AS40GT/AS40GTR

Pentium 4 Processor
Based DDR MAIN BOARD

User's Manual

Shuttle® Spacewalker™ AS40GT/AS40GTR

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

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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 **Chapter 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 AS40GT/AS40GTR mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle AS40GT/AS40GTR mainboard. You will find that installing your new Shuttle AS40GT/AS40GTR mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated AS40GT/AS40GTR 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 Software Utility** 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 AS40GT/AS40GTR to construct your system. Shuttle AS40GT/AS40GTR incorporates all the state-of-the-art technology of the SiS 645 chipset from SiS. It integrates the most advanced functions you can find to date in a compact ATX board. Refer to sections **3.2 Jumper Settings** and **Chapter 4 Software Utility** for an in-depth view of system construction.

This manual adopted in AS40GT and AS40GTR mainboards at the same time. The difference between AS40GT and AS40GTR is that AS40GTR equips with onboard IDE RAID Controller. In the manual, if there are some standards, characters, equipment or software only appeared or adopted by AS40GTR; it will be mentioned. **(AS40GTR only)**

1.2 Item Checklist

Check all items with you AS40GT/AS40GTR mainboard to make sure nothing is missing. The complete package should include:

✸ One piece of Shuttle AS40GT/AS40GTR Mainboard
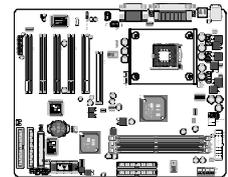
✸ One piece of Audio Cable (Central/Bass Channel)
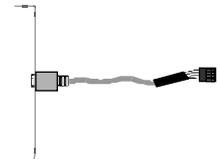
✸ One piece of ATA**100/66/33** Ribbon Cable

✸ One piece of Floppy Ribbon Cable

✸ One piece of twin ports USB Cable **(optional)**
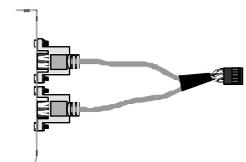
✸ AS40GT/AS40GTR User's Manual
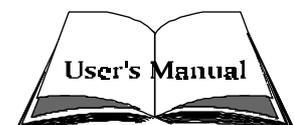
✸ One piece of Bundled CD-ROM with containing:
  ➢ AS40GT/AS40GTR user's manual saved in PDF format
  ➢ IDE RAID user's manual saved in PDF format **(AS40GTR only)**
  ➢ SiS AGP driver
  ➢ Hardware Audio driver
  ➢ IDE RAID driver and Utility **(AS40GTR only)**
  ➢ Award Flashing Utility

2 FEATURES

AS40GT/AS40GTR 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, 478-pin processors with 100 MHz FSB.

✳ Chipset

Features SiS 645 Chipset.
SiS 645, Integrated high performance DDR DRAM controller.

✳ CPU FSB Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100MHz to 166MHz in the Frequency/Voltage Control of BIOS setup program.)

✳ On Board Multi-Channel Hardware Audio Controller

Support 5.1 speakers, C3DX positional audio in 6 CH speaker mode.
HRTF-3D positional audio, supporting Direct Sound 3D and A3D interface.
Legacy SBPRO compatible.

✳ On Board IDE RAID Controller (AS40GTR only)

Support RAID 0, RAID 1 function.

✳ Versatile Memory Support

Three **184-pin DIMM** slots to support up to 3GB of PC1600, PC2100 or PC2700 compliant **DDR** SDRAM module.

✳ PCI Expansion Slots

Provides five 32-bit PCI slots.

✳ AGP Expansion Slot

Provides one 32-bit AGP slot which supports up to 4X AGP device.

✳ 6 USB Supported Onboard

➢ 2 x USB connectors on back-panel and two 10-pin headers for optional USB cable to extend another 4 USB ports .

✳ 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 DB9 Serial connectors 16550 UART compatible.

➢ 1 x Infrared communication port.
(Serial port COM2 can also be redirected to an external IrDA Adapter for wireless connection.)

➢ 1 x DB25 Parallel port supporting Standard Parallel Port (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) data transmission schemes.

➢ 1 × Line-Out (Front-Out) port.

➢ 1 × Line-In port, shared with rear speaker output when multi-channel audio is enabled.

➢ 1 × Mic-In port.

➢ 1 x MIDI/GAME port.

✳ PCI Bus Master IDE Controller Onboard

Two UltraDMA **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 the data transfer speed up to **100/66/33** MB/sec and also supports Enhanced PIO Modes 0 ~ 4.

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.

The Pentium 4 ATX power include two connectors.

✳ Advanced Configuration and Power Interface

Features four power saving 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 BIOS V6.0 PG on 2Mb Flash EEPROM and supports Green PC, Desktop Management Interface (DMI).

✳ ATX Form Factor

System board conforms to the ATX specification.
Board dimension: 305mm x 244mm.

✳ 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.

➢ **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 LAN.

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

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

➢ **CPU Host/SDRAM/PCI Clock Setting-** This item allows users to adjust CPU Host /SDRAM/PCI Clock in BIOS.

➢ **CPU Ratio Setting-** This item allows users to adjust CPU Ratio 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.

➢ **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 AS40GT/AS40GTR mainboard. Refer to the following mainboard layout to help you identify various jumpers, connectors, slots, and ports. Then follow these steps to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of AS40GT/AS40GTR

SOCKET 478

PS/2 Keyboard and
PS/2 Mouse Connectors

Two USB Connectors

Serial Port
Connector (COM1)

Parallel Connector

Serial Port
Connector (COM2)

Line-Out/Line-In/Mic-In/
Game/MIDI Connectors

Onboard Audio
Connectors- **CN4/CN5/
JP11**

Five PCI Slots

On Board Multi-Channel
Hardware Audio Controller

Extended USB 1.1
Headers - **JP5/JP4**

One AGP 1x/2x/4x Slot
On Board HighPoint372 IDE RAID
Controller (**AS40GTR only**)

ATX 12V Power Connector
ATX Power Connector
ATX AUX Power Connector

SiS 645 Chipset
FAN3   FAN1

Three 184-pin DIMM Slots

Two E-IDE Connectors

SiS961Chipset

FAN4

Programmable Flash EEPROM (FWH)

Front-Panel Connector - **JP18**

Two RAID Connectors (**AS40GTR only**)

FAN2

Floppy Connector
Wake-On-LAN Connector - **JP6**
IR Connector - **JP7**
I/O Controller
Clear CMOS - **JP1**

Step 1

CPU Installation:

This mainboard supports Intel ® Pentium ® 4 , 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
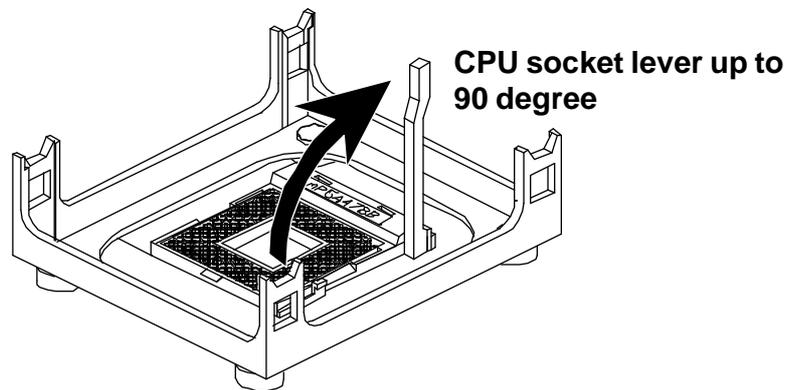
2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.

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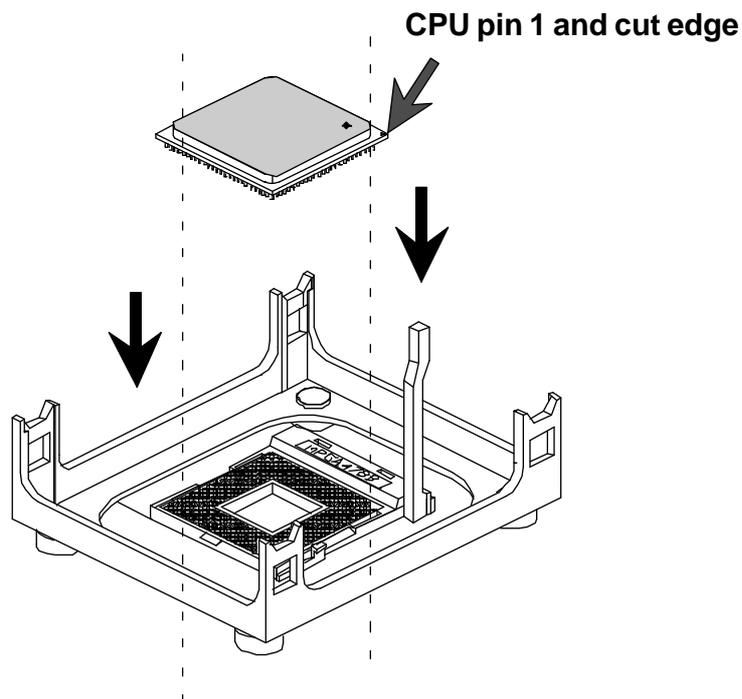
3. Press down the CPU socket lever and finish CPU installation.
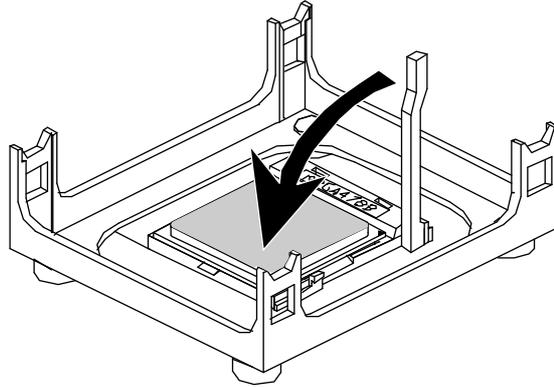
> **Note:** If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU.

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. Clear CMOS

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 DDR SDRAM System Memory

To install memory, insert DDR SDRAM memory module(s) in DIMM slot(s). Note that DDR SDRAM modules are directional and will not go in the DIMM slots unless properly oriented. After the module is fully inserted into the DIMM slots, lift the clips of both sides of the DIMM slot to lock the module in place.

DDR SDRAM
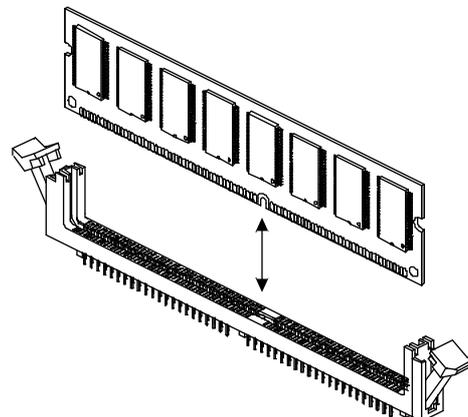
Step 4

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 board each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM have to set jumpers on Master or Slave mode depending on your willing to install more than one device for 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 in 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 through 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.
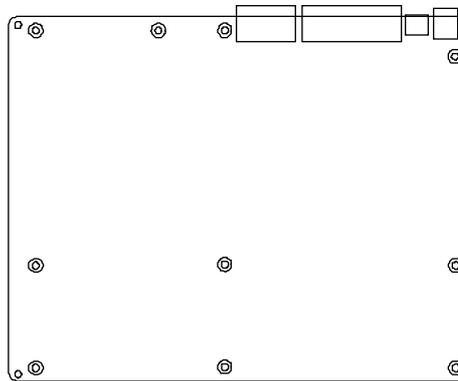
2. After deciding on the proper mounting holes, position the studs between the frame of chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical short between the board and the metal frame of 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 4 mounting studs to ensure proper attachment of the mainboard.

Step 6

Connect Front-Panel Switches/LEDs/Speaker/USB connectors

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, or USB devices etc.) These cables serve to connect the front-panel switches, LEDs, and USB connectors to the mainboard's front-panel connectors group (JP18, JP5, and JP4), as shown below.
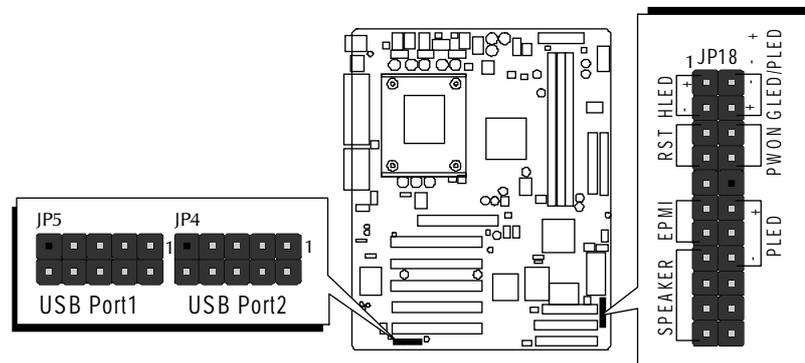
1. ATX Soft Power On/Off (PWON)
2. EPMI (Hardware System Management Interface)
3. HDD_LED (HLED)
4. Green_LED/Power-LED (GLED/PLED)
5. Power-LED (PLED)
6. Hardware Reset Switch (RST)
7. PC Speaker (SPEAKER)
8. Extended two USB Headers
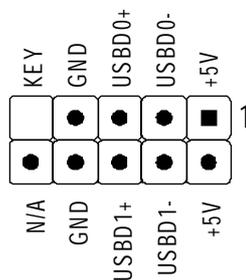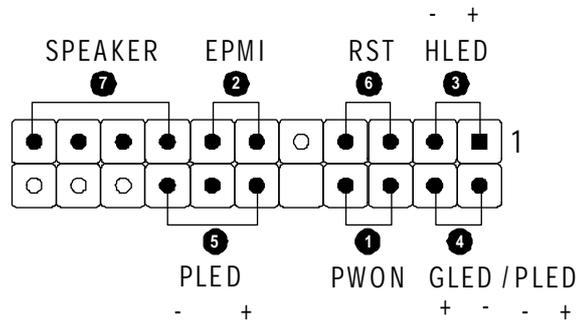
Step 7

Connect IDE, IDE RAID (AS40GTR only), and Floppy Disk Drives

1. IDE cable connector
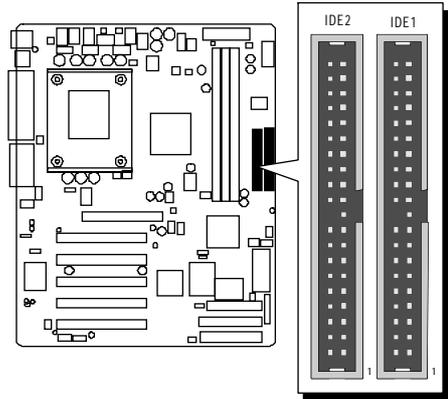
2. IDE RAID cable connector **(AS40GTR only)**
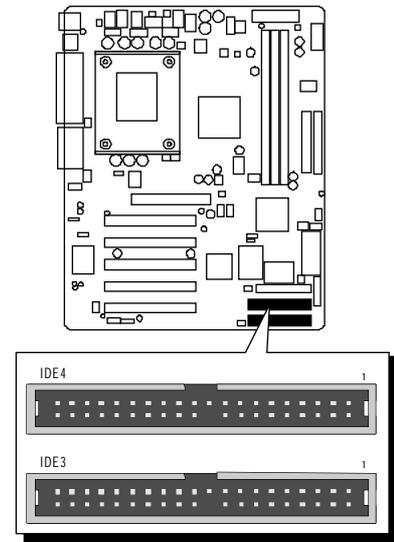
3. FDD cable connector
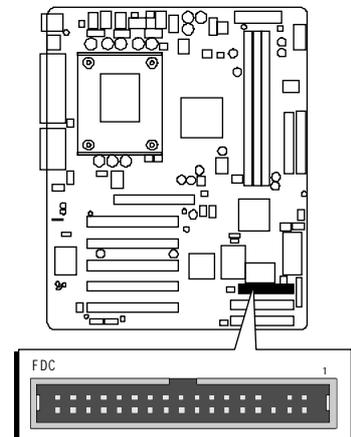
Step 8

Connect Other Internal Peripherals

1. CD_IN, AUX_IN, and Bass/Center_Out connectors
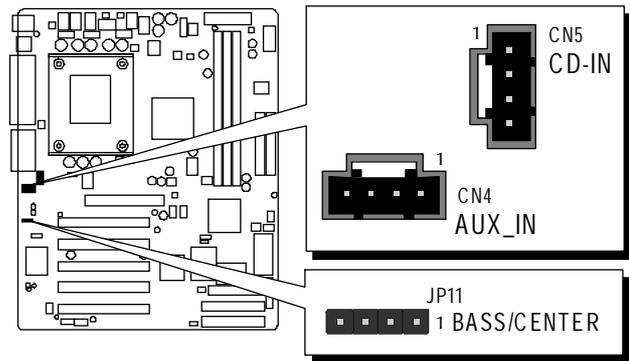
2. IR connector
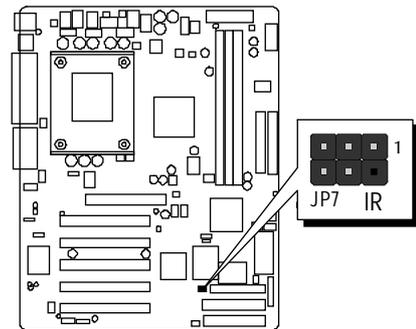
Step 9

Connect Power Supply

1. System power connector
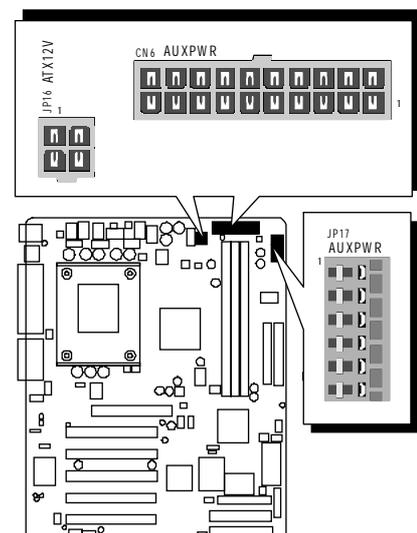
Step 10

Install Add-on Cards in Expansion Slots

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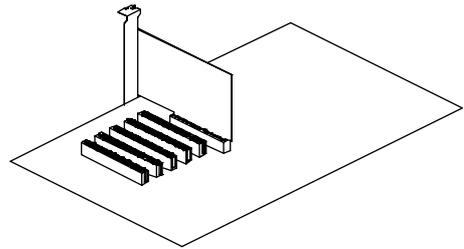
2. PCI Card
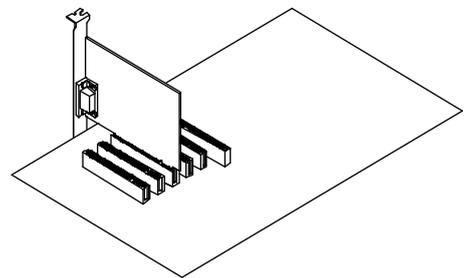
Step 11

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.
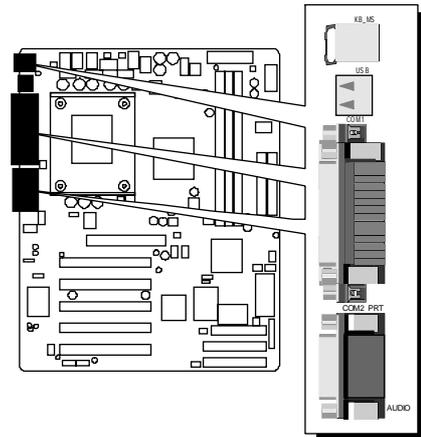
1. PS/2 Mouse and Keyboard
2. USB Port
3. COM1/2 Port
4. Parallel Port
5. Audio Line-Out (Front-Out) /Line-In (Rear-Out) / Mic-In Ports
6. MIDI/Game Port
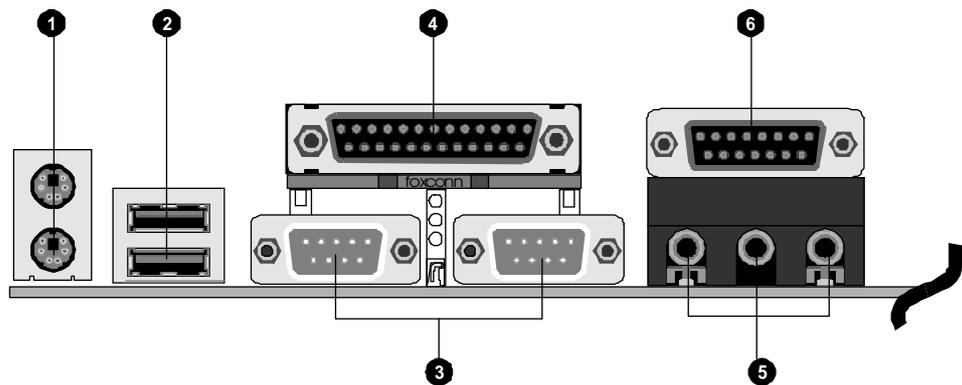
Step 12

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 partition(s) to occupy all the space available in 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 decide your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you're 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 Driver & Software Components

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

1. Insert the AS40GT/AS40GTR 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 Mainboard Software" and complete it.
4. Choose "Install Audio Device Driver" and complete it.
5. Choose "Install Highpoint RAID Driver" bar to run readme windows if you need install drivers. **(AS40GTR only)**
6. Choose "Install RAID Utility" bar to install RAID utility drivers. **(AS40GTR only)**
7. Return to the main installation window and exit from the auto-run drivers installation program.

Note: Please refer to IDE Raid Manual to install IDE RAID Controller driver when you purchase **AS40GTR** mainboard.

3.2 Jumper Settings

Several hardware settings are made through the use of jumper caps to connect jumper pins to the mainboard. Pin #1 could be located at any corner of each jumper; you just find a location marked with a while right angle, which stands for pin1#. There are several types of pin 1# shown as below:

3-pin and multi-pin (＞3) jumpers show as follows:

Pin #1 to the left:

Pin #1 on the top:

Pin #1 to the right:

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 the top of its original packaging film and 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.

Jumper & Connector Guide

Use the mainboard layout on page 11 to locate CPU socket, memory slots, expansion slots, jumpers and connectors on the mainboard during installation. The following list will help you identify jumpers, slots, and connectors along with their assigned functions:
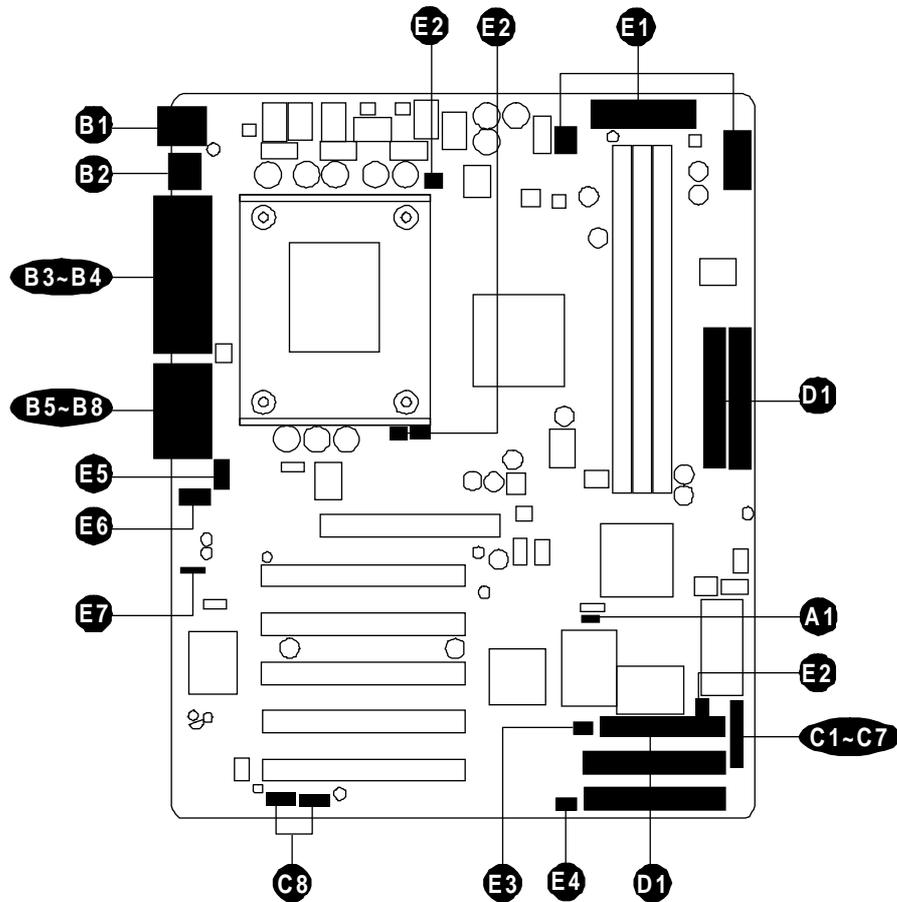
CPU/Memory/Expansion Slots

Socket478 : CPU Socket for Pentium 4 processors

DIMM1/2/3 : Three DIMM Slots for 64, 128, 256, 512 MB, and 1GB of 2.5V DDR SDRAM

AGP : One AGP (Accelerated Graphics Port) Slot

PCI : Five 32-bit PCI Expansion Slots

Jumpers

(A1) JP1   : Clear CMOS

Back-Panel Connectors

(B1) KB   : PS/2 Keyboard
(B1) MS   : PS/2 Mouse
(B2) USB   : 2 x USB (Universal Serial Bus)
(B3) COM1   : Serial Port 1 (DB9 male)
(B3) COM2   : Serial Port 2 (DB9 male)
(B4) PRINTER   : Parallel Port (DB25 female)
(B5) LINE-OUT : Line-Out (Front-Out) Port
(B6) LINE-IN   : Line-In (Rear-Out) Port
(B7) MIC-IN   : Mic-In Port
(B8) GAME/MIDI : MIDI/Game Port

Front-Panel Connectors (JP18, JP5 and JP4)

(C1) PWON   : ATX Power On/Off Momentary Type Switch
(C2) EPMI   : Hardware System Management Interface Momentary
                        Type switch
(C3) HLED   : IDE Drive Active LED
(C4) GLED/PLED : Green LED (ON when system stays in power saving mode)/
                        System Power LED
(C5) PLED   : System Power LED
(C6) RST   : Hardware Reset Switch
(C7) SPEAKER : Housing Internal Speaker
(C8) JP5/JP4 : Extended two USB Headers (USB port 3 ~ USB port 6)

Internal Peripherals Connectors

(D1) FDC   : Floppy Disk Drive Interface
(D1) IDE1   : IDE Primary Interface (Dual-channel)
(D1) IDE2   : IDE Secondary Interface (Dual-channel)
(D1) IDE3   : RAID primary interface (Dual-channel) **(AS40GTR only)**
(D1) IDE4   : RAID secondary interface (Dual-channel) **(AS40GTR only)**

Other Connectors:

E1	JP16/JP17/CN6	: ATX power connector
E2	FAN1	: CPU Fan Power
E2	FAN2	: AGP Fan Power
E2	FAN3	: System Fan Power
E2	FAN4	: Chipset Fan Power
E3	JP7	: IR Connector
E4	JP6	: Wake-on-LAN Connector
E5	CN5	: CD_IN connector
E6	CN4	: Auxiliary_IN connector
E7	JP11	: Bass/Center_Out connector

☞ *Jumpers*

🅐 **Clear CMOS (JP1)**

JP1 is used to clear CMOS data. Clearing CMOS will result in the permanent erasing of previous system configuration settings and the restoration of original (factory-default) system settings.

Pin 1-2 (Default)

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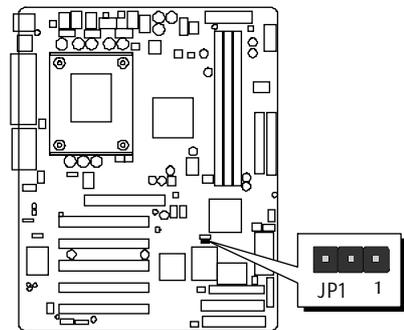
Step 1. Turn off the system power (PC-> Off).

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).

☞ **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 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. Plug the PS/2 keyboard and mouse jacks into their corresponding connectors.

PS/2 Mouse

PS/2 keyboard
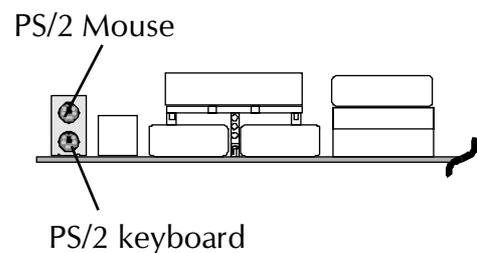
B2 USB1/USB2 Port Connectors

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
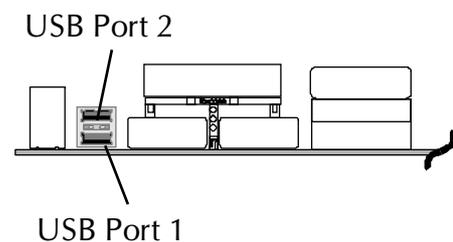
B3 COM1/COM2 Connectors

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.

COM1 Port   COM2 Port
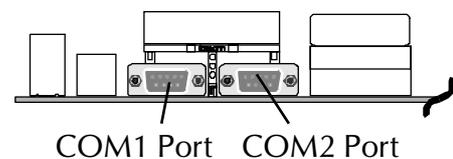
B4 Parallel Port Connector

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
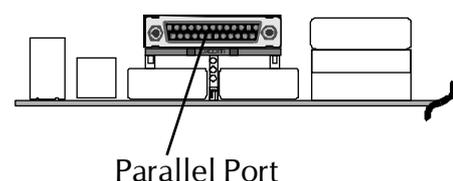
B5 Line-Out (Front-Out) Port Connector

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 Port
(Front-Out)
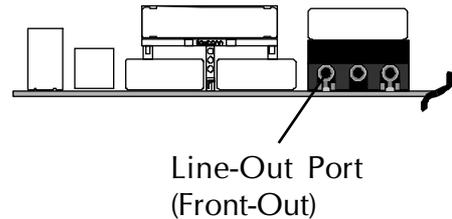
B6 Line-In (Rear-Out) Port Connector

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 Port
(Rear-Out)
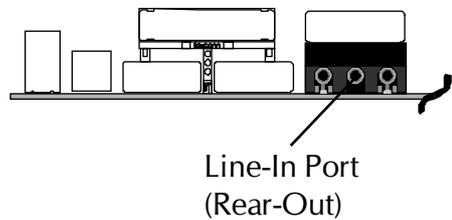
B7 Mic-In Port Connector

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 Port
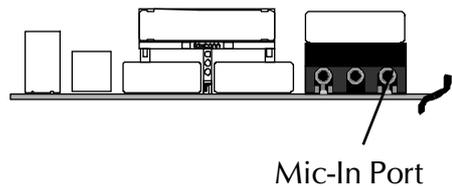
B8 MIDI/GAME Port Connector

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
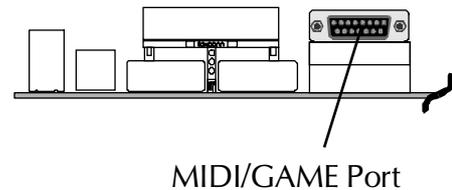
MIDI Instrument Connection

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/MIDE port. You will also need the MIDI sequencing software to run MIDI instruments with your computer.

☞ *Front-Panel Connectors*

C1 **ATX Power On/Off Switch Connector (PWON)**

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 note the Speaker and all the LED connectors are directional.
If your chassis's LED does not light up during running, please simply change to the opposite direction.
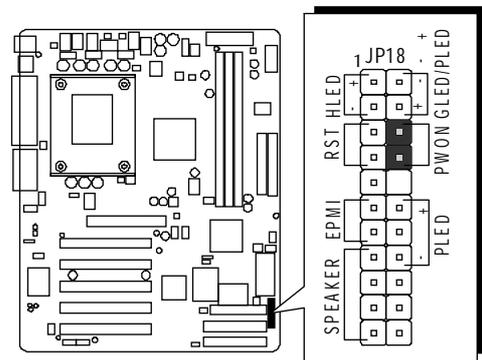
C2 **EPMI Connector (EPMI)**

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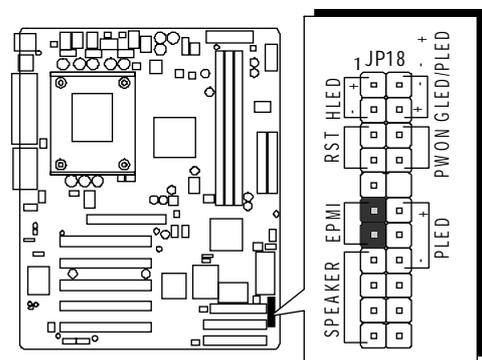
❸ HDD LED Connector (HLED)

Attach the connector cable from the IDE device LED to the 2-pin (HLED) header. The HDD LED lights up whenever an IDE device is active.
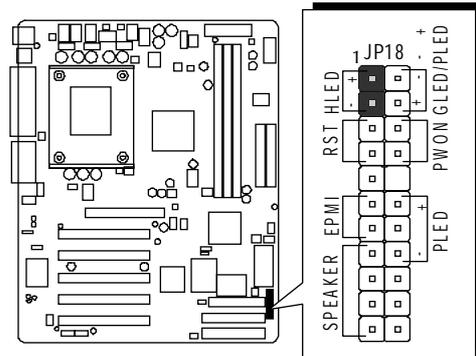
❹ Green LED / Power LED Connector (GLED/PLED)

This header is dual color LED function.

Dual color LED function is defined by either Power LED or Green LED, the header can be in these states.

The 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, power LED on.

This Power LED will go off during power saving mode.

Attach a 2-pin Green LED/Power LED cable to (GLED/PLED) header.
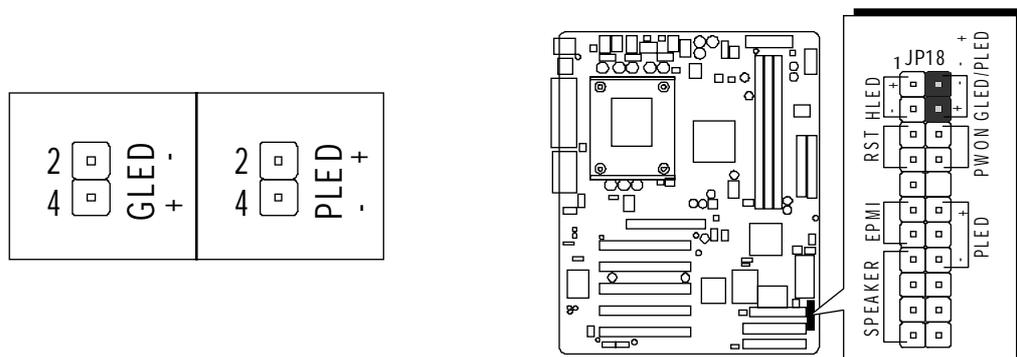
Ⓒ5 Power LED Connector (PLED)

Attach the 3-pin Power-LED connector cable from the housing front-panel to the (PLED) header on the mainboard. The power LED stays light while the system is running.
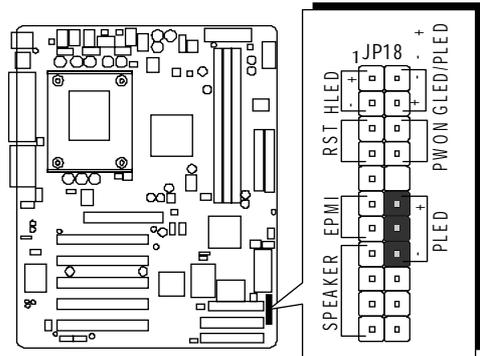
Ⓒ6 Hardware Reset Connector (RST)

Attach the 2-pin hardware reset switch cable to the (RST) header. Pressing the reset switch causes the system to restart.
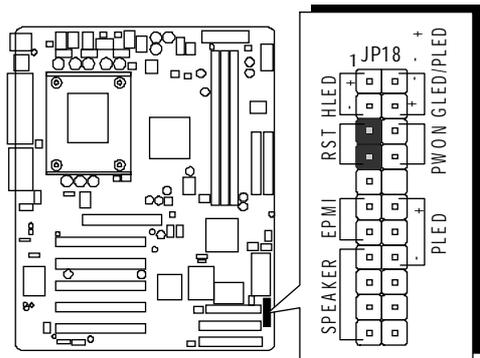
Ⓒ7 Speaker Connector (SPEAKER)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPEAKER).
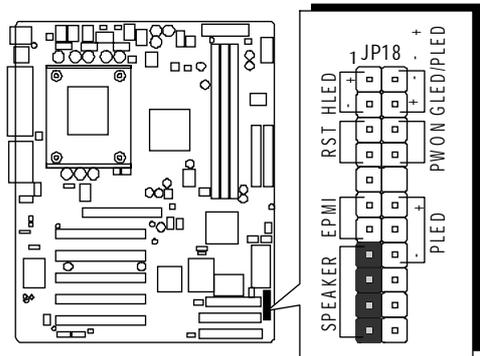
C8 Extended two USB Headers (JP5/JP4)

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.

USB port 3/5

```
9   7   5   3   1
  □   ● ● ● ●  ■
  ●   ● ● ● ●  ●
10  8   6   4   2
```

USB port 4/6

JP5   JP4
1   1
USB Port1   USB Port2
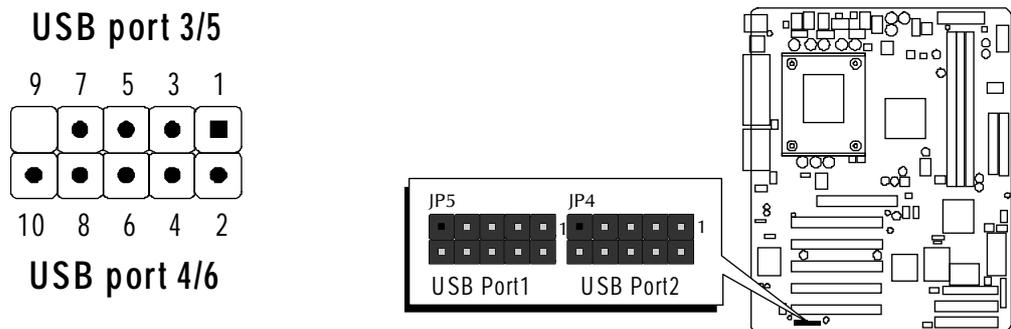
Pins Assignment:

1 = +5V	3 = USBD0-	5 = USBD0+	7 = GND	9 = KEY
2 = +5V	4 = USBD1-	6 = USBD1+	8 = GND	10 = N/A

☞ *Internal Peripherals Connectors*

⓪ Enhanced IDE, IDE RAID (AS40GTR only), 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.) and features two 40-pin dual-channel IDE RAID device connectors (IDE3/IDE4) providing support for up to four IDE devices, such as Hard Disk Drives (H.D.D.).

This mainboard also includes one 34-pin floppy disk controller (FDC) 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 (RAID) H.D.D. and one 34-pin ribbon cable for F.D.D. connection.
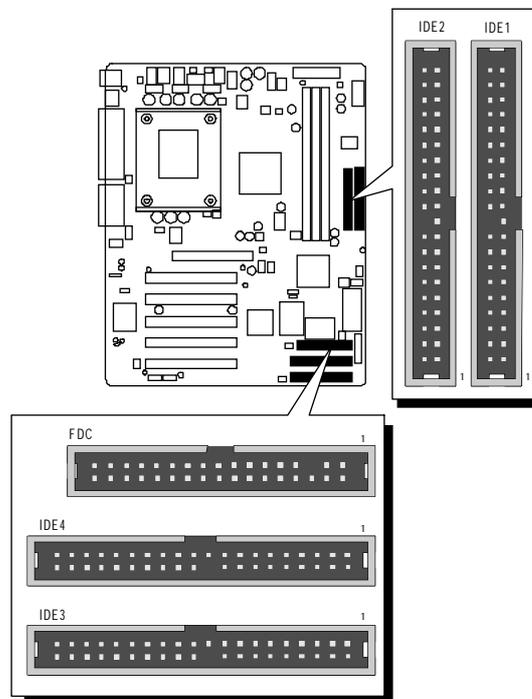
Note : If you used IDE3 connector, please refer to **IDE RAID Manual** to setup RAID BIOS program.

Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable.

☞ *Other Connectors*

❸ ATX Power Supply Connector (CN6, JP17, and JP16)

This motherboard uses 20-pin Pentium 4 standard ATX power header,
CN6 and comes with another two headers.
One is JP17 with 6-pin Aux VccNcc3 ATX power supply header.
Another is JP16 with 2X2-pin +12V PC ATX power supply header.
Please make sure you plug in the right direction.
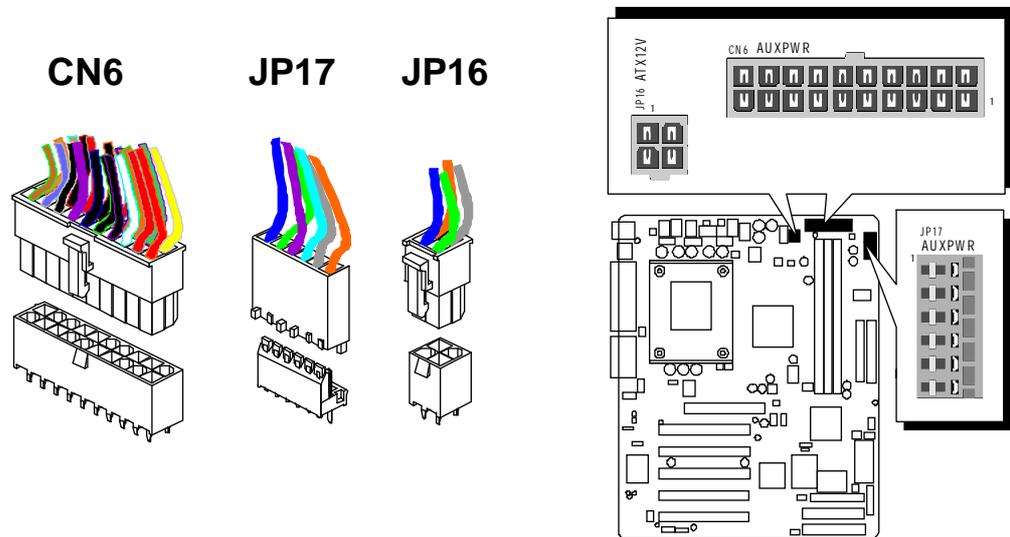
A traditional ATX system should remain at power off stage when AC power
resumes from power failure. In such case, if there is no an UPS to keep
power-on, the kind of design is inconvenient for a network server or workstation.
However, this motherboard implements an AC Power Auto Recovery
function to solve this problem. You may enable the function ″Power State Resume
Control″ that is under sub-menu of "Power Mangement Setup″ through BIOS
setup program.

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, Chipset and Chassis Fan connectors - FAN1/2/3/4

The mainboard provides four onboard 12V cooling fan power connectors to support CPU (FAN1), AGP (FAN2), System (FAN3) or Chipset (FAN4) cooling fans.

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.

GND   +12V   SENSE

1

FAN1/2/3 with rotate sense.
FAN4 without rotate sense.

FAN1

1

FAN3

1

FAN2

1

FAN4

1
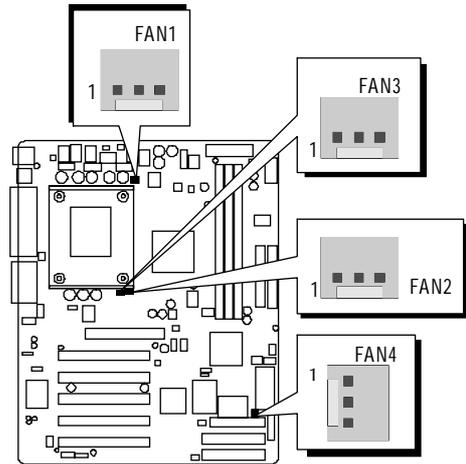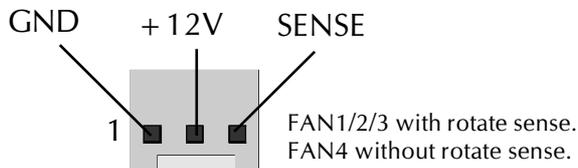
IR Header (JP7)

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 = NC

2 = KEY

3 = +5V

4 = GND

5 = IRTX

6 = IRRX

5   3   1

6   4   2

JP7   IR

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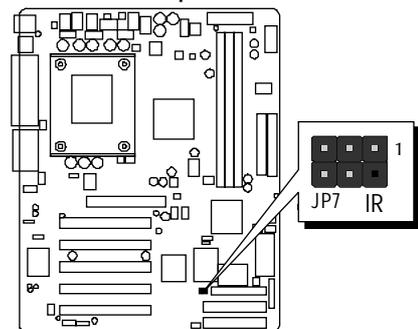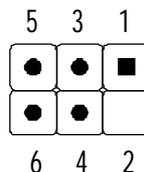
Note: Before connect your IR device, please be sure each IR on board pin allocation is matchable with the pin of the IR device. Otherwise, incorrect IR connection may do damage to your IR device.

Step 1. Attach the 6-pin infrared device cable to JP7.
(Refer to the above diagram for IR pin assignment.)

Step 2. Configure the Infrared transfer mode in field "UART Mode Select" of "Onboard Super I/O Device" of "Integrated Peripherals" sub-menu in BIOS setup program. This mainboard supports IrDA and Normal transfer modes.

E4 **Wake-On-LAN Connector (JP6)**

Attach a 3-pin connector through the LAN card which supports the Wake-On-LAN (JP6) function. This function lets users wake up the connected system through the LAN card.

3　2　1
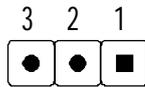
Pins Assignment:
1 = Power　　2 = GND
3 = RING#
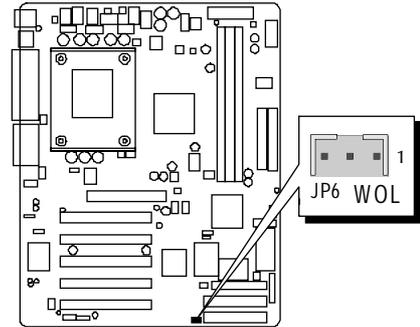
E5 **Audio Connector CD _In (CN5) (Black)**

Port CN5 is used to attach an audio connector cable from the CD-ROM drive.

Pins Assignment:
1 = CD_L
2 = CD_GND
3 = CD_GND
4 = CD_R

1
2
3
4
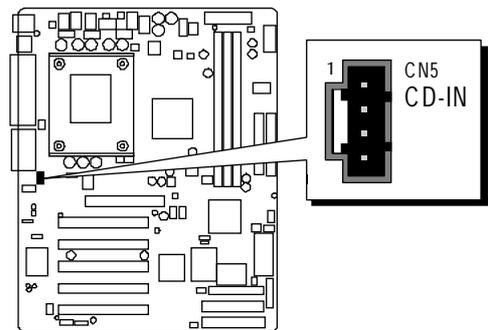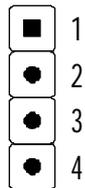
E6 **Audio Connector AUX _In (CN4) (White)**

Port CN4 can be used to connect a stereo audio input from CD-ROM, TV-tuner, or MPEG card.

4　3　2　1
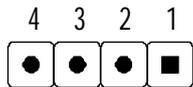
Pins Assignment:
1 = AUX_L
2 = AGND
3 = AGND
4 = AUX_R
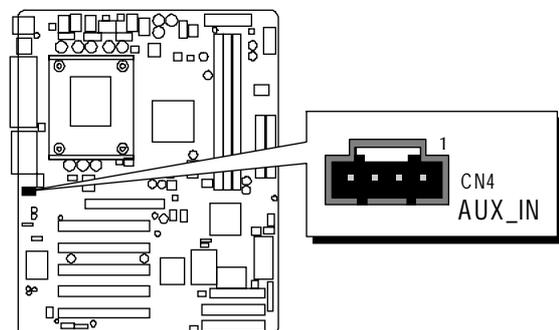
E7 Audio Bass/Center_Out Header (JP11)

JP11 header can be used to connect the cable which attached to bass/center amplified speakers.

```
  4   3   2   1
 ┌───┬───┬───┬───┐
 │ ● │ ● │ ● │ ■ │
 └───┴───┴───┴───┘
```
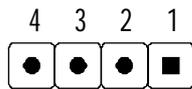
Pin Assignments:
1 = CENTER   2 = CD-GND
3 = CD-GND   4 = BASS

JP11
1 BASS/CENTER
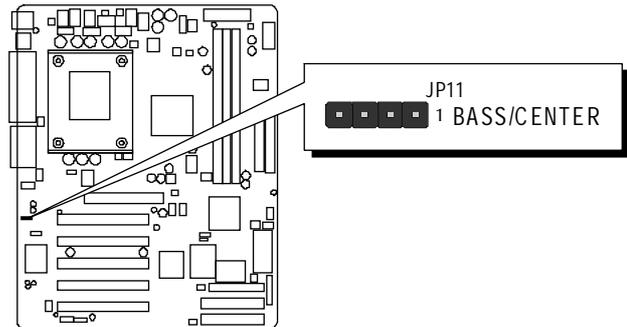
3.3 System Memory Configuration

The AS40GT/AS40GTR mainboard has there 184-pin DIMM slots that allow you to install from 64MB up to 3GB of system memory.

Each 184-pin DIMM (Dual In-line Memory Module) Slot can accommodate 64MB, 128MB, 256MB, 512MB, and 1GB of PC1600/PC2100/PC2700 compliant 2.5V single (1 Bank) or double (2 Bank) side 64-bit wide data path DDR SDRAM modules.

Install Memory:

Install memory in any or all of the slots and in any combination shown as follows.

DIMM Slot	Memory Modules	Module Quantity
DIMM 1	64MB, 128MB, 256MB, 512MB, and 1GB 184-pin 2.5V DDR SDRAM DIMM	x 1
DIMM 2	64MB, 128MB, 256MB, 512MB, and 1GB 184-pin 2.5V DDR SDRAM DIMM	x 1
DIMM 3	64MB, 128MB, 256MB, 512MB, and 1GB 184-pin 2.5V DDR SDRAM DIMM	x 1

Note: Maximum installed memory is 3GB.

The PC2700 module only support 4 Bank shown as follows:

Memory	DIMM 1	DIMM 2	DIMM 3	TOTAL
PC2700 Module	Single side	Single side	Single side	3 BANK
	Double side	Single side	Single side	4 BANK
	Double side	Double side	Empty	4 BANK

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 DDR SDRAM modules in available DIMM slots. The total system memory is calculated by simply adding up the memory in all DIMM slots. 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 AS40GT/AS40GTR 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 AS40GT Software** - Installing SiS AGP and Hardware Audio drivers.

☞ **Install Mainboard AS40GTR Software** - Installing SiS AGP, Hardware Audio drivers , IDE RAID driver installation Guide, and RAID Utility.

☞ **Manual** - AS40GT/AS40GTR Series mainboard and IDE RAID **(AS40GTR only)** 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.
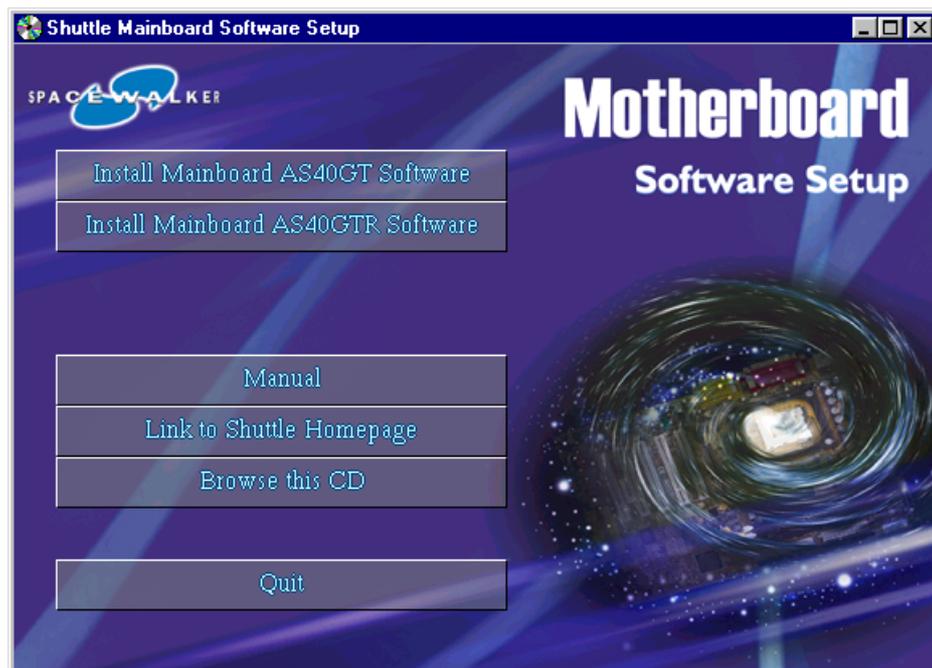
4.2 Install Mainboard Software

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 AS40GT Software"** or **"Install Mainboard AS40GTR Software"** bar to run into sub-menu.

The **Mainboard AS40GT Software** include:

[**4.2.A**]   Install Mainboard Software
[**4.2.B**]   Install Audio Device Driver

The **Mainboard AS40GTR Software** include:

[**4.2.A**]   Install Mainboard Software
[**4.2.B**]   Install Audio Device Driver
[**4.2.C**]   Install Highpoint RAID Driver
                     Install RAID Utility

4.2.A Install SiS AGP Driver

Select using your pointing device (e.g. mouse) on the "**Install Mainboard Software**" bar to install SiS AGP driver.

AS40GT

AS40GTR

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 Audio Driver

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

AS40GT

AS40GTR

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 IDE RAID Driver and Utility (AS40GTR only)

Select using your pointing device (e.g. mouse) on the "**Install Highpoint RAID Driver**" bar.

AS40GTR

Cause the IDE RAID driver can't be setup automatically, please follow below instructions to complete the installation.

Then click on **"Install RAID Utility"** bar to install IDE RAID Utility.

AS40GTR

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 Acrobat Reader** " bar if you need to install acrobat reader.

Then click on **"AS40GT/AS40GTR Manual"** bar to view user's manual, and click on **"IDE Raid Manual"** bar to view IDE RAID user's manual. **(AS40GTR only)**

5 BIOS SETUP

AS40GT/AS40GTR 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

Note 1. If you miss trains of words mentioned 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.

```
                  Award Software, Inc. CMOS Setup Utility
┌─────────────────────────────────────────────────────────────────────┐
│  ▶ Standard CMOS Features        │  ▶ Frequency/Voltage Control       │
│                                  │                                    │
│  ▶ Advanced BIOS Features        │    Load Fail-Safe Defaults         │
│                                  │                                    │
│  ▶ Advanced Chipset Features     │    Load Optimized Defaults         │
│                                  │                                    │
│  ▶ Integrated Peripherals        │    Set Password                    │
│                                  │                                    │
│  ▶ Power Management Setup         │    Save & Exit Setup               │
│                                  │                                    │
│  ▶ PnP/PCI Configurations        │    Exit Without Saving             │
│                                  │                                    │
│  ▶ PC Health Status              │                                    │
├─────────────────────────────────────────────────────────────────────┤
│  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 Configuration

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.

Set Password

Use this menu to change, set, or disable 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.

```
                  Award Software, Inc. CMOS Setup Utility
                           Standard CMOS Features
┌──────────────────────────────────────────────┬──────────────────────────┐
│  Date (mm:dd:yy)            Fri, Dec 28 2001   │       Item Help          │
│  Time (hh:mm:ss)            15 :  5 : 41       ├──────────────────────────┤
│                                                │  Menu Level    ▶         │
│ ▶ IDE Primary Master                           │                          │
│ ▶ IDE Primary Slave                            │  Change the day, month,  │
│ ▶ IDE Secondary Master                         │  year and century        │
│ ▶ IDE Secondary Slave                          │                          │
│                                                │                          │
│   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                  65472K      │                          │
│   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

This Item enable/disable the Floppy mode 3 options. This mode is used mostly in Japen PC.

➢ The choice: Disabled, 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: Normal, 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.

```
            Award Software, Inc. CMOS Setup Utility
                     Advanced BIOS Features
┌───────────────────────────────────────────┬──────────────────────┐
│ Virus Warning            [Disabled]        │      Item Help       │
│ CPU L1 & L2 Cache        [Enabled]         ├──────────────────────┤
│ CPU L2 Cache ECC Checking [Enabled]        │ Menu Level   ▶       │
│ Quick Power On Self Test [Enabled]         │                      │
│ RAID & SCSI Boot Order   [RAID,SCSI]       │ Allows you to choose │
│ First Boot Device        [Floppy]          │ the VIRUS warning    │
│ Second Boot Device       [HDD-0]           │ feature for IDE Hard │
│ Third Boot Device        [LS120]           │ Disk boot sector     │
│ Boot Other Device        [Enabled]         │ protection. If this  │
│ Swap Floppy Drive        [Disabled]        │ function is enabled  │
│ Boot Up Floppy Seek      [Disabled]        │ and someone attempt to│
│ Boot Up NumLock Status   [On]              │ write data into this │
│ Typematic Rate Setting   [Enabled]         │ area , BIOS will show │
│ Typematic Rate (Chars/Sec)[6]              │ a warning message on │
│ Typematic Delay (Msec)   [250]             │ screen and alarm beep│
│ Security Option          [Setup]           │                      │
│ OS Select For DRAM > 64MB [Non-OS2]        │                      │
│ HDD S.M.A.R.T. Capability [Disabled]       │                      │
│ Report No FDD For WIN 95 [No]              │                      │
│ Video BIOS Shadow        [Enabled]         │                      │
│ Small Logo(EPA) Show     [Enabled]         │                      │
│ Onboard RAID Boot ROM    [Enabled]         │                      │
├───────────────────────────────────────────┴──────────────────────┤
│ ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults    │
└───────────────────────────────────────────────────────────────────┘
```

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enables and someone attempts to write data into this area, BIOS will show a warning message on screen, and an alarm beep.

Enabled   Activates automatically when the system boots up, causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled   No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

➢ The choice: Enabled or Disabled.

CPU L1 & L2 Cache

This item enables CPU L1 internal and CPU secondary cache to speed up memory access.

➢ The choice: Enabled or Disabled.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enabled when the CPU internal L2 cache contains ECC SRAMs.

➢ 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.

RAID & SCSI Boot Order

The item select RAID and SCSI boot order.

➢ The Choice: RAID, SCSI or SCSI, RAID.

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-2, HDD-3, ZIP100, LAN, or 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.

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 security.
>
> Once the security is disabled, the system will boot, and you can enter Setup freely.

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. Capabiliry

This item enable/disable the HDD system management function.

➢ 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.

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.

➢ The choice: Enabled or Disabled.

Small Logo(EPA) Show

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

➢ The choice: Enabled or Disabled.

Onboard RAID Boot ROM

This item allows you to enable/disable onboard RAID boot ROM.

➢ 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.

```
             Award Software, Inc. CMOS Setup Utility
                     Advanced Chipset Features

 ► Advanced DRAM Control 1      [Press Enter]        Item Help
   Prefetch Caching            [Disabled]
   Memory Hole at 15M-16M      [Disabled]       Menu Level    ►
   AGP Aperture Size           [128MB]
   Graphic Window WR Combin    [Enabled]
   AGP Fast Write              [Disabled]
   AGP sideband address        [Disabled]
   AGP Capability              [Auto]








 ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
    F5: Previous Values     F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Advanced DRAM Control 1

Options are in its sub-menu.

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

System Performance

This item select the system timing(Safe/Normal/Fast/Ultra) for DDR SDRAM,

➢ The Choice: Safe Mode, Normal Mode, Fast Mode, Turbo Mode, or Ultra Mode.

CAS Latency Setting

This item select the CAS latency(2/2.5) for DDR SDRAM

➢ The Choice: 2.5T, 2.0T, or 3.0T.

DRAM Addr/Cmd Rate

This item select the Cmd Rate of DDR SDRAM(1T/2T).

➢ The Choice: Auto Mode, 1T, or 2T.

Prefetch Caching

This item enable/disable the Prefetch cache function of DRAM controller

➢ 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 ususlly discusses their memory requirements.

➢ The Choice: Enabled or Disabled.

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: 4M, 8M, 16M, 32M, 64M, 128M, or 256M.

Graphic Window WR Combin

This item enable/disable the write combine function for Graphic address space.

➢ The Choice: Enabled or Disabled.

AGP Fast Write

This item enables an end user to manually select the AGP output buffer drive strength.

➢ The Choice: Enabled or Disabled.

AGP sideband address

This item enable/disable the AGP sideband addressing capability for AGP cards.

➢ The Choice: Enabled or Disabled.

AGP Capability

This item select the AGP supported mode(1X/2X/4X).

➢ The Choice: Auto, 2X, or 4X.

☞ **Integrated Peripherals**

```
            Award Software, Inc. CMOS Setup Utility
                    Integrated Peripherals
┌─────────────────────────────────────────────┬──────────────────────┐
│  ▶ SIS OnChip IDE Device    [Press Enter]    │      Item Help       │
│  ▶ SIS OnChip PCI Device    [Press Enter]    │                      │
│  ▶ Onboard SuperIO Device   [Press Enter]    │  Menu Level    ▶     │
│    USB Controller           [Enabled]        │                      │
│    USB Keyboard Support     [Disabled]       │                      │
│    Onboard Audio            [Enabled]        │                      │
│    Onboard RAID             [Enabled]        │                      │
│    IDE HDD Block Mode       [Enabled]        │                      │
│    Init Display First       [PCI Slot]       │                      │
│    AGP Auto Calibration     [Enabled]        │                      │
│    IDE  Access Interface    [Embedded Bus]   │                      │
│    USB1 Access Interface    [Embedded Bus]   │                      │
│    USB0 Access Interface    [Embedded Bus]   │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│ ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults    │
└─────────────────────────────────────────────────────────────────────┘
```

SIS OnChip IDE Device

Options are in its sub-menu.

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

Internal PCI/IDE

This chipset contains and internal PCI IDE interface with support for two IDE channels.

➢ The choice: Disabled, Primary, Secondary, or Both.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four 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.

Primary/Secondary Master/Slave UltraDMA

Ultra DMA/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 DMA/100, select Auto to enable BIOS support.

➢ The choice: Auto or Disabled.

IDE Burst Mode

Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field, above, is Disabled.

➢ The choice: Enabled or Disabled.

SIS OnChip PCI Device

Options are in its sub-menu.

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

System Share Memory Size

This Item will be disabled by BIOS code. It is for 650 chipsets.

➢ The choice: 4MB, 8MB, 16MB, 32MB, or 64MB.

Onboard Super IO Device

Options are in its sub-menu.

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

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you want to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field.

➢ The choice: Enabled or 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

This item allows you to select which mode for the Onboard Serial Port 2.

➢ The choice: IrDA or Normal.

UR2 Duplex Mode

This item allows you to selects the IR half/full duplex function.

➢ 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.

USB Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

➢ The choice: Enabled or Disabled.

USB Keyboard Support

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

➢ The Choice: Enabled or Disabled.

Onboard Audio

This item allows you to control the onboard Hardware audio.

➢ The choice: Enabled or Disabled.

Onboard RAID

This item allows you to control the onboard RAID.

➢ The choice: Enabled or Disabled.

IDE HDD Block Mode

The chipset contains a PCI IDE interface with support for two IED channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface.

➢ The choice: Enabled or Disabled.

Init Display First

This item is used to determine initial device when system power on.

➢ The choice: AGP or PCI Slot.

AGP Auto Calibration

This item enable/disable the AGP driving functions.

➢ The choice: Enabled or Disabled.

IDE Access Interface

This item select the IDE data transfer use PCI bus or Embedded(MuTIOL) bus. The MuTIOL bus is faster.

➢ The choice: Embedded Bus or PCI Bus.

USB1 Access Interface

This item select the USB1 data transfer use PCI bus or Embedded(MuTIOL) bus. The MuTIOL bus is faster.

➢ The choice: Embedded Bus, or PCI Bus.

USB0 Access Interface

This item select the USB0 data transfer use PCI bus or Embedded(MuTIOL) bus. The MuTIOL bus is faster.

➢ The choice: Embedded Bus, or PCI Bus.

☞ Power Management Setup

```
              Award Software, Inc. CMOS Setup Utility
                       Power Management Setup
  ┌─────────────────────────────────────────────┬──────────────────────┐
  │ ACPI function           [Enabled]            │     Item Help        │
  │ ACPI Suspend Type       [S1(POS)]            ├──────────────────────┤
  │ Video Off Option        [Susp,Stby -> Off]   │ Menu Level    ▶      │
  │ Video Off Method        [DPMS Supported]     │                      │
  │ Switch Function         [Break/Wake]         │                      │
  │ MODEM Use IRQ           [AUTO]               │                      │
  │ Hot Key Function As     [Power Off]          │                      │
  │ HDD Off After           [Disable]            │                      │
  │ Power Button Override   [Instant Off]        │                      │
  │ Power State Resume Control[Always Off]       │                      │
  │▶ PM Wake Up Events       [Press Enter]       │                      │
  │                                              │                      │
  │                                              │                      │
  │                                              │                      │
  ├──────────────────────────────────────────────┴──────────────────────┤
  │ ↑↓←: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 or Disabled.

ACPI Suspend Type

This item allows you to select sleep state when suspend.

➢ The choice: S1(POS), S3(STR), or S1 & S3.

Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving mode.
Suspend --> Off	Monitor is blanked when the system enters the Suspend mode.
Susp,Stby --> Off	Monitor is blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor is blanked when the system enters any power saving mode.

➢ The choice: Always On, Suspend -> Off, Susp,stby -> Off, or All Modes -> Off.

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 Screened	This option only writes blanks to the video buffer.
DPMS Support	Initial display power management signaling.

➢ The choice: V/H SYNC + Blank, Blank Screen, or DPMS Supported.

Switch Function

Enables you to set the System Management Interrupt (SMI) button function in DOS.

➢ The choice: Disabled or Break / wake.

MODEM Use IRQ

This determines the IRQ which the MODEM can use.

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

Hot Key Function As

Enables you to set the power button function in DOS.

➢ The choice: Disabled, Power off, or Suspend.

HDD Off After

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

➢ The choice: Disabled, 1 Min ～ 15 Min.

Power Button Override

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung.".

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

Power State Resume Control

This item enables your computer to automatically restart or return to its last operating status after power returns from a power failure.

➢ The choice: Always Off, Always On, Keep Pre-state.

PM Wake Up Events

Options are in its sub-menu.

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

IRQ [3-7, 9-15], NMI

When enabled, any event occurring at IRQs 3 through 15 (excluding IRQ 8) will awaken a system, which has been powered down.

➢ The choice: Enabled, Disabled.

IRQ 8 Break Suspend

This field allows you to enable or disable monitoring of IRQ8 so that it does not awaken the system from a suspend mode.

➢ The choice: Enabled, Disabled.

RING Power Up Control

When set to Enabled, the system power will be turned on if there is any modem activity.

➢ The choice: Enabled, Disabled.

PCIPME Power Up Control

When set to Enabled, system power will be turned on if there is any PCI card activity from PCI cards that trigger a PME event, such as LAN or Modem cards.

➢ The choice: Enabled, Disabled.

USB Port Wake Up Control

This item enable/disable the USB wakeup function.

➢ The choice: Enabled, Disabled.

Power Up by Alarm

When set to Enabled, the following three fields become available and you can set the month, date (day of the month), hour, minute and second to turn on your system.

➢ The choice: Enabled, Disabled.

Month Alarm

This is for specifying the alarm month which system will awaken the system from suspend mode.

➢ Key in a DEC number: Min = 1, Max = 12, or NA.

Data of Month Alarm

This item selects the alarm date.

➢ Key in a DEC number:Min = 1, 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.

☞ **PnP/PCI Configuration**

```
              Award Software, Inc. CMOS Setup Utility
                     PnP/PCI Configurations

   Reset Configuration Data   [Disabled]          │      Item Help

   Resources Controlled By    [Manual]            │ Menu Level    ▶
 ▶ IRQ Resources              [Press Enter]       │
                                                  │ Default is Disabled.
   PCI/VGA Palette Snoop       [Disabled]         │ Select Enabled to
                                                  │ reset Extended System
                                                  │ Configuration Data
                                                  │ ESCD) when you exit
                                                  │ Setup if you have
                                                  │ installed a new add-on
                                                  │ and the system
                                                  │ reconfiguration has
                                                  │ caused such a serious
                                                  │ 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

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. If you have MPEG ISA/VESA VGA Cards and PCI/VGA Card worked, Enable this field. Otherwise, please Disable it.

➢ The choice: Enabled or Disabled.

☞ **PC Health Status**

```
             Award Software, Inc. CMOS Setup Utility
                        PC Health Status
┌──────────────────────────────────────────┬──────────────────────┐
│ Shutdown Temperature    [60°C/140°F]      │     Item Help        │
│ CPU VCore                                 ├──────────────────────┤
│   VDDQ                                    │ Menu Level    ▶      │
│ +3.3V                                     │                      │
│   +5V                                     │                      │
│ +12V                                      │                      │
│ -12V                                      │                      │
│ 1.8V                                      │                      │
│ +5VSB                                     │                      │
│ Voltage Battery                           │                      │
│ System Temperature                        │                      │
│ CPU Temperature                           │                      │
│ PWM Temperature                           │                      │
│ Fan 1 Speed                               │                      │
│ Fan 2 Speed                               │                      │
│ Fan 3 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

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

➢ The choice: Disabled, 60°C /140°F, 65°C /149°F, 70°C /158°F.

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

VDDQ

+3.3V

+5V

+12V

-12V

1.8V

+5VSB

Voltage Battery

System Temperature

CPU Temperature

PWM Temperature
Fan 1 Speed
Fan 2 Speed
Fan 3 Speed

☞ *Frequency/Voltage Control*

```
                 Award Software, Inc. CMOS Setup Utility
                          Frequency/Voltage Control

  CPU Vcore Select          [Default]                   Item Help
  CPU Clock Ratio           [ 0 X]
  Spread Spectrum           [Disabled]        Menu Level   ▶
  CPU Host/SDRAM/PCI Clock  [Default]




  ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
      F5: Previous Values       F6: Fail-Safe Defaults    F7: Optimized Defaults
```
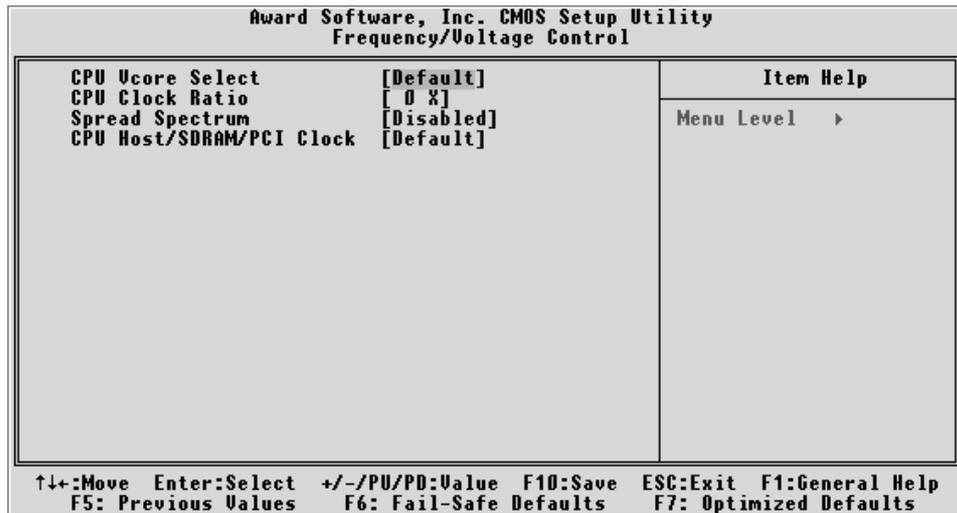
CPU Vcore Select
This item allows you to select the CPU Vcore.
➢ The choice: Default, 1.100V ~ 1.850V.

CPU Clock Ratio
This item allows you to adjust CPU Ratio.

Min: 8

Man: 50

➢ Key in a DEC number: (Between Min and Max.)

Spread Spectrum
This item allows you to enable/disable the spread spectrum modulation.
➢ The choice: Enabled, or Disabled.

CPU Host/SDRAM/PCI Clock
This item allows the user to adjust CPU Host Clock/SDRAM/PCI Clock.
➢ The choice: Default, 100/100/33 MHz, 100/133/33 MHz, 100/166/ 33 MHz, 105/140/35 MHz, 108/144/36 MHz, or 112/140/31 MHz.

☞   ***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.

☞ ***Set Password***

```
         Award Software, Inc. CMOS Setup Utility
┌─────────────────────────────────────────────────────────────┐
│  ▶ Standard CMOS Features        ▶ Frequency/Voltage Control │
│                                                              │
│  ▶ Advanced BIOS Features          Load Fail-Safe Defaults   │
│                                                              │
│  ▶ Advanced Chipset Features       Load Optimized Defaults   │
│                                                              │
│  ▶ Integrated Peripherals          Set Password              │
│                                                              │
│  ▶ Power Management Setup           Save & Exit Setup        │
│                                                              │
│  ▶ PnP/PCI Configurati┌────────────────────────┐ut Saving    │
│                       │ Enter Password:        │             │
│  ▶ PC Health Status   └────────────────────────┘             │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│  Esc : Quit      F9 : Menu in BIOS    ↑ ↓ ←  : Select Item  │
│  F10 : Save & Exit Setup                                     │
├─────────────────────────────────────────────────────────────┤
│              Change/Set/Disable Password                     │
└─────────────────────────────────────────────────────────────┘
```

This item is to set supervisor password. Please follow below steps.

New Password Setting :
1. While pressing ＜Enter＞ key to start setting password function, a dialog box appears to ask you "Enter password: ".
2. Key in a new password now. However, the password can not be over eight characters or numbers.
3. Then system will request you to confirm new password by asking you to key in new password again.
4. Once the confirmation is completed, new code takes effect.

No Password Setting :
5. If you want to delete password, just press ＜Enter＞ key instead of new password while password input is requested. And the other procedures are the same as above password setting.

If You Forget Password :
6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 28 for clear CMOS setting.

☞ **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.