRQ in which the MODEM can use.
   ➢ The choice: 3, 4, 5, 7, 9, 10, 11, or NA.

Suspend Mode
   When this item enabled and after the set up time of system inactivity, all
   devices except the CPU will be shut off.
   ➢ The choice: Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min,
      20 Min, 30 Min, 40 Min, or 1 Hour.

HDD Power Down
   When this item enabled and after the set up time of system inactivity,
   the hard disk drive will be powered down while all other devices
   remain active.
   ➢ The choice: Disabled or 1 Min ~ 15 Min.

Soft-Off by PWR-BTTN

Under ACPI(Advanced Configuration and Power management Interface) you can creat a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button causes a software power down. If the item is set to Delay 4 Sec., then you have to hold the power button down for four seconds to cause a software power down.

➢ The choice: Instant-Off or Delay 4 Sec..

Wake Up by PCI card

When this item is enabled, the system power will be turned on if there is any PCI card activity.

➢ The choice: Enabled or Disabled.

Power On by Ring

If this item is enabled, it allows the system to resume from a software power down or a power-saving mode whenever there is an incoming call to an installed fax/modem. You have to connect the fax/modem to the mainboard.

➢ The choice: Enabled or Disabled.

Resume by Alarm

When this item enabled, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

➢ The choice: Disabled or Enabled.

Data (of Month) Alarm

This item selects the alarm date.

➢ Key in a DEC number:Min = 0, Max = 31.

Time (hh:mm:ss) Alarm

This item selects the alarm Time.

[hh]

➢ Key in a DEC number:Min = 0, Max = 23.

[mm/ss]

➢ Key in a DEC number:Min = 0, Max = 59.

*** Reload Global Timer Events ***

If any of these items is set to Disabled, system will not monitor the activity event and reload global timer.

If these items is set to Enabled, system will monitor the system activity event; if any of the events it monitored, it will cause system to reload global timer.

These items include Primary IDE0/1, Secondary IDE 0/1, FDD Port, COM Port, LPT Port,and PCI PIRQ[A-D]#.

➤ The choice: Disabled or Enabled.

PWRON After PWR-Fail

This item defines if the system will reboot after power fail.

➤ The choice: On, Off, or Former-sts.

✍ *PnP/PCI Configurations*

```
         CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                             PnP/PCI Configurations
┌────────────────────────────────────────────────┬──────────────────────────┐
│  Reset Configuration Data   [Disabled]          │        Item Help         │
│                                                  │                          │
│  Resources Controlled By    [Auto(ESCD)]        │  Menu Level   ►          │
│ x IRQ Resources                Press Enter       │                          │
│                                                  │  Default is Disabled.    │
│  PCI/VGA Palette Snoop       [Disabled]          │  Select Enabled to       │
│  Assign IRQ For USB          [Enabled]           │  reset Extended System   │
│  INT Pin 1 Assignment        [Auto]              │  Configuration Data      │
│  INT Pin 2 Assignment        [Auto]              │  ESCD) when you exit     │
│  INT Pin 3 Assignment        [Auto]              │  Setup if you have       │
│  INT Pin 4 Assignment        [Auto]              │  installed a new add-on  │
│  INT Pin 5 Assignment        [Auto]              │  and the system          │
│  INT Pin 6 Assignment        [Auto]              │  reconfiguration has     │
│  INT Pin 7 Assignment        [Auto]              │  caused such a serious   │
│  INT Pin 8 Assignment        [Auto]              │  conflict that the OS    │
│                                                  │  cannot boot             │
│                                                  │                          │
└────────────────────────────────────────────────┴──────────────────────────┘
  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
       F5: Previous Values     F6: Fail-Safe Defaults   F7: Optimized Defaults
```

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components. This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

Reset Configuration Data

> Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.
>
> ➢ The choice: Enabled or Disabled .

Resource controlled By

> The Award Plug-and-Play BIOS has the capacity to automatically configure all of the boot and Plug-and-Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug-and-Play operating system such as Windows 95.
>
> If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a "＞").
>
> ➢ The choice: Auto(ESCD) or Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

➢ The choice: PCI Device or Reserved.

PCI/VGA Palette Snoop

This item is designed to overcome problems that can be caused by some nonstandard VGA card. This board includes a built-in VGA system that does not require palette snooping so you must leave this item Disabled.

➢ The choice: Enabled or Disabled.

Assign IRQ For USB

Names the interrupt request (IRQ) line assigned to the USB on your system. Activity of the selected IRQ always awakens the system.

➢ The choice: Enabled or Disabled.

INT Pin 1/2/3/4/5/6/7/8 Assignment

Names the interrupt request (IRQ) line assigned to PCI 1 throught PCI 8 on system. Activity of selected PCI slot awakens system.

➢ The choice: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, or 15.

✍ *PC Health Status*

```
           CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                                PC Health Status
   ┌─────────────────────────────────────────────┬──────────────────────────┐
   │ Shutdown Temperature      [Disabled]         │        Item Help         │
   │ CPU Vcore                                     ├──────────────────────────┤
   │    1.80 V                                     │ Menu Level   ►           │
   │    3.30 V                                     │                          │
   │    5.00 V                                     │                          │
   │   12.0 V                                      │                          │
   │ Voltage Battery                               │                          │
   │ Current System Temp                           │                          │
   │ Current CPU Temp                              │                          │
   │ CPU FAN Speed                                 │                          │
   │ Chassis FAN Speed                             │                          │
   │ Power FAN Speed                               │                          │
   │                                               │                          │
   │                                               │                          │
   │                                               │                          │
   ├───────────────────────────────────────────────┴──────────────────────────┤
   │ ↑↓→←:Move   Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
   │     F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults   │
   └────────────────────────────────────────────────────────────────────────────┘
```

Shutdown Temperature

    Enables you to set the maximum temperature the system can reach before powering down.

    ➢ The choice: Disabled, 60ºC/140ºF, 65ºC/149ºF, 70ºC/158ºF.

System Component Characteristics

    These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

    The fields include

      CPU Vcore

      1.80V

      3.30V

      5 V

      12.0V

      Voltage Battery

      Current System Temp

      Current CPU Temp

      CPU Fan Speed

      Chassis Fan Speed

      Power Fan Speed

☞ *Frequency/Voltage Control*

This iteme enables you to set the clock speed and system bus for your system. The clock speed and system bus are determine by the kind of processor youhave installed in your system.

```
         CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
                          Frequency/Voltage Control
 ┌──────────────────────────────────────────────┬────────────────────────┐
 │ CPU Clock Ratio           [ 8 X]             │       Item Help        │
 │ Auto Detect PCI/DIMM Clk  [Enabled]          ├────────────────────────┤
 │ Spread Spectrum           [Enabled]          │ Menu Level    ►        │
 │ CPU Host/AGP CLK/PCI CLK  [Default]          │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 ├──────────────────────────────────────────────┴────────────────────────┤
 │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
 │    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
 └────────────────────────────────────────────────────────────────────────┘
```
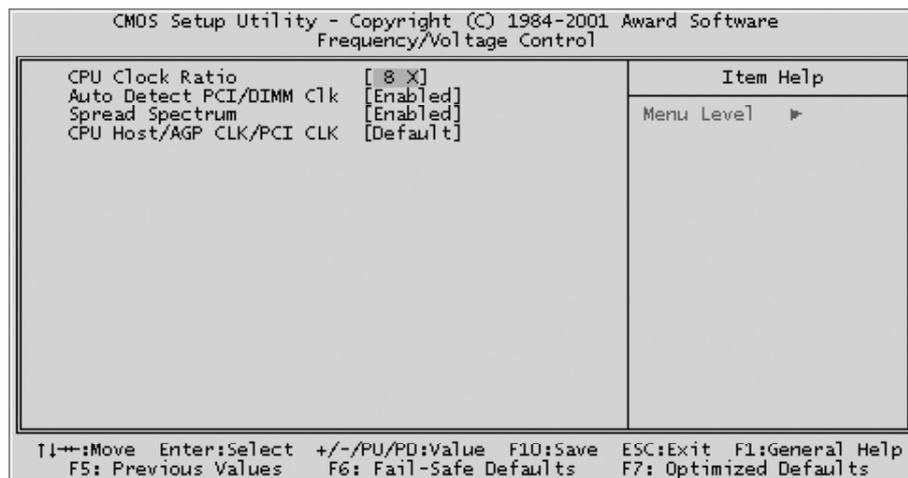
CPU Clock Ratio

This item allows you to adjust CPU Ratio.

➢ The choice: Min = 8   Max = 50

Auto Detect PCI/DIMM Clk

This item allows you to enable/disable auto detection DIMM/PCI Clock.

➢ The choice: Enabled, or Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulation.

➢ The choice: Enabled, or Disabled.

CPU Host/ AGP CLK/ PCI CLK

Use the CPU Host Clock to set the frontside bus frequency for the installed processor (usually 133MHz, 100MHz or 66MHz)

✎ *Load Fail-Safe Defaults*

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N)？N

Pressing 'Y' loads the BIOS default values for the most stable, minimal performance system operations.

✎ *Load Optimized Defaults*

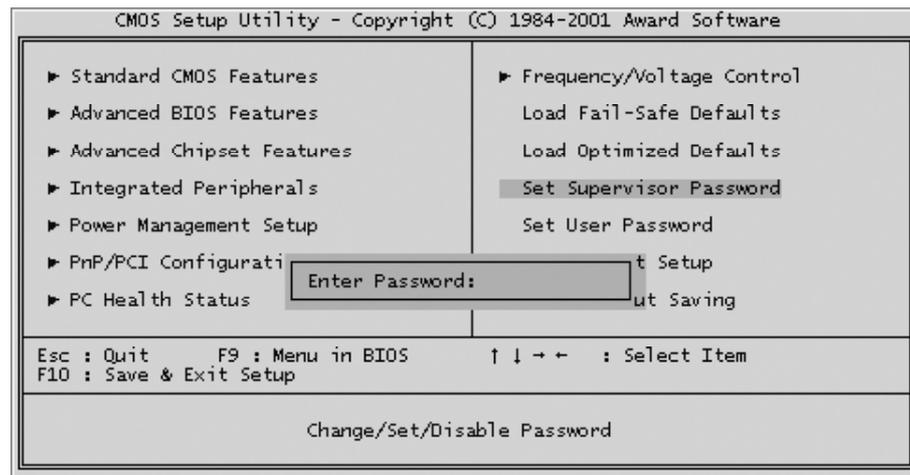When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)？N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.

✍ *Supervisor/User Password Setting*

You can set either supervisor or user password, or both of them. The differences between them are:

```
       CMOS Setup Utility - Copyright (C) 1984-2001 Award Software

 ▶ Standard CMOS Features              ▶ Frequency/Voltage Control

 ▶ Advanced BIOS Features                Load Fail-Safe Defaults

 ▶ Advanced Chipset Features             Load Optimized Defaults

 ▶ Integrated Peripherals                Set Supervisor Password

 ▶ Power Management Setup                 Set User Password

 ▶ PnP/PCI Configurati┌─────────────────┐t Setup
                      │ Enter Password: │
 ▶ PC Health Status   └─────────────────┘ut Saving

 ─────────────────────────────────────────────────────────────
 Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
 F10 : Save & Exit Setup

                 Change/Set/Disable Password
```

Supervisor Password and User Password
    The options on the Password screen menu make it possible to restrict
    access to the Setup program by enabling you to set passwords for two
    different access modes: Supervisor mode and User mode. In general,
    Supervisor mode has full access to the Setup options, whereas User
    mode has restricted access to the options. By setting separate Supervisor
    and User password, a system supervisor can limit who can change
    critical Setup values.

Enter Password
    Type the password up to eight characters, and press <Enter>. The
    password typed now will clear any previously entered password from
    CMOS memory. You will be asked to confirm the password. Type the
    password again and press <Enter>. You may also press <Esc> to
    abort the selection and not enter a password. To disable password, just
    press <Enter> when you are prompted to enter password. A message
    will confirm the password being disabled. Once the password is dis-
    abled, the system will boot and you can enter Setup freely.

Password Disable

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted in entering the password whenever the system is rebooted or you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

Warning : Retain a record of your password in a safe place. If you forget the password, the only way to access the system is to clear CMOS, please refer to "Clear CMOS" on page 27.

✎ Save & Exit Setup

Pressing < Enter > on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS.After saving the values the system is restarted again.

✎ Exit Without Saving

Pressing < Enter > on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.