AB61

Pentium™ II/III processor

Based AGP MAIN BOARD

User's Manual

Shuttle AB61

Pentium II/III processor based AGPset Mainboard
Manual Version 1.1

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M302

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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 a success, right from the start, we have designed the 3 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 AB61 mainboard.

Experienced DIY User

Congratulations on your purchase of the Shuttle AB61 mainboard. You will find that installing your new Shuttle AB61 mainboard is just that easy. Bundled with an array of onboard functions, the highly-integrated AB61 mainboard provides you with a total solution to build the most stable and reliable system. Refer to section 3.2 Jumper Settings and Chapter 4 Software Utility to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains relevant information on how to tune up your system to achieve higher performance.

System Integrator

You have wisely chosen Shuttle AB61 to construct your system. Shuttle AB61 incorporates all the state-of-the-art technology of the i440BX chipset from Intel. It integrates the most advanced functions you can find to date in a compact ATX board. Refer to section 3.2 Jumper Settings and Chapter 4 Software Utility for an in-depth view of system construction.

1.2 Item Checklist

Check all items you received with your AB61 mainboard to make sure nothing is missing. The complete package should include:

✺ One Shuttle AB61 Mainboard
(with onboard Pentium II/III, AB61 built-in Intel 440BX chipset, ATX form factor, including 5xUSB, 2xSerial, and 1xParallel ports, plus 1xPS/2 Keyboard, and 1xPS/2 Mouse connectors.)
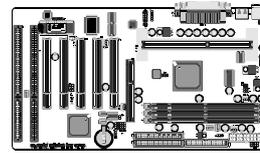
✺ One IDE Ribbon Cable

✺ One Floppy Ribbon Cable

✺ One set of Universal Retention Mechanism
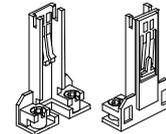
✺ This AB61 User's Manual
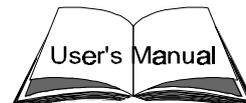
✺ One Shuttle Bundled CD-ROM containing:
  ➢ The AB61 user's manual on PDF format
  ➢ The Intel INF driver
  ➢ The Award Flashing Utility

2 FEATURES

The AB61 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**

Pentium III processors : 450 ~ 500+ MHz
Pentium II processors : 233/66 ~ 333/66 and 350/100 ~ 500/100 MHz
Celeron processors: 266 ~ 433+ MHz

✱ **Chipset**

Features Intel's 82443BX AGPset with I/O subsystems.

✱ **Jumperless CPU Configuration**

Auto-detect CPU voltage

Soft-configure CPU Speed (The CPU operating speed is software configurable in the CMOS Setup menu of the BIOS Setup utility.)

✱ **Versatile Memory Support**

Equipped with three DIMM banks of PC/100 compliant SDRAM to provide up to 768MB of system memory.

✱ **AGP Slots**

Supports Accelerated Graphics Port cards for high-performance, component level interconnect directed at 3D graphical display applications.

✱ **PCI and ISA Expansion Slots**

Provides five 32-bit PCI slots and two 16-bit ISA slots.

✱ **LPC Super I/O Onboard**

Provides a variety of I/O interfaces:
➢ 1 × Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, 2.88MB format.

- $1 \times$ PS/2 mouse connector
- $1 \times$ PS/2 Keyboard connector
- $2 \times$ USB connectors
- $3 \times$ USB Hub connectors (optional)
- $2 \times$ DB9 Serial connectors 16550 UART compatible
- $1 \times$ Infrared communications port ASKIR and HPSIR compatible. (Serial port COM2 can also be redirected to an external IrDA Adapter for wireless connection.)
- $1 \times$ DB25 Parallel port supporting Standard Parallel Port and Bi-direc tional (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) data transmission schemes.

✸ PCI Bus Master IDE Controller Onboard

Two UltraDMA 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 33 MB/sec and also supports Enhanced PIO Modes 3 & 4.

✸ ATX Power Supply Connector

ATX power supply unit can connect to the onboard 20-pin ATX power connector, supporting Suspend and Soft-On/Off by dual-function power button.

✸ Advanced Configuration and Power Interface

Features four power savings modes: Snoop, Suspend to RAM, Suspend to Disk, and Soft-Off. ACPI provides more efficient Energy Savings Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

✸ System BIOS

Provides licensed Award V4.51PG BIOS on 2MB Flash EEPROM. Supports Green PC and Desktop Management Interface (DMI).

✵ ATX Form Factor

System board conforms to the ATX specification.
Board dimensions: 305mm × 170mm

✵ Advanced Features

➢ **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 the Soft-Off mode.

➢ **Keyboard/Mouse Power-On -** This mainboard implements a special jumper to enable a system power-on function by keyboard or PS/2 mouse.

➢ **Wake-on-LAN (WOL) -** The onboard WOL connector can be attached to a network card that supports this function to wake up the system via the LAN.

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

✵ Optional Features

➢ **Voltage Monitoring -** Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current reach to mainboard components. System voltages include Vcore/ VTT on CPU, and +5V, +12V, -5V, -12V on system.

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

➢ **On board three ports USB HUB.**

3 HARDWARE INSTALLATION

This section outlines how to install and configure your AB61 mainboard. Refer to the following mainboard layout to help you 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 AB61
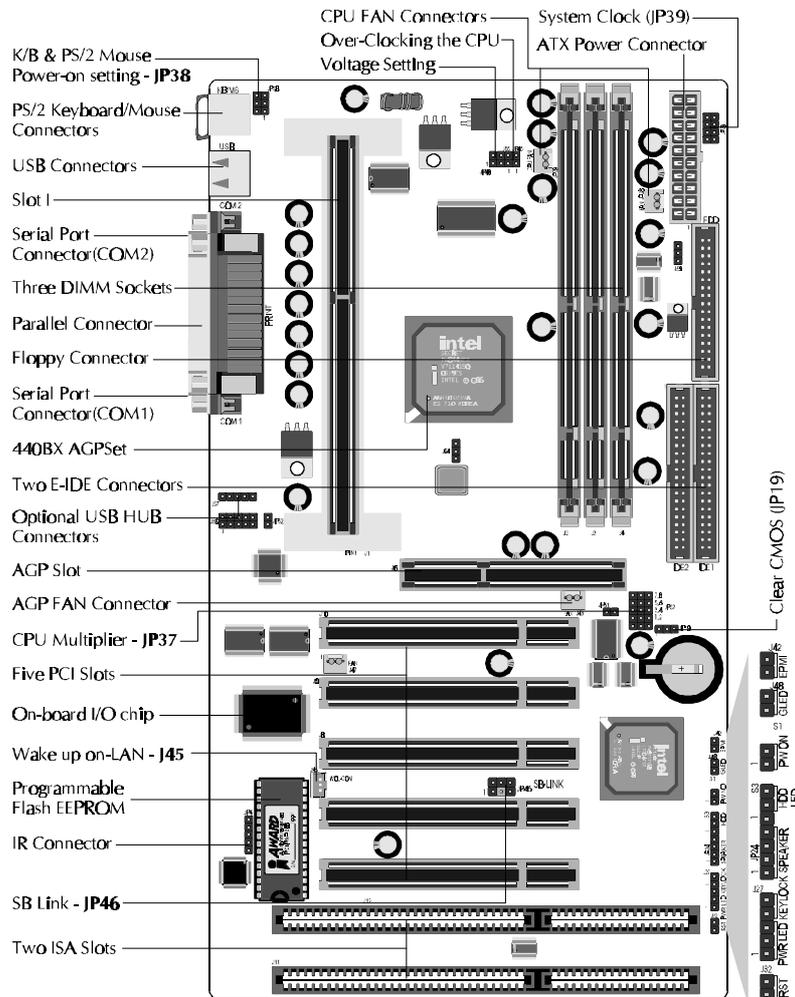
Step 1

Install the CPU

1. Mark your CPU Frequency

   Checking the working frequency of your cpu that should be clearly marked on the CPU cover or write your own combination in the space provided.

2. Pentium II/III Processor Installation

   < Locate the Retention Mechanism >

   To install a CPU, first turn off your system and remove its cover.

   ✧ Locate the Retention Mechanism **(1)** around the Slot 1.

   ✧ Take care of the Square Cut Mark **(1.1)**.

   ✧ Fix **(1)** by inserting Attach Mounts **(1.4)** up through holes **(A1...A4)** in the bottom of the mainboard, and screw the four captive nuts **(1.3)**.

   < Install the CPU >

   ✧ Insert CPU **(2)** into the Retention Mechanism **(1)**.

   ✧ Ensure that the alignment notch in the processor fits over the plug **(1.2)**, then push processor down firmly until it is seated.

   ✧ Push the latches **(2.1)** on the processor outward until they click into place.

   ✧ Connect power cable **(2.2)** of Fan/Heat Sink.
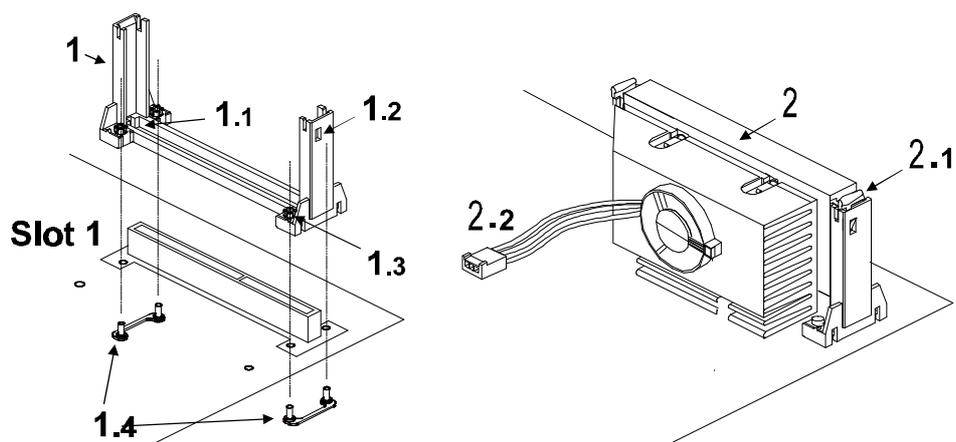
3. Celeron Processor Installation

< Locate the Retention Mechanism >

To install a CPU, first turn off your system and remove its cover.

✧ Insert two Retention Mechanism **(3)** on opposite side of Slot 1.

✧ Fix **(3)** by inserting Attach Mounts **(4)** up through holes **(A1...A4)** in the bottom of the mainboard, and screw the four captive nuts **(3.1)**.

< Install the CPU >

✧ Hold the processor **(5)** so that the Heatsink is facing toward the DIMM sockets on the mainboard.

✧ Slide the processor into the RM. Push the provessor down firmly, with even pressure on both sides of the top, until it is seated.
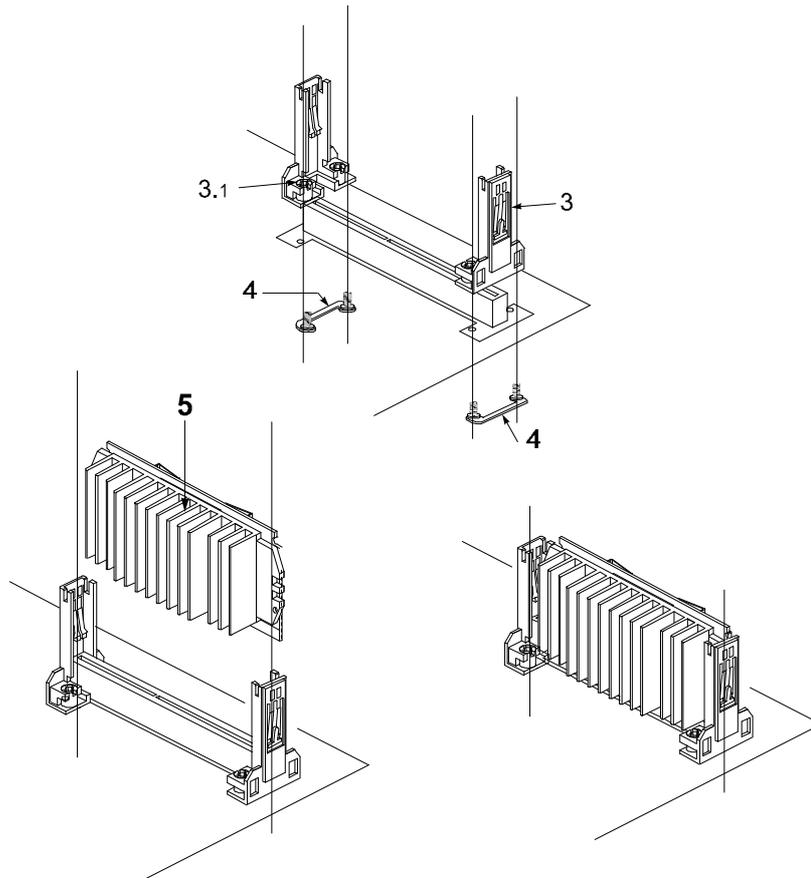
Step 2.

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 in any of the following cases:

1. Over-clock your CPU
2. Clear CMOS
3. Set the wake up function by keyboard/PS2 mouse

For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with 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 SDRAM System Memory

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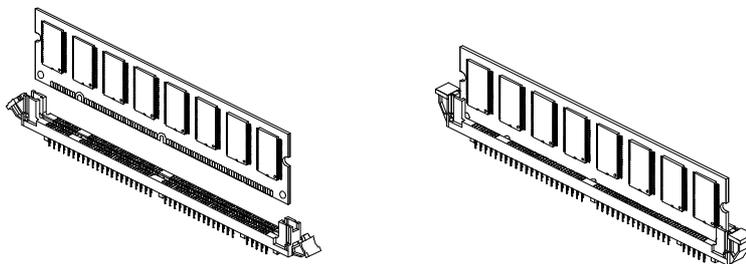
Step 4

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. 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 a correct mounting hole, the key point is to keep the back-panel of the mainboard in a close fit with your system case, as shown below.
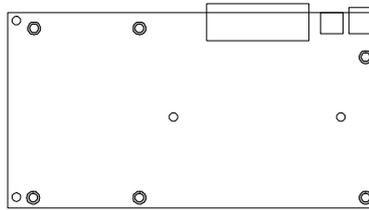
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical shorts be tween the board and the 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 fix the mainboard. If there aren't enough matching holes, then make sure to install at least 3 mounting studs to ensure proper attachment of the mainboard.

Step 6

Connect Front Panel Switches/LEDs/Speaker

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, etc.) These cables serve to connect the front-panel switches and LEDs to the mainboard's front-panel connectors group, as shown below.
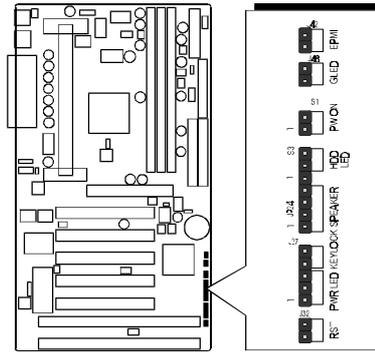
1. ATX Soft Power On/Off
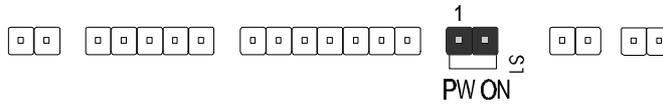
2. Power-LED
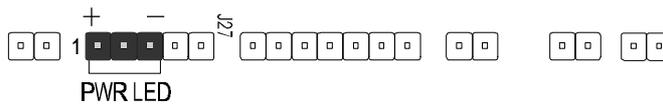
3. HDD-LED
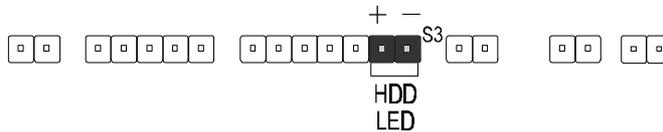
4. EPMI
   (Hardware System Management
   Interface)
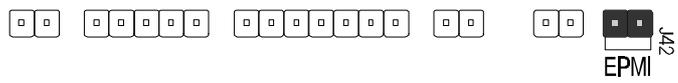
5. Green-LED
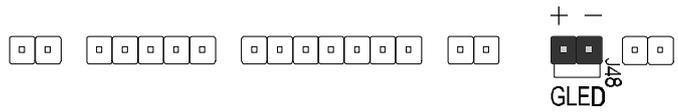
6. PC Speaker
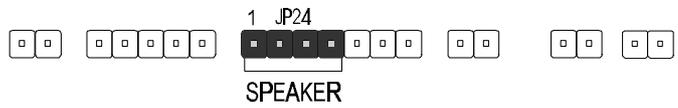
7. Hardware Reset Switch
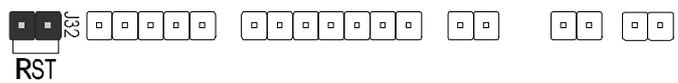
8. Keylock
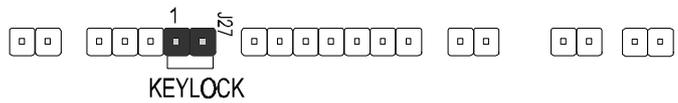
Step 7

Connect IDE & Floppy Disk Drives

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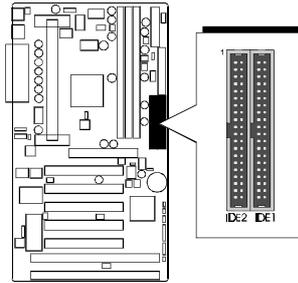
2. FDD cable connector
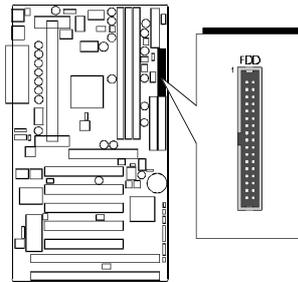
Step 8

Connect Other Internal Peripherals

1. IR connector
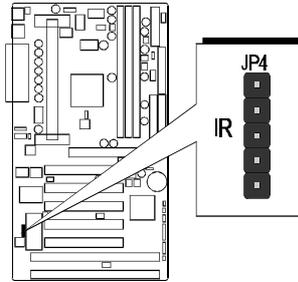
Step 9

Connect the Power Supply

1. System power connector
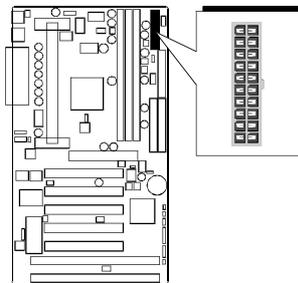
Step 10

Install Add-on Cards in Expansion Slots

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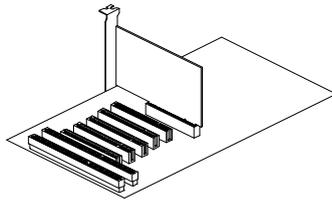
2. PCI Card
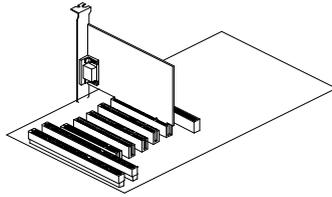
3. ISA Card
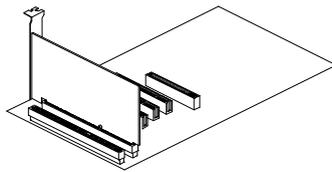
Step 11

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.
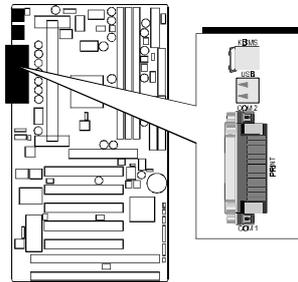
1. PS/2 Mouse and Keyboard
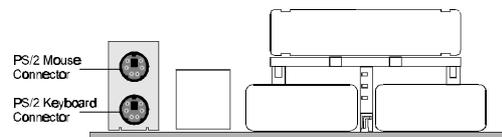
2. USB Devices
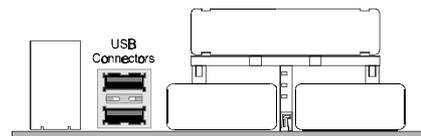
3. Parallel Port
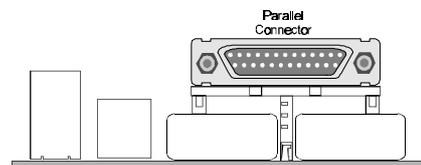
4. COM Port
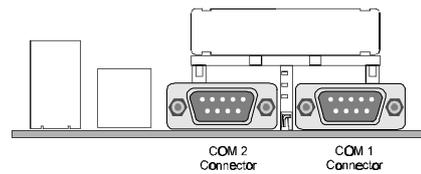
Step 12

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 devide 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 operating systems only. Make sure your Windows 9x operating system is already installed before running the drivers installation CD-ROM programs.

1. Insert the AB61 bundled CD-ROM into your CD-ROM drive. The auto-run program will display the drivers main installation window on screen.

2. Select the Mainboard related program.

3. Install the INF driver for Win9x.

3.2 Jumper Settings

Several hardware settings are made through the use of jumper caps to connect jumper pins on the mainboard. Pin #1 is located on the bottom or on the left when holding the mainboard with the keyboard connector or other back-panel connectors opposite from you, as shown below.
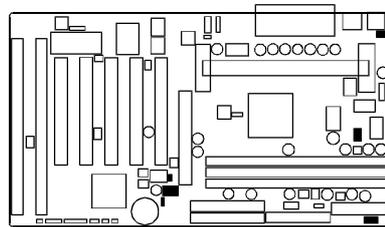
3-pin and multi (> 3) pin jumpers show as follows:
Pin #1 on the left:

Pin #1 on the bottom:

Jumpers with two pins are shown as ▬ for Close [On] or ■● for Open [Off]. To Short jumper pins, simply place a plastic jumper cap 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 identify jumpers, slots, and connectors along with their assigned functions:
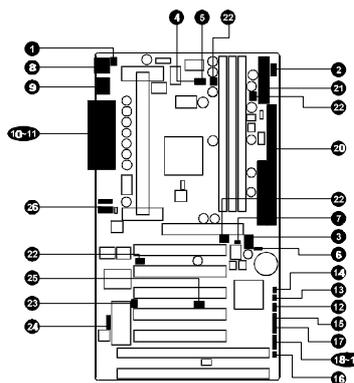
CPU/Memory/Expansion Slots

Slot 1	: CPU Slot for Pentium II/III, Celeron processors
J5, J3, J4	: Three DIMM Sockets for 8,16,32,64,128,256MB 3.3V SDRAM
AGP	: One AGP (Accelerated Graphics Port) Slot
PCI	: Five 32-bit PCI Expansion Slots
ISA	: Two 16-bit ISA Expansion Slots

Jumpers

1 JP38 : Keyboard & PS/2 Mouse Power-On
(requires to always set JP38 jumper in order to enable either or both KB & PS/2 mouse power-on functions. In addition, you need to set Power On Function in BIOS setup.)

2 JP39 : CPU Host frequency setting

3 JP37 : CPU Clock Ratio setting

4 JP48 : Voltage setting

5 J55 & JP45 : Over-Clocking the CPU

6 JP19 : Clear CMOS

7 JP51 : Factor Reserved

Back Panel Connectors

8 KB : PS/2 Keyboard

8 MS : PS/2 Mouse

9 USB : 2 × USB (Universal Serial Bus)

10 COM1 : Serial Port 1 (DB9 male)

10 COM2 : Serial Port 2 (DB9 male)

11 PRINTER : Parallel Port (DB25 female)

Front Panel Connectors

12 PWON (S1) : ATX Power On/Off Momentary Type Switch

13 GLED (J48) : Green LED (ON when system in power savings mode)

14 EPMI (J42) : Hardware System Management Interface Momentary Type switch.

15 IDE LED (S3) : IDE Drive Active LED

16 RST (J32) : Hardware Reset Switch

17 SPK (JP24) : Housing Internal Speaker

18 PWR (J27) : System Power LED

19 KEYLOCK (J27) : Keylock

Internal Peripherals Connectors

20 FDD : Floppy Disk Drive Interface

20 IDE1 : IDE Primary Interface (Dual-channel)

20 IDE2 : IDE Secondary Interface (Dual-channel)

Other Connectors:

21 J31 : ATX Power (20-pin header)

22 CPU FAN : CPU Cooling Fan Power

22 FAN (JP28) : Housing Cooling Fan Power

22 FAN (J43) : Housing Cooling Fan Power

22 FAN (J47) : Housing Cooling Fan Power

23 JP4 : IR Connector

24 J45 : Wake-On-LAN Connector

25 JP46 : SB-LINK Connector

26 J56 & J57 : Optional onboard USB Hub Connector

❶ Set Keyboard & PS/2 Mouse Power-On (JP38)

AB61 mainboard provides an easy power-on by keyboard and PS/2 mouse.

> Note: When you enable Keyboard Power-On, you also need to configure
>   the proper hot-key combination < Ctrl> + < function key F1 ~
>   F12 > in BIOS setup program.

To Power on the system by keyboard, simply strike the proper hot-key.
(A hot-key is the combination of < Ctrl> + < configured function key
F1 ~ F12>)

To power on the system by PS/2 mouse, you only need to double-click
with the mouse. (Note that power-on by serial mouse is not supported)

To enable/disable either or both keyboard and PS/2 mouse power-on
functions, follow the steps outlined below:

JP38 1-3, 4-6 (default)
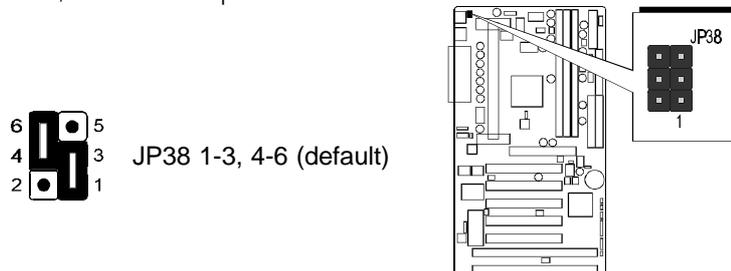
Step 1. Adjust the jumper group JP38 as shown in the following table.

K/B & PS/2 Mouse Power-On - JP38			
Keyboard & PS/2 Mouse Power-On Disabled	Keyboard & PS/2 Mouse Power-On Enabled	Keyboard Power-On Enabled	PS/2 Mouse Power-On Enabled

Step 2. Set the Power On field to the proper value (Hot-key or PS/2
            Mouse) in Integrated Peripherals menu of BIOS setup.

❷ CPU Host Frequency Setting (JP39)

The default CPU host frequency setting is 66MHz. It is defined according to Intel Pentium II/III and Celeron CPU specification. We strongly advise novice users not to modify the original setting of the CPU host frequency, for setting an incorrect value may damage your CPU.

For experienced users, the AB61 mainboard provides an alternative Hard-Configure function to adjust your CPU host frequency manually.

Note: Before you adjust your CPU host frequency by jumper, you need to set CPU Host/PCI Clock to **default** in frequency/voltage control of BIOS setup program.

Insert mini-jumper caps properly on JP39 to reach desired CPU Host Frequency, as shown in the following table.

CPU Host Clock	JP39 66MHz based processor	JP39 100MHz based processor
66MHz	(jumper setting)	(jumper setting)
75MHz	(jumper setting)	(jumper setting)
83MHz	(jumper setting)	(jumper setting)
100MHz	N/A	(jumper setting)
112MHz	N/A	(jumper setting)
133MHz	N/A	(jumper setting)
140MHz	N/A	(jumper setting)
150MHz	N/A	(jumper setting)
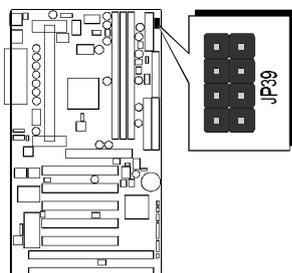
Note: 75, 83 MHz are over-clock usage for 66MHz base processor, and 112 ~ 150MHz are over-clock usage for 100MHz base processor. However, over-clocking is not a recommended practice.

➌ CPU Clock Ratio Setting (JP37)

AB61 mainboard provides a jumper group JP37 to set CPU speed configure by BIOS or by hardware jumper.

By inserting jumper pack on Auto group, the user can Soft-Configure the CPU Host Frequency and CPU Clock Ratio from BIOS.

By removing jumper pack from Auto group and inserting mini jumpers on Manual group properly, the user can configure the CPU Clock Ration manually.
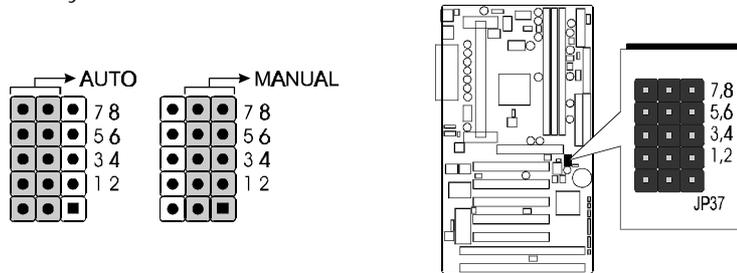
CPU Clock Ratio	JP37	CPU Clock Ratio	JP37	CPU Clock Ratio	JP37
BIOS Setup 2x ~ 5x (Default)		4 x (266 / 66) (400 / 100) (533 / 133)		6.5 x (432 / 66) (650 / 100)	
2 x (133 / 66) (200 / 100)		4.5 x (300 / 66) (450 / 100) (600 / 133)		7 x (465 / 66) (700 / 100)	
2.5 x (166 / 66) (250 / 100)		5 x (333 / 66) (500 / 100)		7.5 x (498 / 66) (750 / 100)	
3 x (200 / 66) (300 / 100)		5.5 x (366 / 66) (550 / 100)		8 x (531 / 66) (800 / 100)	
3.5 x (233 / 66) (350 / 100)		6 x (399 / 66) (600 / 100)			

❹ CPU Vcore Fine tune (JP48)

AB61 mainboard supports a 4-pin jumper JP48 to increase CPU Voltage which provide from mainboard.

Increase 0.15% CPU Core Voltage	Increase 0.5% CPU Core Voltage	Increase 1.5% CPU Core Voltage	Increase 7.8% CPU Core Voltage
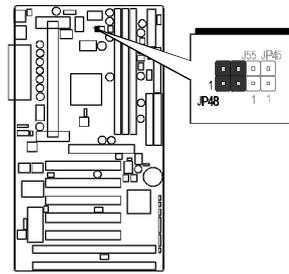
❺ Over-Clocking the CPU (J55 & JP45)

> Warning :   Over-clocking is not a recommended practice for it may damage both the mainboard and the processor.

J55, JP45 Close (Default)

JP45 Close (66MHz Based Processor over-clock to 100MHz Processor)

J55, JP45 Open (100MHz Based Processor over-clock to 133MHz Processor)
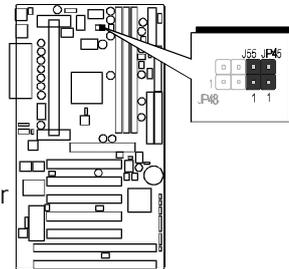
❻ Clear CMOS (JP19)

JP19 is used to clear CMOS data. Clearing CMOS will result in permanently erasing the previous system configuration settings and restoring the original (factory-set) system settings.

Pin 1-2 (Default)

Pin 2-3 (Clear CMOS)

Step 1. Turn off the system power (PC-> Off)

Step 2. Remove jumper cap from JP19 pins 1-2

Step 3. Place the jumper cap on JP19 pin 2-3 for a few seconds

Step 4. Return the jumper cap to pin 1-2

Step 5. Turn on the system power (PC-> On)
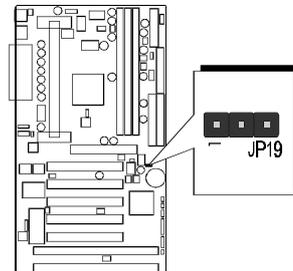
❽ PS/2 Keyboard & PS/2 Mouse Connectors

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 minitower), 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 minitower 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.
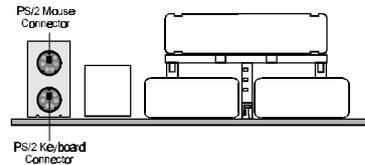
❾ USB1/USB2 Port Connectors

Two female connectors USB1/USB2 share the same USB (Universal Serial Bus) bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB1/USB2 connector.
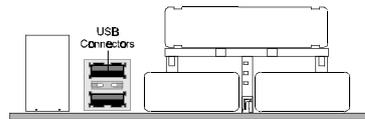
❿ COM1 / COM2 Connector

This mainboard can accommodate two serial device on COM1/COM2 .

Attach a serial device cable to the DB9 serial port COM1/COM2 at the back panel of your computer.
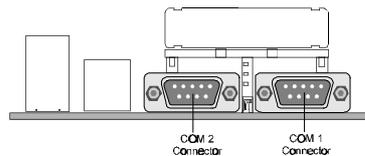
⓫ Parallel Port Connector

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.
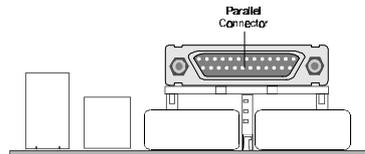
⓬ ATX Power On/Off Switch Connector (PWON - S1)

The Power On/Off Switch is a momentary type switch used for turning on or off the system's ATX power supply. Attach the connector cable from the Power Switch to the 2-pin PWON header on the mainboard.
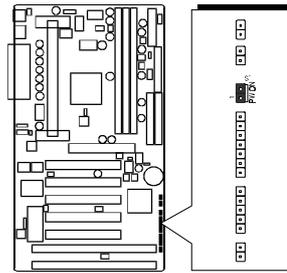
> Note : Please notice the Speaker and all the LED connector is directional. If your chassis's LED does not light during running, please simply change to the opposite direction.

⓭ Green LED Connector (GLED - J48)

The Green LED (GLED) indicates that the system is currently in one of the power savings 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 GLED header.
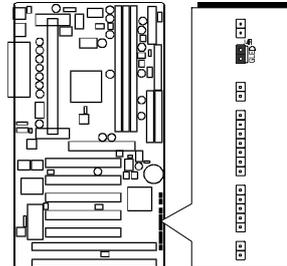
⓮ EPMI Connector (EPMI - J42)

Hardware System Management Interface (EPMI) header may attach to a 2-pin momentary switch. Press the EPMI switch to force the system into power savings mode; press again to resume normal operation.
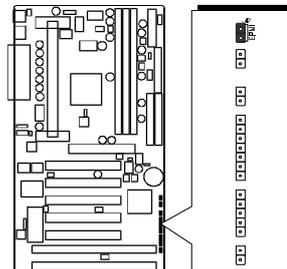
⑮ HDD LED Connector (IDE LED - S3)

Attach the connector cable from the IDE device LED to the 2-pin HDD LED header. The HDD LED lights up whenever an IDE device is active.
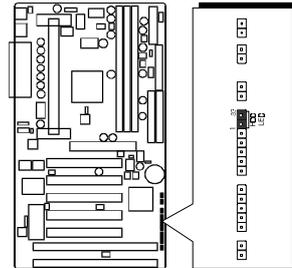
⑯ Hardware Reset Connector (RST - J32)

Attach the 2-pin hardware reset switch cable to the RST header. Pressing the reset switch causes the system to restart.
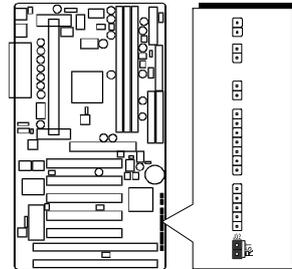
⑰ Speaker Connector (SPK - JP24)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPK).
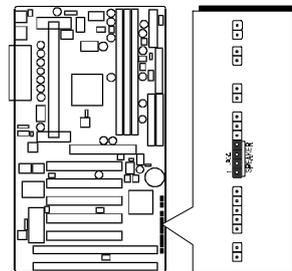
⑱ PWR LED Connector (PWR - J27)

Attach the 2-pin Power-LED connector cable from the housing front panel to the PWR header on the mainboard. The power LED stays lit while the system is running.
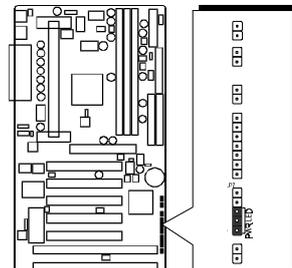
⑲ Keylock Connector (KEYLOCK - J27)

Attach the 3-pin Power-LED connector cable from the housing front panel to the PWR header on the mainboard. The power LED stays lit while the system is running.
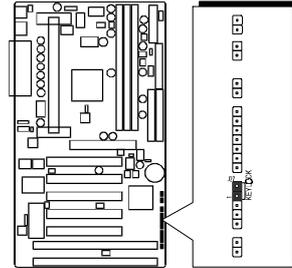
⑳ Enhanced IDE Ports and Floppy Connectors

The AB61 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 (FDC) to accommodate the Floppy Disk Drive (F.D.D.). Moreover, this mainboard comes with one 40pin ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.

Note : Please connect your system H.D.D. on IDE 1.
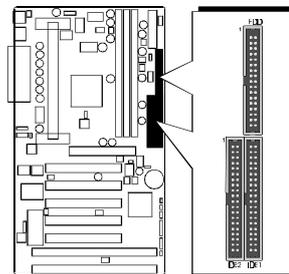
Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.

㉑ ATX Power Supply Connector (J31)

Locate the 20-pin male header ATX power connector (J31) on your mainboard. Plug the power cable from the ATX power supply unit directly into JWR1 ATX power supply connector.
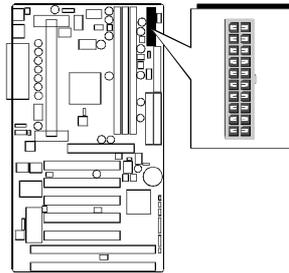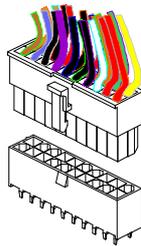
Note 1: The ATX power connector is directional and will not go in unless the guides match perfectly making sure that pin#1 is properly positioned.

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

Note 3: This mainboard requires an ATX power supply of at least 200 watts with power good signal.

㉒ Cooling Fan Connectors for CPU (JP29), Chassis (JP28), (J43) & (J47)

The mainboard provides four onboard 12V cooling fan power connectors to support CPU (JP29), Chassis (JP28), (J43) and (J47) cooling fans.

Note: Both cable wiring and type of plug may vary depending 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.
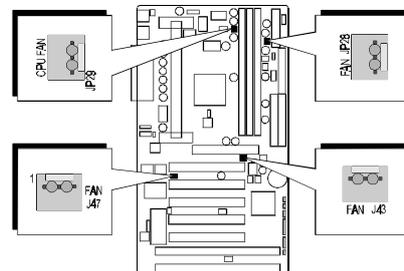
㉓ IR Connector (JP4)

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

IR Pin Assignments:
1 = VCC
2 = VCC
3 = IRRX
4 = Ground
5 = IRTX
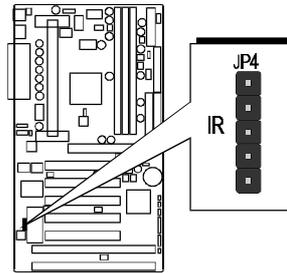
Step 1. Attach the 5-pin infrared device cable to JP4 connector. (Refer to the above diagram for IR pin assignment.)

Step 2. Configure the Infrared transfer mode in the UR2 Mode field of integrated Peripherals menu in BIOS Setup. This mainboard supports IrDA, ASKIR, Normal and SCR transfer modes.

㉔ Wake-on LAN Connector (J45)

Attach a 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function. This function lets users wake up the connected system through the LAN card.
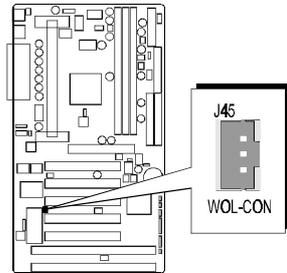
㉕ SB-Link Connector (JP46)

The main board provides a 2x3 pin SB-Link header accepts the Creative CT4600 series PCI sound cards with PCI solution to connect the legacy Sound Blaster compatible audio to the PCI bus.
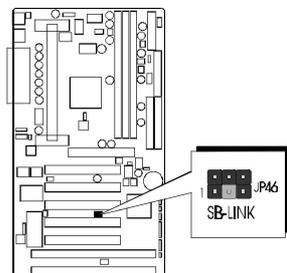
3.3 System Memory Configuration

The AB61 mainboard has three 168-pin DIMM sockets that allow you to install from 16MB up to 768MB of system memory with SDRAM (Synchronous DRAM). Each DIMM (Dual In-line Memory Module) socket can accommodate 16MB, 32MB, 64MB, 128MB, and 256MB 3.3V single or double side SDRAM modules. DIMM sockets are arranged in two banks, each memory bank made of one socket and providing a 64 bit wide data path.

The AB61 mainboard supports data integrity algorithms including EC (Error Checking) and ECC (Error Checking and Correction) in the memory array. In EC mode, single and multiple bit error detection is provided. In ECC mode, when the memory is being read from DRAM, the AB61 provides both error checking and correction of the data.

Install Memory:

Install memory in any or all of the banks and in any combination, as follows.

DIMM Socket	Memory Modules	Module Quantity
DIMM 1	16MB, 32MB, 64MB, 128MB, 256MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 2	16MB, 32MB, 64MB, 128MB, 256MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 3	16MB, 32MB, 64MB, 128MB, 256MB 168-pin 3.3V SDRAM DIMM	x 1

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.

Upgrade Memory:

You can easily upgrade the system memory by inserting additional 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 by the BIOS Standard CMOS Setup menu.

4 SOFTWARE UTILITY

4.1 AB61 Mainboard CD Overview

Note: The AB61 mainboard attachment CD contents 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 Software - Installing INF driver for Windows 9x

Manual - AB61 series mainboard user's manual in PDF format.

Link to Shuttle Homepage - Link to shuttle website homepage.

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

Quit - Close this CD.

4.2 Install INF Driver

Insert the attachment 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 Software**" bar.

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

When the files are done copying make sure you **reboot** the system to insure that the files are installed correctly.

Note : When the Windows 95/98 first reboot after Intel INF drivers installed, some new hardware devices will be found and added. For those new hardware devices, related software driver will be searched for installing: The user may find the software drivers retain on directory C:\windows\system if some of software drivers could not be found during searching.

4.3 To View the User's Manual

Insert the attachment 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 3.0**" bar if you need to install acrobe reader.

Then click on "**AB61 Manual**" bar to view AB61 user's manual.

5 BIOS SETUP

AB61 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 Entering 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

Note 1. If you miss the train (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.


```
                    ROM PCI/ISA BIOS (2A69KKZI)
                        CMOS SETUP UTILITY
                       AWARD SOFTWARE, INC.

    STANDARD CMOS SETUP            CPU SPEED SETTING

    BIOS FEATURES SETUP            INTEGRATED PERIPHERALS

    CHIPSET FEATURES SETUP         SUPERVISOR PASSWORD

    POWER MANAGEMENT SETUP         USER PASSWORD

    PNP/PCI CONFIGURATION          IDE HDD AUTO DETECTION

    LOAD BIOS DEFAULTS             SAVE & EXIT SETUP

    LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING

    Esc : Quit                     ↑ ↓ → ←  : Select Item
    F10 : Save & Exit Setup        (Shift)F2 : Change Color
```

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

Standard CMOS Setup

This setup page includes all items in a standard compatible BIOS.

BIOS Features Setup

This setup page includes all items of Award special enhanced features.

Chipset Features Setup

This setup page includes all items of chipset features.

Power Management Setup

This setup page includes all items of Power Management features.

PnP/PCI Configuration setup

This item specifies the value (in units of PCI bus blocks) of the latency timer for the PCI bus master and the IRQ level for PCI device. Power-on with BIOS defaults

Load BIOS Defaults

BIOS defaults loads the values required by the System for the maximum performance. However, you can change the parameter through each Setup Menu.

Load Setup Defaults

Setup defaults loads the values required by the system for the O.K. performance. However, you can change the parameter through each Setup Menu.

CPU Speed Setting

This setup page includes all items of CPU speed features.

Integrated Peripherals

This setup page includes all items of peripheral features.

Supervisor Password

Change, set, or disable supervisor password. It allows you to limit access to the system and Setup, or just to Setup.

User Password

Change, set, or disable user password. It allows you to limit access to the system and Setup, or just to Setup.

IDE HDD Auto Detection

Automatically configure IDE hard disk drive parameters.

Save & Exit Setup

Save CMOS value change to CMOS and exit setup

Exit Without Saving

Abandon all CMOS value changes and exit setup.

✍ Standard CMOS Setup

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.

```
                    ROM PCI/ISA BIOS (2A69KHZB)
                        STANDARD CMOS SETUP
                        AWARD SOFTWARE, INC.

   Date (mm:dd:yy) : Sat, Jul 18 1998
   Time (hh:mm:ss) : 12 : 25 : 12

   HARD DISKS          TYPE    SIZE   CYLS HEAD PRECOMP LANDZ SECTOR  MODE

   Primary Master   : Auto       0      0    0       0     0      0  AUTO
   Primary Slave    : Auto       0      0    0       0     0      0  AUTO
   Secondary Master : Auto       0      0    0       0     0      0  AUTO
   Secondary Slave  : Auto       0      0    0       0     0      0  AUTO

   Drive A : 1.44M, 3.5 in.
   Drive B : None                        ┌──────────────────────────┐
                                         │  Base Memory:        0K   │
   Video    : EGA/VGA                    │  Extended Memory:    0K   │
   Halt On  : All Errors                 │     Other Memory:  512K   │
                                         │  ──────────────────────   │
                                         │     Total Memory:  512K   │
                                         └──────────────────────────┘
   ESC : Quit            ↑ ↓ → ←  : Select Item       PU/PD/+/- : Modify
   F1  : Help            (Shift)F2 : Change Color
```

Date

The date format is < day > , < month > < date > < year > . Press < F3 > to show the calendar.

Time

The time format is < hour > < minute > < second > . The time is calculated base on the 24-hour military-time clock. For example. 5 p.m. is 17:00:00.

Hard Disks Type

This item identify the types of hard disk drives that has been installed in the computer. There are 46 predefined types and a user definable type.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press < Enter > . Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this item. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press < Enter> . Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

The user may also set those items to AUTO to auto configure hard disk drives parameter when system power-on.

If a hard disk drive has not been installed select NONE and press < Enter> .

Drive A type/Drive B type

This item specifies the types of floppy disk drive A or drive B that has been installed in the system.

Video

This item selects the type of adapter used for the primary system monitor that must matches your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

Halt On

This item determines if the system will stop, when an error is detected during power up.

Memory

This item is display-only. It is automatically detected by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the mainboard, or 640K for systems with 640K or more memory installed on the mainboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

✍ *BIOS Features Setup*

```
                        ROM PCI/ISA BIOS (2A69KHZD)
                           BIOS FEATURES SETUP
                           AWARD SOFTWARE, INC.

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

Virus Warning

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt it made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

```
                        !WARNING!
              Disk boot sector is to be modified
        Type "Y" to accept write or "N" to abort write
                      Award Software, Inc.
```

CPU Internal Cache

This item enables CPU internal cache to speed up memory access.

External Cache

This item enables CPUsecondaryl cache to speed up memory access.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enable when the external cache contains ECC SRAMs.

Processor Number Feature

Allows you to Enabled/Disabled, the Pentium III processor serial number.

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.

Boot Sequence

This item determines which drive computer searches first for the disk operating system. Default setting is A, C, SCSI.
BIOS also support system boot from CD-ROM drive or SCSI hard disk drive.

Swap Floppy Drive

When this item enables, the BIOS will swap floppy drive assignments so that Drive A: will function as Drive B: and Drive B: as Drive A:.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks.

Boot Up NumLock Status

When this option enables, BIOS turns on *Num Lock* when system is powered on.

Boot Up System Speed

This option sets the speed of the CPU at system boot time. The settings are *High* or *Low*.

Gate A20 Option

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

Typematic Rate Setting

This determines if the typematic rate is to be used. when disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin the report that the key has been depressed repeatedly.
For example, you would use such a feature to accelerate cursor movements with the arrow keys.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, this selection allows you select the rate at which the keys are accelerated.

Typematic Delay (Msec)

When the typematic rate is enabled, this selection allows you to select the delay between when the key was first depressed and when the acceleration begins

Security Option

This item allows you to limit access to the System and Setup, or just to Setup. When *System* is selected, the System will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
When *Setup* is selected, the System will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

PCI / VGA Palette Snoop

This item must be set to enabled if there is a MPEG ISA card installed in the system, and disabled if there is no MPEG ISA card installed in the system.

OS Select For DRAM > 64MB

This item allows you to access the memory that over 64 MB in OS/2.

Report No FDD For WIN 95

This item enable for report No FDD for WIN95 if No FDD install.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

C8000-CBFFF Shadow/DC000-DFFFF Shadow

These categories determine whether option ROMs will beChipset Features SetupAuto Configuration copied to RAM. An example of such option ROM would be support of on-board SCSI.

❧ Chipset Features Setup


```
                    ROM PCI/ISA BIOS (2A69KH2I)
                      CHIPSET FEATURES SETUP
                        AWARD SOFTWARE, INC.
┌─────────────────────────────────────┬──────────────────────────────────┐
│ Auto Configuration      : Enabled    │                                  │
│ EDO DRAM Speed Selection : 60ns      │                                  │
│ EDO CASx# MA Wait State  : 1         │                                  │
│ EDO RASx# Wait State     : 2         │                                  │
│ SDRAM Control by         : Manaul    │                                  │
│ SDRAM RAS-to-CAS Delay   : 3         │                                  │
│ SDRAM RAS Precharge Time : 3         │                                  │
│ DRAM Idle Timer          : 0         │                                  │
│ SDRAM CAS latenc         : 3         │                                  │
│ SDRAM Precharge          : Disabled  │                                  │
│ DRAM Data Integr         : Non-ECC   │                                  │
│ System BIOS Cach         : Disabled  │                                  │
│ Video  BIOS Cacheable    : Disabled  │                                  │
│ Video RAM Cacheable      : Disabled  │                                  │
│ 8 Bit I/O Recovery Time  : NA        │                                  │
│ 16 Bit I/O Recovery Time : NA        │ ESC : Quit      ↑↓→← : Select Item│
│ Memory Hole At 15M-16M   : Disabled  │ F1  : Help      PU/PD/+/- : Modify│
│ Passive Release          : Disabled  │ F5  : Old Values (Shift)F2 : Color│
│ Delayed Transaction      : Disabled  │ F6  : Load BIOS  Defaults         │
│ AGP Aperture Size (MB)   : 4         │ F7  : Load Setup Defaults         │
└─────────────────────────────────────┴──────────────────────────────────┘
```

Auto Configuration

The default setting of the optimal timings for items 3 through 7 for
60ns EDO DRAM modules.

EDO DRAM Speed Selection

This item set the EDO DRAM Read/Write timings that the system uses.
When item of "Auto Configuration" is disabled, this item will not show
up.

EDO CASx# MA Wait State

When enabled, one additional wait state is inserted before the asser-
tion of the first memory address line MA and CAS/RAS assertion
during DRAM read or write lead off cycles.

SDRAM RAS-to-CAS Delay

When SDRAM is refreshed, both rows and columns are address sepa-
rately. This setup item allows you to determine the timing of the
transition from Row Address Strobe (RAS) to Column Address Strobe
(CAS). The options are *Slow* for 3 and *Fast* for 2 CLKs.

SDRAM RAS Precharge Time

SDRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for Row Address Strobe to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost. The options are *Slow* for 3 and *Fast* for 2 CLKs.

DRAM Idle Timer

This item specifies the number of clocks that the DRAM controller will remain in IDLE state before precharging all pages.

SDRAM CAS latenc

This item defines the CAS Latency timing parameter of the SDRAM expressed in 66MHz clocks. The options are *2* and *3* CLKs.

SDRAM Precharge

This item Enable/Disable the SDRAM precharge when a page miss occurs.

DRAM Data Integr

This item allows the user to set DRAM data integrity mode to Non-ECC or ECC. Non-ECC has byte-wide write capability but no provision for protecting data integrity in the DRAM array. ECC allows a detection of single-bit and multiple-bit errors and recovery of single-bit errors.

System BIOS Cach

This item allows the user to set whether the system BIOS F000~ FFFF areas are cacheable or non-cacheable.

Video BIOS Cacheable

This item allows the user to set whether the video BIOS C000~ C7FF areas are cacheable or non-cacheable.

Video RAM Cacheable

This is a new cache technology for the video memory of the processor. It can greatly improve the display speed by caching the display data. You must leave this on the default setting of *Disabled* if your display card cannot support this feature or else your system may not boot.

8 Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much after than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

16-Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Passive Release

When enabled, the chipset provides a programmable passive release mechanism to meet the required ISA master latencies.

Delayed Transaction

Since the 2.1 revision of the PCI specification requires much tighter controls on target and master latency. PCI cycles to or from ISA typically take longer. When enabled, the chipset provides a programmable delayed completion mechanism to meet the required target latencies.

AGP Aperture Size (MB)

This item allows the user to set memory-mapped, graphics data structures can reside in Graphics Aperture.

✎ *Power Management Setup*


```
                    ROM PCI/ISA BIOS (2A69KH2I)
                      POWER MANAGEMENT SETUP
                       AWARD SOFTWARE, INC.

 ACPI Suspend Type    : S1(POS)    ** Reload Global Timer Events **
 Power Management     : User Define  IRQ[3-7,9-15],NMI  : Disabled
 PM Control by APM    : Yes          Primary IDE 0      : Disabled
 Video Off Method     : V/H SYNC+Blank Primary IDE 1     : Disabled
 Video Off After      : Standby      Secondary IDE 0    : Disabled
 MODEM Use IRQ        : 3            Secondary IDE 1    : Disabled
 Doze Mode            : Disable      Floppy Disk        : Disabled
 Standby Mode         : Disable      Serial Port        : Enabled
 Suspend Mode         : Disable      Parallel Port      : Disabled
 HDD Power Down       : Disable
 Throttle Duty Cycle  : 62.5%
 PCI/VGA Act-Monitor  : Disabled
 Soft Off by PWR BTTN : Instant Off
 PowerOn by Ring      : Enabled
 Resume by LAN        : Disabled
 IRQ 8 Break Suspend  : Disabled   ESC : Quit        ↑↓→← : Select Item
 Resume by Alarm      : Disabled   F1  : Help        PU/PD/+/- : Modify
                                   F5  : Old Values  (Shift)F2 : Color
                                   F6  : Load BIOS  Defaults
                                   F7  : Load Setup Defaults
```

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

ACPI Suspend Type

This item determine to support ACPI Suspend Type.

Power Management

This item determines the options of the power management function. *Max Saving* puts the system into power saving mode after a brief period of system inactivity; *Min Saving* is the same as *Max Saving* except the time of the system inactivity period is longer; *Disabled* disables the power saving feature; *User Defined* allows you to set power saving options according to your preference.

PM Control by APM

If this item set to *No*, system BIOS will be ignored and APM calls the power to manage the system.
If this item setup to *Yes*, system BIOS will wait for APM's prompt before it enter any PM mode e.g. *DOZE, STANDBY* or *SUSPEND.*

Video Off Method

This item define the video off features - *V/H SYNC+Blank*, *DPMS*, and *Blank Only*. The first option, which is the default setting, blanks the screen and turns off vertical and horizontal scanning; *DPMS* allows the BIOS to control the video display card if it supports the *DPMS.*

Video Off After

This item define when to activate the video off feature for monitor power management. The settings are N/A, Doze, Standby and Suspend.

MODEM Use IRQ

This item determines the IRQ in which the MODEM can use.
The choice: 1, 3, 4, 5, 7, 9, 10, 11, N/A.

Doze Mode

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

This item defines the continuous HDD idle time before the HDD enters power saving mode (motor off). The options are from 1 min to 15 min and *Disabled*.

Throttle Duty Cycle

This item determines the duty cycle for the clock control thermal throttling mode. The duty cycle indicates the percentage of time while in the thermal throttle mode. The settings between 12.5% and 87.5%.

PCI/VGA Act-Monitor

If this item is set to Enabled, the PCI/VGA activity event will be monitored to reload global timer.

Soft-Off by PWR-BTTN

The setting of **Instant-Off** allows the ATX switch to function as a normal system power off button when pressed for less than 4 seconds. The setting of **Delay 4 Sec.** allows the button to have a dual function where to press the button for less than 4 seconds will place the system in suspend mode, and pressing the button for more than 4 seconds will shut place the system off.

Resume by Ring

This item determine the system will resume by activating of modem ring.

Resume by LAN

This item determine the system will resume by activity of LAN. If enabled this feature system will power-on itself from power off when the activity of LAN.

Note: AB61 support Wake-ON-LAN function with Intel LAN card only.

IRQ 8 Break Suspend

You can turn On or Off monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Resume by Alarm

This item determine the system will resume by activity of R.T.C. If enabled this feature and enter resume date and time. When date and time expire, system will power-on itself from power off.

** Reload Global Timer Events **

If any of these items is set to Disabled, that system activity event will not be monitored to reload global timer.

If these items is set to Enabled, that system activity event will be monitored to reload global timer.

These items include IRQ[3-7, 9-15], NMI, Primary IDE0/1, Secondary IDE 0/1, Floppy Disk, Serial Port and Parallel Port.

❧ PnP/PCI Configuration

```
                    ROM PCI/ISA BIOS (2A69KHZI)
                        PNP/PCI CONFIGURATION
                        AWARD SOFTWARE, INC.

  PNP OS Installed       : No      Used MEM base addr  : N/A
  Resources Controlled By  : Manual
  Reset Configuration Data : Disabled   Assign IRQ For USB  : Enabled
                                        PCI Latency Timer(CLK):  64
  IRQ-3   assigned to : PCI/ISA PnP     MS IRQ Routing Table : Disabled
  IRQ-4   assigned to : PCI/ISA PnP
  IRQ-5   assigned to : PCI/ISA PnP
  IRQ-7   assigned to : PCI/ISA PnP
  IRQ-9   assigned to : PCI/ISA PnP
  IRQ-10  assigned to : PCI/ISA PnP
  IRQ-11  assigned to : PCI/ISA PnP
  IRQ-12  assigned to : PCI/ISA PnP
  IRQ-14  assigned to : PCI/ISA PnP
  IRQ-15  assigned to : PCI/ISA PnP
  DMA-0   assigned to : PCI/ISA PnP
  DMA-1   assigned to : PCI/ISA PnP    ESC : Quit        ↑↓← : Select Item
  DMA-3   assigned to : PCI/ISA PnP    F1  : Help        PU/PD/+/- : Modify
  DMA-5   assigned to : PCI/ISA PnP    F5  : Old Values  (Shift)F2 : Color
  DMA-6   assigned to : PCI/ISA PnP    F6  : Load BIOS  Defaults
  DMA-7   assigned to : PCI/ISA PnP    F7  : Load Setup Defaults
```

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when 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.

PNP OS Installed

When this item is set to Yes, it will allow the PnP OS(Windows 95) control the system resources except PCI devices and PnP boot devices. Default setting is *No*.

Resources Controlled By

The Award Plug and Play BIOS has the capability 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 as Windows 95.

Reset Configuration Data

This item allows you to determine whether to reset the configuration data or not.

IRQ 3/4/5/7/9/10/11/12/14/15, assigned to

These items allow you to determine the IRQ assigned to the ISA bus and is not available for PCI slot.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

DMA 0/1/3/5/6/7 assigned to

These items allow you to determine the DMA assigned to the ISA bus and is not available for PCI slot.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

Used MEM base addr

This item is used to select a base address for the memory area used by any peripheral that requires high memory.

The choices are *C800, CC00, D000, D400, D800, DC00* and *N/A.*

Assign IRQ for USB

This item allows the user to assign IRQ to on-board USB controller or not.

Since on-board controller is enabled always, if none of IRQ is assigned to it, there will be a question mark report on system device under windows 95.

PCI Latency Timer (CLK)

The number of clocks programed in the PCI Latency Timer represents the guaranteed time slice alloted to the 440BX, after which it must complete the current data transfer phase and surrender the bus as soon as its bus grant is removed.

The PCI Latency Timer is used to guarantee to the PCI agents a minimum amount of the system resource.

The default setting is 64 PCI clocks.

MS IRQ Routing Table

This item allows the user to set BIOS IRQ Routing Table Enabled or Disabled.

✎ *CPU Features Setup*

```
                    ROM PCI/ISA BIOS (2A69KHZD)
                         CPU FEATURES SETUP
                        AWARD SOFTWARE, INC.

 Auto Detect DIMM/PCI Clk : Enabled
 Spread Spectrum          : Disabled
 CPU Host Clock (CPU/PCI) : 100 MHz
 CPU/PCI Clock Ratio      : x3.5
 CPU Speed                : 350 MHz
 CPU Warning Temperature  : Disabled
 Current System Temp.     : XX°C/XX°F
 Current CPU1 Temperature : XX°C/XX°F
 Current CPUFAN1 Speed    : XXXXRPM
 Current CPUFAN2 Speed    : XXXXRPM
 Current CPUFAN3 Speed    : XXXXRPM
 Vcore : XX.XV    Vtt   : XX.XV
 Vio   : XX.XV    + 5 V : XX.XV
 +12 V : XX.XV    -12 V :-XX.XV
 - 5 V :-XX.XV
 Shutdown Temperature     : 60°C/140°F   ESC : Quit         ↑↓← : Select Item
                                         F1  : Help         PU/PD/+/- : Modify
                                         F5  : Old Values   (Shift)F2 : Color
                                         F6  : Load BIOS  Defaults
                                         F7  : Load Setup Defaults
```

Auto Detect DIMM/PCI Clock

Enabling this item allosw system auto detect and close clock signal to empty DIMM/PCI slot to reduce EMI.

Spread Spectrum

This item allows the user to enable Spread Spectrum Modulated to reduce the EMI.

CPU Host Clock (CPU/PCI)

This item allows the user to adjust CPU Host Bus Clock from BIOS when JP37 is set to Auto.

This item will not show up when JP37 is set to Manual.

CPU/PCI Clock Ratio

This item allows the user to adjust CPU Host Clock/Internal Clock ration when JP37 is set to Auto.

The user may adjust CPU Clock Ratio from x2 to x8.

This item will not show up when JP37 is set to Manual.

CPU Speed

This item is show only. when CPU Host Clock and CPU Clock Ratio is set, the result will be display on this item.

CPU Warning Temperature

Since the mainboard support CPU temperature monitoring and over-hear alert. This item allows the user to set the threshold of CPU warning temperature. When CPU temperature over the threshold, system will slow down clock to prevent CPU damage.

"This category is not available if optional feature absent."

Current System Temperature

Since the mainboard support System and CPU temperature monitoring and overheat alert. This item indicate the current main board temperature.

"This category is not available if optional feature absent."

Current CPU1 Temperature

Since the mainboard support System and CPU temperature monitoring and overheat alert. This item indicate the current Processor temperature.

"This category is not available if optional feature absent."

Current CPUFAN1/2/3 Speed

The mainboard can detect two fans rotation speed for CPU cooler and system. CPUFAN1 indicate the CPU cooling fan's rotation speed which inserting on JP28 and CPUFAN2 indicate cooling fans rotation speed which inserting on JP29.

"This category is not available if optional feature absent."

IN0(V) ~ IN2(V), +5V ~ -5V

The mainboard support CPU and mainboard voltages monitoring. The onboard hardware monitor is able to detect the voltages output of the voltage regulators and power supply.

"This category is not available if optional feature absent."

Shutdown Temperature

Select the combination of lower and upper limits for the system shut-down temperature, if your computer contains an environmental moni-toring system. If the temperature extends beyond either limit, the system shuts down.

"This category is not available if optional feature absent."

❧ Integrated Peripherals

```
                    ROM PCI/ISA BIOS (2A69KHZI)
                     INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.

 IDE HDD Block Mode      : Enabled    Onboard Serial Port 2    : Auto
 IDE Primary Master PIO  : Auto       UART Mode Select         : Standard
 IDE Primary Slave  PIO  : Auto       UART2 Duplex Mode        : Half
 IDE Secondary Master PIO: Auto       RxD , TxD Active         : Hi,Lo
 IDE Secondary Slave  PIO: Auto       IR Transmittiion delay   : Enabled
 IDE Primary Master UDMA : Auto       Onboard Parallel Port    : 3
 IDE Primary Slave  UDMA : Auto       Parallel Port Mode       : SPP
 IDE Secondary Master UDMA: Auto      ECP Mode Use DMA         : 378/IRQ
 IDE Secondary Slave  UDMA: Auto      EPP Mode Select          : EPP1.7
 On-Chip Primary  PCI IDE: Enabled    PWRON After PWR-Fail     : Off
 On-Chip Secondary PCI IDE: Enabled
 USB Keyboard Support    : Disabled
 Init Display First      : PCI Slot

 POWER ON Function       : BUTTON ONLY
 KB Power ON Password    : Enter      ESC : Quit        ↑↓←→ : Select Item
 Hot Key Power ON        : Ctrl-F1    F1  : Help      PU/PD/+/- : Modify
 KBC input clock         : 8 MHz      F5  : Old Values  (Shift)F2 : Color
 Onboard FDC Controller  : Enabled    F6  : Load BIOS  Defaults
 Onboard Serial Port 1   : Auto       F7  : Load Setup Defaults
```

IDE HDD Block Mode

This item is used to set IDE HDD Block Mode. If your IDE Hard Disk supports block mode, then you can enable this function to speed up the HDD access time. If not, please disable this function to avoid HDD access error.

IDE Primary/Secondary Master / Slave PIO

In this items, there are five modes defined in manual mode and one automatic mode. There are *0, 1, 2, 3, 4,* and *AUTO* is the default settings for on board Primary/Secondary Master / Slave PIO timing.

IDE Primary/Secondary Master / Slave UDMA

On this mainboard, Intel 440BX PCIset improves IDE transfer rate using Bus Master UltraDMA/33 IDE which can handle data transfer up to 33MB/sec. The options are *Disabled, Enabled and Auto, Auto* is the default settings for on board Primary/Secondary Master / Slave *UltraDMA33.*
Note : Your hard drive must also support UDMA for this feature to work.

On-Chip Primary/Secondary PCI IDE

As stated above, your system includes two built-in IDE controllers, both of which operate on the PCI bus. This setup item allows you either to enable or disable the primary/Secondary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller.

USB Keyboard Support

This item is used to defined USB Keyboard is *Enabled* or *Disabled*.

Init Display First

This item is used to determine initial device when system power on. The options are *PCI* and *AGP*.

POWER ON Function

This item is used to defined Keyboard & PS/2 mouse power-on function enabled or disabled. The options are **Button Only**, **HOT-Key** and **PS/2 Mouse**.

Button Only - Only soft-on/off button on the front panel is available.

Hot-Key - Power-on by soft-on/off button and keyboard are available. The user may set power-on hot-key from < Ctrl > < F1 > to < Ctrl > < F12 >

PS/2 Mouse - Powre-on by soft-on/off button and PS/2 Mouse are available.

Note:1. When item of PS/2 Mouse or HOT-Key is selected, please also adjust jumper JP38 to the proper position.
2. USB keyboard, USB Mouse and Serial Mouse are not supported to this function.

KB Power ON Password

This item set the keyboard power-on password. When using keyboard to power on, just Enter the password.

Hot Key Power ON

Power-on by soft-on/off button and keyboard are available. The user may set power-on hot-key from < Ctrl > < F1 > to < Ctrl > < F12 > .

KBC Input Clock

This item to set the input clock to onboard keyboard controller. The options are *8MHz* and *12MHz*.

Onboard FDC Controller

This item specifies 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.

Onboard Serial Port 1 / Port 2

This item is used to define onboard serial port 1/Port 2 to *3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto* or *Disabled*.

UART Mode Select

The main board support IrDA(HPSIR) and Amplitudes Shift Keyed IR(ASKIR) infrared through COM 2 port. This item specifies onboard Infra Red mode to *IrDA 1.0, ASKIR, MIR 0.57M, MIR 1.15M, FIR* or *Standard (Disabled).*
Note : FIR is not available currently.

UART2 Duplex Mode

This item specifies onboard infrared transfer mode to full-duplex. This item will not show up when IrDA, ASKIR, or MIR UR2 modes are selected.

RxD, TxD Active

This item specifies the Active level for RxD & TxD signal.

IR Transmittion delay

This item enable/disable the delay of the IR state change from Rx to Tx mode or Tx to Rx mode.

Onboard Parallel Port

This item specifies onboard parallel port address to *378H, 278H, 3BCH* or *Disabled.*

Parallel Port Mode

This item specifies onboard parallel port mode. The options are *SPP* (Standard Parallel Port), *EPP*(Enhanced Parallel Port), *ECP* (Extended Capabilities Port), and *EPP+ECP.*

ECP Mode Use DMA

This item specifies *DMA* (Direct Memory Access) channel when ECP device is in use. The options are *DMA 1* and *DMA 3.* This item will not show up when SPP and EPP printer mode is selected.

EPP Mode Select

This item select the EPP Mode, EPP 1.9 or EPP 1.7.

PWRON After PWR-Fail

This item to set the ATX power supply status when power resume after unexpected power fail. When off is selected, power supply will maintain on soft-off status, when power is resume. When on is selected, power supply will turn on, and when former-sts is selected, power supply will maintain on the status before unexpected power fail.

✍ User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:
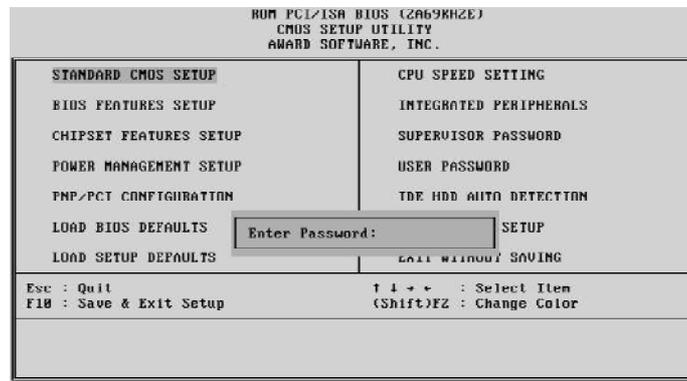
Supervisor Password and User Password

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 disabled, 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 for the password every time the system is rebooted or any time 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 memory, please refer to page 29 "Clear CMOS".

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