

AE22

**FC-PGA Celeron
and Pentium III Processor
Based MAIN BOARD**

User's Manual

Shuttle AE22

FC-PGA Celeron and Pentium III processor based Mainboard Manual Version 1.0

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WHAT'S IN THE MANUAL

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About This Manual

For First-Time DIY System Builder	Page 6
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For System Integrator	Page 6

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 **3.1 Hardware Installation** section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle AE22 mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle AE22 mainboard. You will find that installing your new Shuttle AE22 mainboard is just that easy. Bundled with an array of onboard functions, the highly-integrated AE22 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 Drivers/Software Utilities** 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.

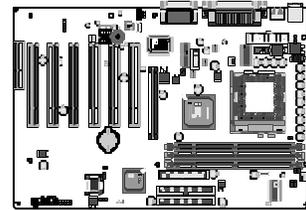
System Integrator

You have wisely chosen Shuttle AE22 to construct your system. Shuttle AE22 incorporates all the state-of-the-art technology of the AE22 chipset from Intel. It integrates the most advanced functions you can find to date in a compact MicroATX board. Refer to section **3.2 Jumper Settings** and **Chapter 4 Drivers/Software Utilities** for an in-depth view of system construction.

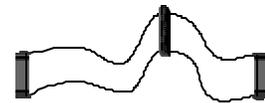
1.2 Item Checklist:

Check all items you received with your AE22 mainboard to make sure nothing is missing. The complete package should include:

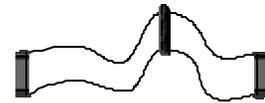
- * One Shuttle AE22 Mainboard



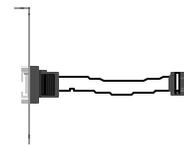
- * One ATA 33/66/100 Ribbon Cable



- * One Floppy Ribbon Cable



- * One 9-pin COM2 Cable



- * AE22 User's Manual



- * One Shuttle Spacewalker Bundled CD-ROM containing:

- AE22 user's manual saved in PDF format
- Intel Chipset System Driver
- AGP device VGA driver
- AC97 audio CODEC driver
- Synthesizer
- AMI flash823 Utility



2 FEATURES

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 AE22 mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

2.1 Specifications

* CPU Support

Intel FC-PGA/PPGA Celeron processors 300 ~ 600+ MHz with 66MHz FSB.

Intel FC-PGA Pentium III processors 500 ~ 933+ MHz with 100/133MHz FSB.

* Chipset

Features 100/133 MHz Intel 815E GMCH controller system with integrated graphics controller multiplexed with AGP controller and AC'97 2.1 compliant audio.

* Integrated Graphics Controller

Enhancement 3D graphics visual and texturing features

Integrated 24-bit 230MHz RAMDAC

Supports VESA DDC2B

Up to 1600X1200 in 8-bit color at 85Hz refresh in 2D graphics

* AC'97 Link for Audio and Telephony CODEC

AC'97 2.1 compliant

Independent bus master logic for 5 channels

Separate independent PCI functions for Audio and Modem

* Versatile Memory Support

Equipped with two DIMM sockets for (16, 32, 64, 128, 256, or 512 MB) 168-pin 100MHz or 133MHz PC SDRAM. The total memory is up to 512 MB.

*** PCI Expansion Slots**

Provides six 32-bit PCI slots.

*** AGP Expansion Slots (AIMM Expansion Slot)**

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

Alternative function: AIMM expansion slot.

AIMM is the display cache of integrated graphic controller.

*** CNR Expansion Slots**

Provides one CNR (Communication/Network Riser) slot.

*** 4 USB Ports Onboard**

➤ 2 × USB connectors on back-panel and dual USB connectors header on front panel.

*** Onboard I/O Ports and Interfaces**

Provides a variety of I/O interfaces:

- 1 × Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, 2.88MB format or for 5.25-inch FDD with 360KB or 1.2MB format.
- 1 × PS/2 mouse header
- 1 × PS/2 Keyboard header
- 2 × DB9 Serial connectors 16V550 UART compatible
- 1 × DB15 VGA connector
- 1 × DB25 Parallel port supports Standard Parallel Port and Bi-directional (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) data transmission schemes.

*** PCI Bus Master IDE Controller Onboard**

Two Ultra DMA 33/66/100 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 33/66/100 MB/sec and also supports Enhanced PIO Modes 0 ~ 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 saving modes: S1 (Snoop), S3 (Suspend to RAM), and S5 (Soft-Off). ACPI provides more efficient Energy Saving Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

✳ **System BIOS**

Provides licensed AMI BIOS on Intel Firmware Hub with 4Mbit flash core (Intel 4Mb FWH). Supports Green PC, Desktop Management Interface (DMI).

✳ **ATX Form Factor**

System board conforms to ATX specification.
Board dimension: 304mm × 215mm.

✳ **Advanced Features**

- **Low EMI** - Built in spread spectrum and automatic clock shut-off of unused PCI/SDRAMS slots to reduce EMI.
- **PS/2 Keyboard / PS/2 Mouse Power-On** - This mainboard implements a special jumper to enable a system power-on function by PS/2 keyboard or PS/2 mouse.
- **Dual Function Power Button** - The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode. When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.
- **Wake-on-LAN (WOL)** - The onboard WOL connector can be attached to a network card that supports this function to wake up system via LAN.
- **Modem Ring Power-On** - The system can be powered on automatically by the activation of modem ringing.

★ Intelligent Features

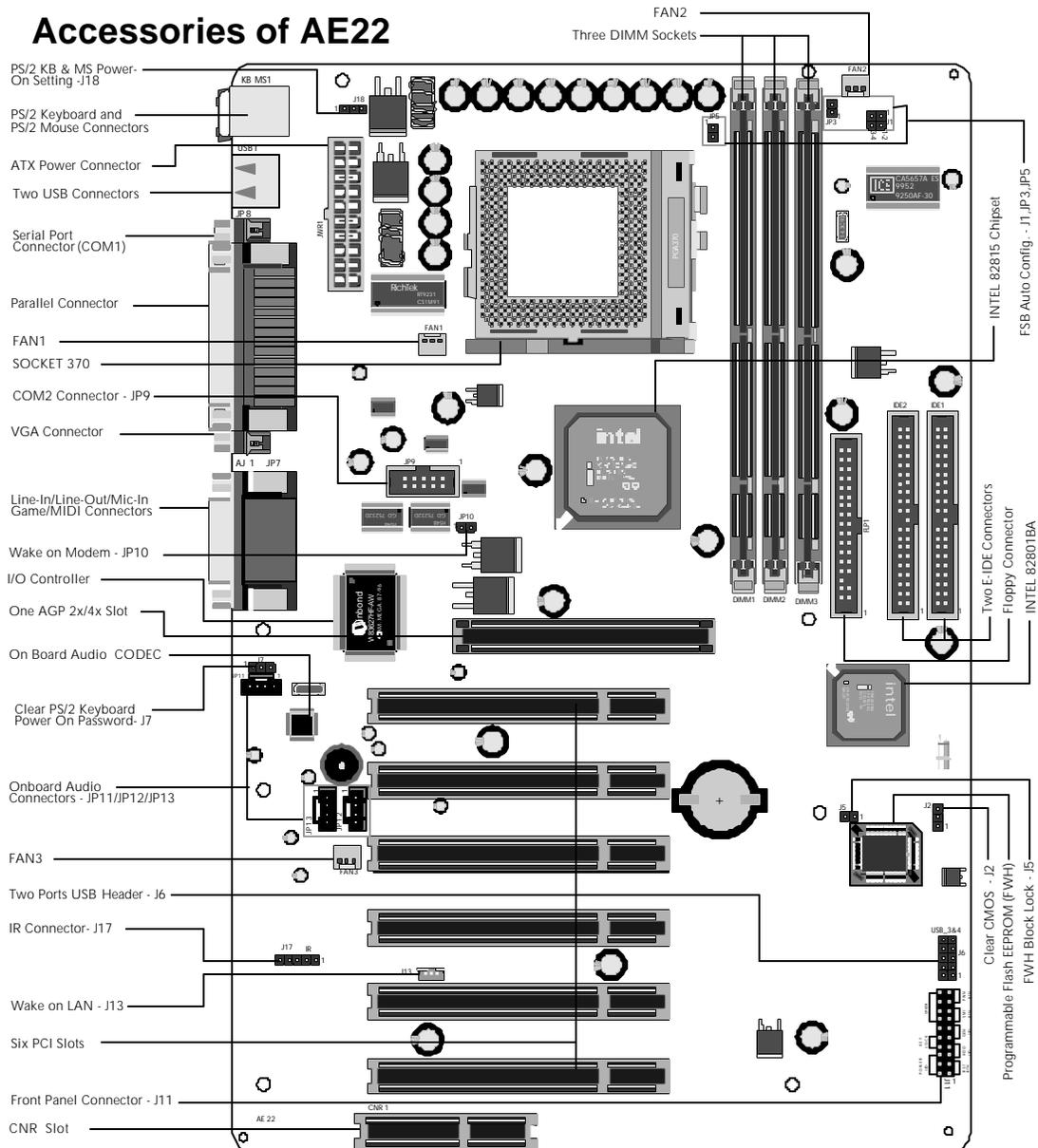
- **Voltage Monitoring** - Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through mainboard components. System voltages include Vcore/VTT on CPU, and +5V, +12V, -5V, -12V on system etc.
- **Fan Status Monitoring** - To prevent overheating of CPU, the CPU fan is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required.)
- **Temperature Monitoring** - This item allows users to make sure whether the CPU or system operates 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 AE22 mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

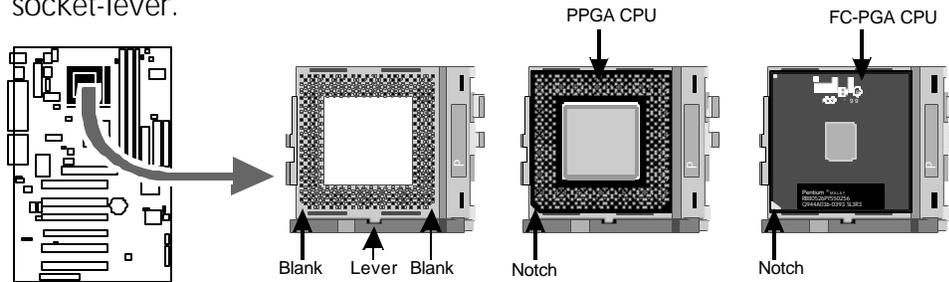
3.1 Step-by-Step Installation



Step 1

Install the CPU:

1. Locate the CPU ZIF (Zero Insertion Force) socket on the upper-right sector of your mainboard (between the back-panel connectors and the DIMM memory banks).
2. Pull the CPU ZIF socket lever slightly sideways away from the socket to unlock the lever, then bring it to an upward vertical position.
3. Place your PPGA / FC-PGA 370 processor in the ZIF socket. Note that the CPU's edges have been purposely designed non-symmetrical to prevent from inserting the processor in wrong direction. The following diagram demonstrates the correct placement of CPU in the ZIF socket. You can see that the two blunt-edged corners should face towards the socket-lever.



4. Slightly push CPU into socket without applying excessive force while making sure there is no gap between CPU and socket. Then lower the socket lever all the way down to the horizontal position and lock it to secure the CPU in place.
5. The PPGA / FC-PGA 370 CPU requires a set of heatsink/fan to ensure proper cooling of processor. If heatsink/fan are not already mounted on your CPU, you must purchase them separately and have it installed. Plug the cable from heatsink/fan to CPU fan power connector located nearby. Note that there are several types of CPU fan connectors. Normally, if your mainboard supports hardware monitoring function, a 3-pin fan power connector should allow your system to detect the CPU fan's speed. The CPU fan can also run with a 2-pin fan power connector, however, detection of CPU fan's speed is not supported. Another type of CPU fan may feature a large 4-pin fan power connector, which does not support CPU fan's speed detection and must connect directly to the system's power supply unit.

Step 2.

Set Jumpers

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

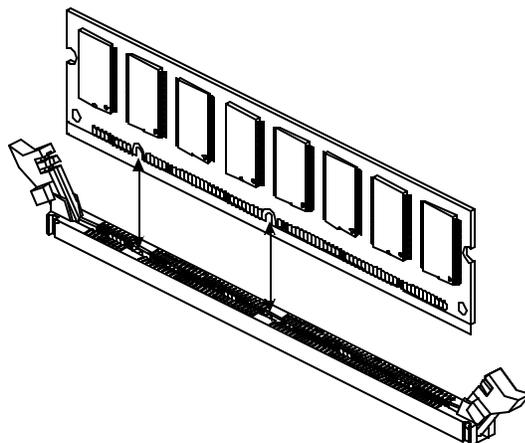
1. Overclock your CPU
2. Clear CMOS
3. Clear system password
4. Clear the password to power on system by PS/2 keyboard

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

Step 3

Install SDRAM System Memory

To install memory, insert SDRAM memory module(s) in any one or two or three DIMM banks. Note that SDRAM modules are directional and will not go in the DIMM slots if they are not 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.

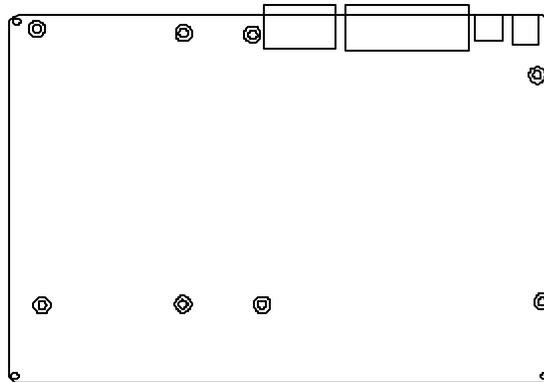
To install IDE & FDD drives, follow this procedure:

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 to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.
3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.
4. Connect serial port cable to on board COM2 header. And install the other side of COM2 cable to back panel with a screw.

Step 5

Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose correct mounting holes, the key point is to keep the back-panel of the mainboard in a close fit with your system case, as shown below.



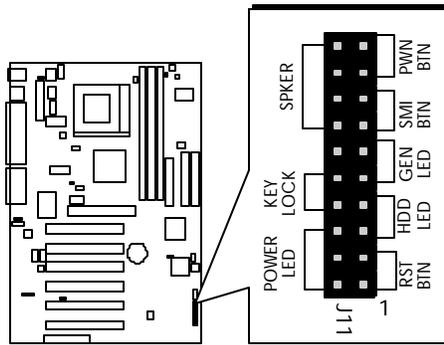
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical shorts between the board and the metal frame of the chassis. (If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

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

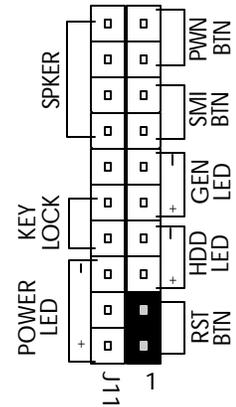
Step 6

Connect Front Panel Switches/LEDs/Speaker

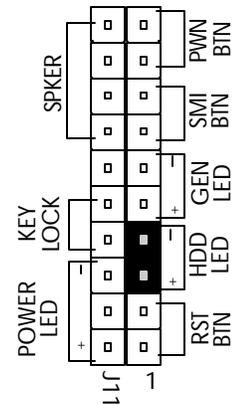
You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDD LED, Power LED, Reset Switch, PC Speaker, etc.) These cables serve to connect the front-panel switches and LEDs to the mainboard's front-panel connectors group,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



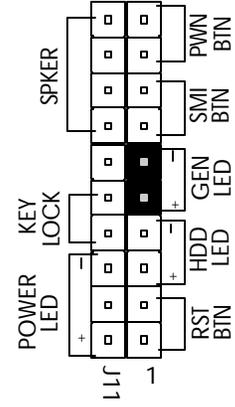
1. Hardware Reset Switch Button (RST BTN)



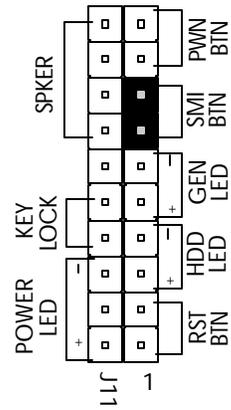
2. HDD-LED (HDD LED)



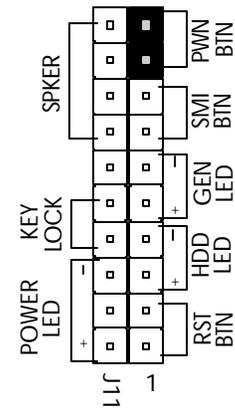
3. Green-LED (GEN LED)



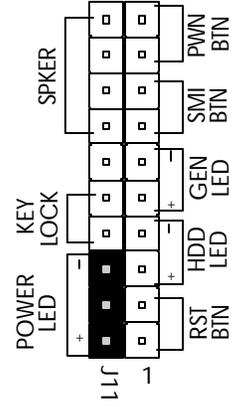
4. System Management Interface Button (SMI BTN)



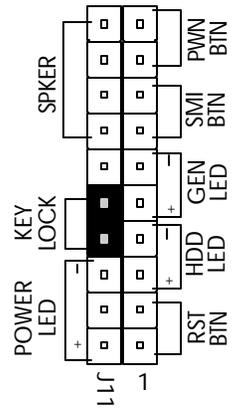
5. ATX Soft Power On/Off (PWN BTN)



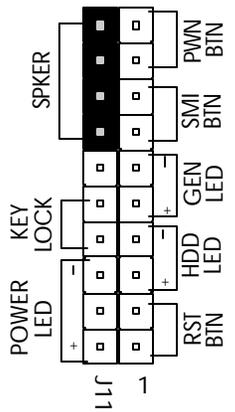
6. Power LED (POWER LED)



7. Keylock (KEY LOCK)



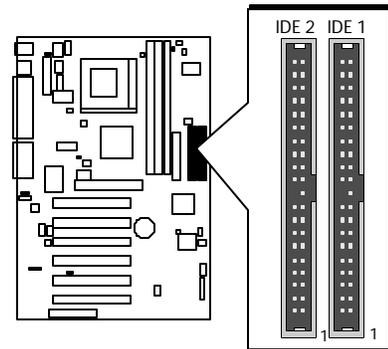
8. PC Speaker (SPKER)



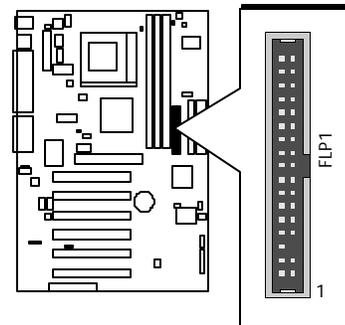
Step 7

Connect IDE & Floppy Disk Drives

1. IDE cable connector



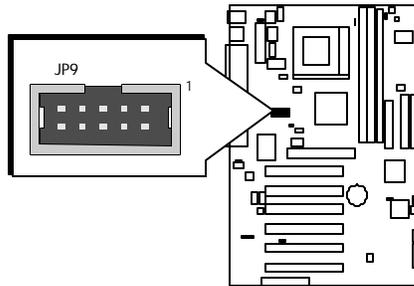
2. Floppy cable connector



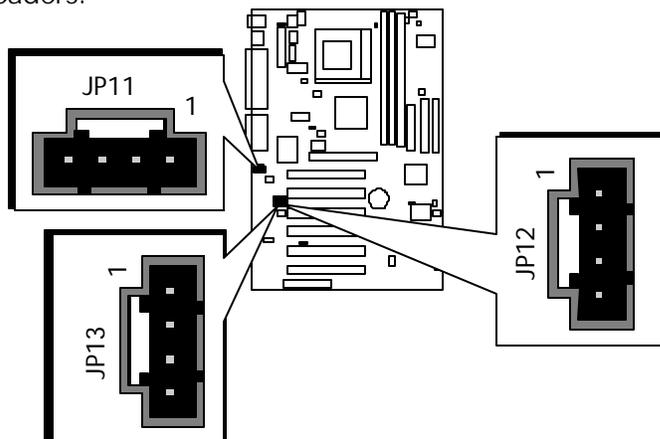
Step 8

Connect Other Internal Peripherals

1. COM 2 cable connector



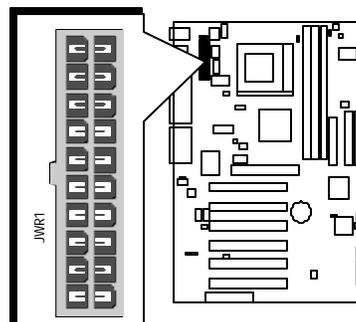
2. On Board Audio Headers :
Telephone_IN (JP11),
Auxiliary_IN (JP12),
CD_IN (JP13) Headers.



Step 9

Connect the Power Supply

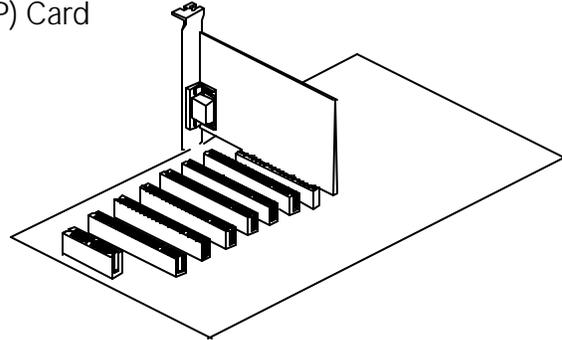
1. System power connector



Step 10

Install Add-on Cards in Expansion Slots

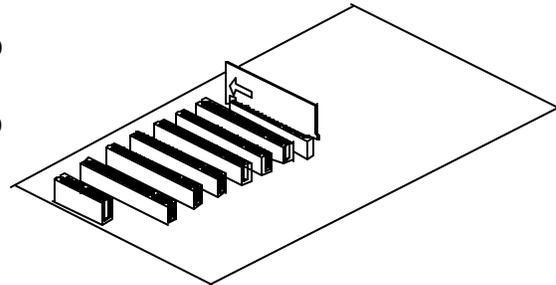
1. Accelerated Graphics Port (AGP) Card



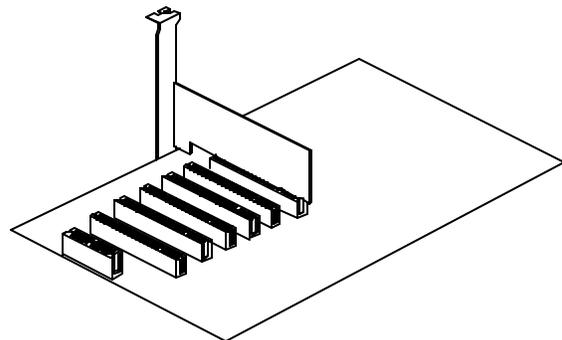
2. AIMM Card
(AGP In-Line Memory Module)

This slot supports AIMM with up to 4MB of 133MHz SDRAM display cache to deliver high quality video graphics.

Note: The AIMM Card is optional at the time of purchase.



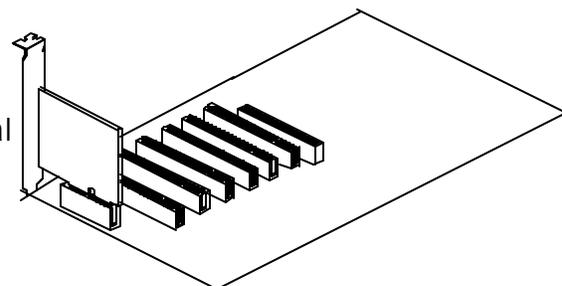
3. PCI Card



4. CNR (Communication/Network Riser) Card

The CNR Slot supports the audio, modem, lan, Home PNA of Intel 815E chipset.

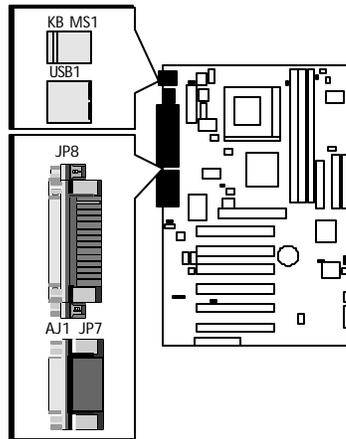
Note: The CNR Card is optional at the time of purchase.



Step 11

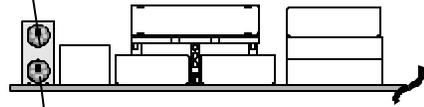
Connect External Peripherals to Back Panel

You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back-panel.



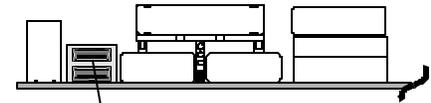
1. PS/2 Mouse and PS/2 Keyboard

PS/2 Mouse



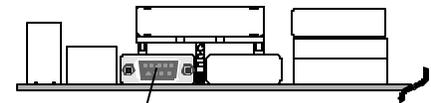
PS/2 keyboard

2. USB Devices



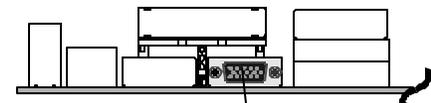
USB1 & USB2

3. COM Port



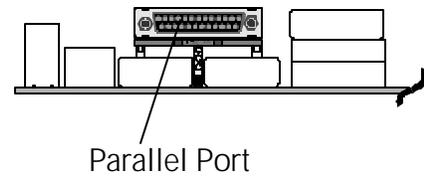
COM1

4. VGA Port

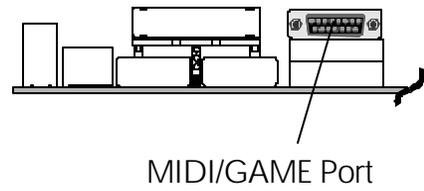


VGA

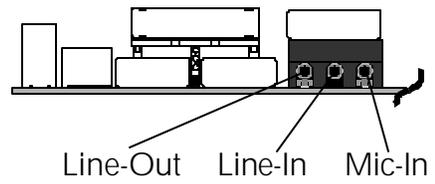
5. Parallel Port



6. MIDI/GAME Port



7. Audio Line_Out / Line_In / Mic_In



Step 12

First Time System Boot Up

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

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.
2. Turn on the system power.
3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available to the extended partition. The FDISK utility will assign a drive letter (i.e., C:, D:, E:,...) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

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

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

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

5. Install all the necessary drivers for CD-ROM, Mouse, etc.
6. Setup the complete operating system according to your OS installation guide.

Step 13

Install Drivers & Software Components

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

1. Insert the AE22 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 Chipset System Driver" and complete it.
4. Choose "Install AGP Device Software" and complete it.
5. Choose "Install AC97 Audio Driver" and complete it.
6. Choose "Install Synthesizer" and complete it.
7. Return to the main installation window and exit from the auto-run drivers installation program.

3.2 Jumper Settings

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

3-pin and multi (> 3) pin jumpers shown as following:

Pin #1 to the left:



Pin #1 on the top:



Pin #1 to the right:



Pin #1 on the bottom:



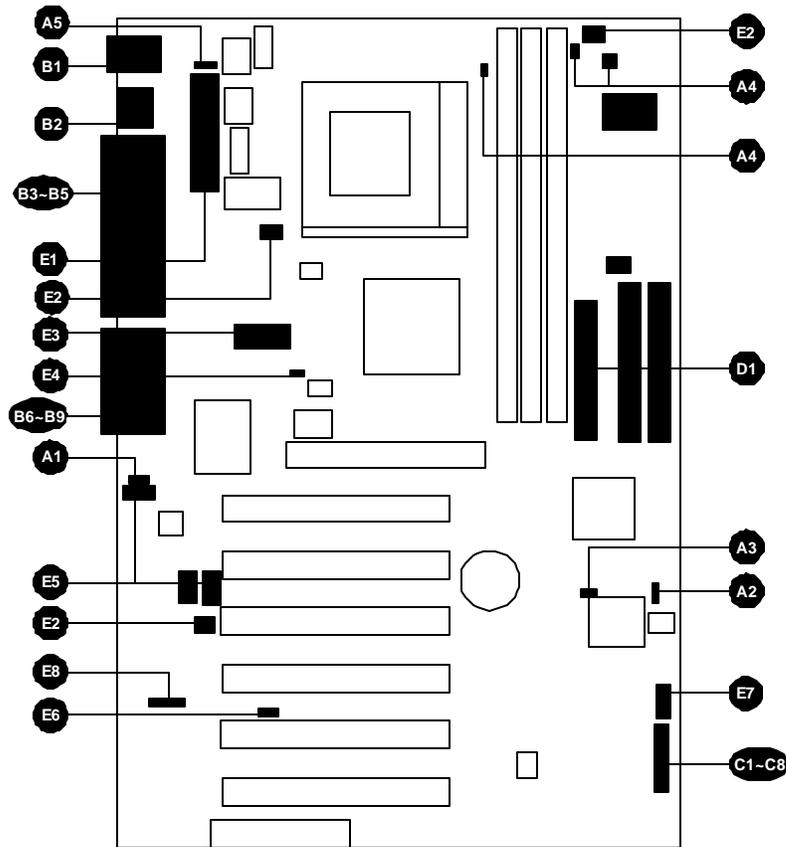
Jumpers with two pins are shown as  for Close [On] or  for Open [Off]. To Short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

Caution!

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

Jumpers & Connectors Guide

Use the mainboard layout on page 12 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:



CPU/Memory/Expansion Slots

- | | |
|------------|-----------------------------------------------------------------------------------------------------------------|
| Socket370 | : CPU Socket for PPGA/FC-PGA 370 processors |
| DIMM1/2/3 | : Three DIMM Sockets for 16,32,64,128,256,512MB ,3.3V SDRAM (The total installed memory does not exceed 512MB). |
| AGP / AIMM | : One AGP (Accelerated Graphics Port) Slot / AGP In_Line Memory Module |
| PCI | : Six 32-bit PCI Expansion Slots |
| CNR | : Communication/Network Riser slot |

Jumpers

A1	J7	: Clear PS/2 keyboard power on password
A2	J2	: Clear CMOS setting
A3	J5	: FWH block lock setting
A4	J1	: FSB speed auto configure setting
A4	JP3	: FSB speed auto configure setting
A4	JP5	: FSB speed auto configure setting
A5	J18	: PS/2 KB & MS power-on setting

Back Panel Connectors

B1	KB	: PS/2 keyboard
B1	MS	: PS/2 mouse
B2	USB	: 2 × USB (Universal Serial Bus) ports
B3	COM1	: Serial port 1 (DB9 male)
B4	PRINTER	: Parallel port (DB25 female)
B5	VGA	: VGA port (DB15 female)
B6	LINE_OUT	: LINE_OUT port
B7	LINE_IN	: LINE_IN port
B8	MIC_IN	: MIC_IN port
B9	GAME/MIDI	: GAME/MIDI Port

Front Panel Connectors

C1	HDD LED	: IDE drive active LED (HDD LED)
C2	RESET	: Hardware reset switch (RST BTN)
C3	Green LED	: Green LED (GEN LED)
C4	Power Switch	: ATX power on/off momentary type switch (PWN BTN)
C5	Power LED	: System power LED (POWER LED)
C6	KEYLOCK	: KEYLOCK (KEYLOCK)
C7	SPEAKER	: Internal speaker (SPKER) in housing
C8	SMI	: System Management Interface (SMI BTN)

Internal Peripherals Connectors

- D1** FLP1 : Floppy disk drive interface
- D1** IDE1 : IDE primary interface (Dual-channel)
- D1** IDE2 : IDE secondary interface (Dual-channel)

Other Connectors

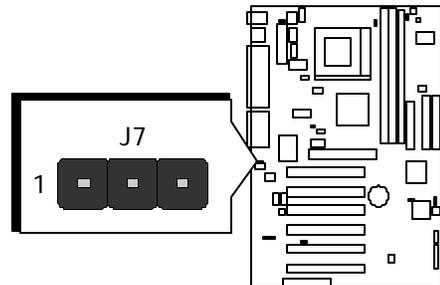
- E1** JWR1 : ATX power (20-pin header) connector
- E2** FAN1 : CPU fan connector
- E2** FAN2 : System & chassis fan connector
- E2** FAN3 : System & chassis fan connector
- E3** JP9 : COM2 connector
- E4** JP10 : Wake on modem connector
- E5** JP11 : Telephone_IN connector
- E5** JP12 : Auxiliary_IN connector
- E5** JP13 : CD_IN connector
- E6** J13 : Wake on Lan connector
- E7** J6 : Dual USB connectors header
- E8** J17 : IR connector

A1 Clear PS/2 Keyboard Power on Password (J7)

J7 is used to clear PS/2 keyboard power on password. Clearing the J7 will result in erasing the password you set and then any user may power on your system without any secret code.

1  Pin 2-3 (Clear Password)

1  Pin 1-2 (Default)



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

Step 2. Remove mini jumper from pin 1-2 on J7

Step 3. Place the mini jumper on pin 2-3 of J7 for a few seconds

Step 4. Return the mini jumper to pin 1-2 of J7

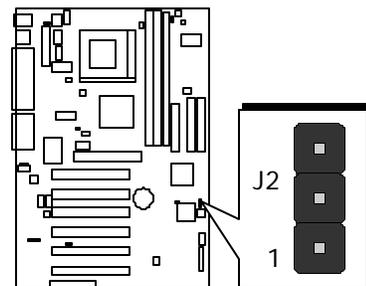
Step 5. Turn on the system power (PC-> On)

A2 Clear CMOS Setting (J2)

J2 is used to clear CMOS data. Clearing CMOS will result in the permanently erasing previous system configuration settings and the restoring original (factory-set) system settings.

1  Pin 1-2 (Default)

1  Pin 2-3 (Clear CMOS)



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

Step 2. Remove mini jumpers from pins 1-2 of J2

Step 3. Place the mini jumpers on pin 2-3 of J2 for a few seconds

Step 4. Return the mini jumpers to pin 1-2

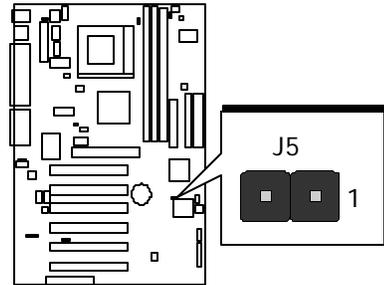
Step 5. Turn on the system power (PC-> On)

A3 Firmware Hub Block Lock Setting (J5)

You may flash BIOS (FWH) by placing mini jumper on Pin1-2.

 1 (Default, you may flash BIOS)

 1 (Lock the function to flash BIOS)

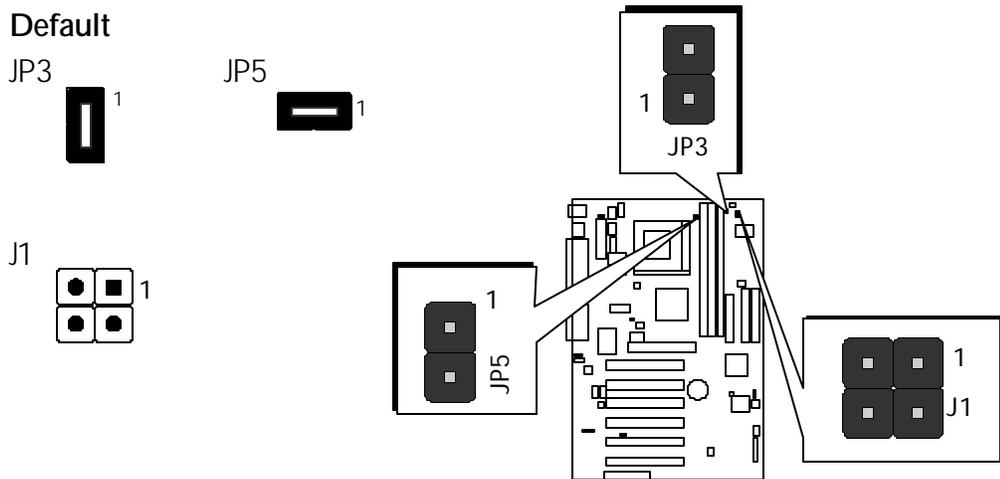


Step 1. Turn off the system power (PC-> Off)

Step 2. Place mini jumper over pin 1-2 on J5 and then turn on your system to execute flash utility.

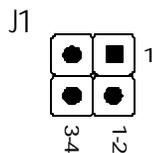
A4 FSB Speed Auto Configure Setting (J1, JP3, JP5)

AE22 provides jumper JP3 and JP5 to set automatically configured. front side bus at 66MHz, 100MHz, 133MHz. Inserting mini jumper on J3 and J5 and leave J1 all open as below enable users to identify automatically the FSB speed.



For experienced users, AE22 mainboard provides an alternative hardware configured function to adjust front side bus manually. Before you adjust FSB frequency by jumper, you need to remove all mini jumpers from JP3 and JP5 and insert mini jumper properly on J1.

Manually



System Clock	JP3	JP5	J1 (1-2)	J1 (3-4)
Auto	ON	ON	OFF	OFF
66 MHz	OFF	OFF	ON	ON
100 MHz	OFF	OFF	ON	OFF
133 MHz	OFF	OFF	OFF	OFF

A5 PS/2 Keyboard & PS/2 Mouse Power-On Setting (J18)

AE22 mainboard provides an easy-to-use function to power on system by PS/2 keyboard and PS/2 mouse.

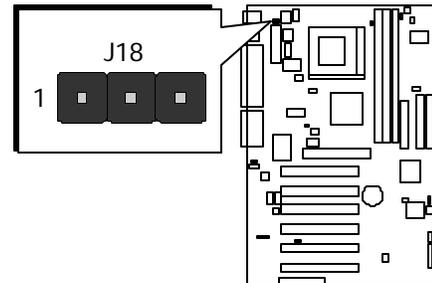
Firstly, you must set J18 jumper to enable power-on function. Then you also need to specify the proper key through BIOS setup program. Please go to field "Mouse Power On Function" and "Keyboard PowerOn Function" under the sub-menu of "Peripheral Setup" in BIOS setup program.



J18 2-3 (default, Enable power-on function)

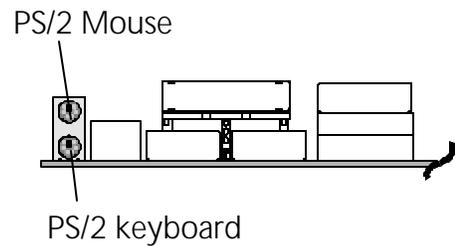


J18 1-2 (Disable power-on function)



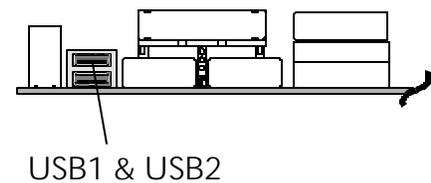
B1 PS/2 Keyboard & PS/2 Mouse Connectors

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or 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.



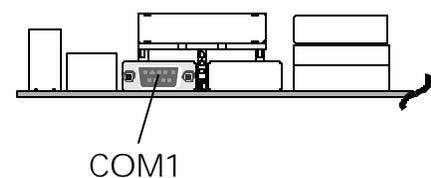
B2 USB1/USB2 Port Connectors

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



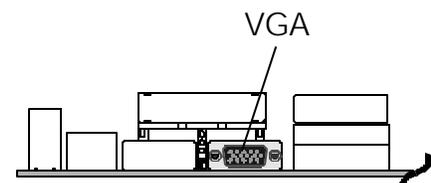
B3 COM1 Connector

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



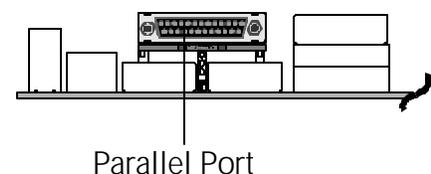
B4 VGA Connector

One 15-pin VGA connector is located at the rear panel of the mainboard.



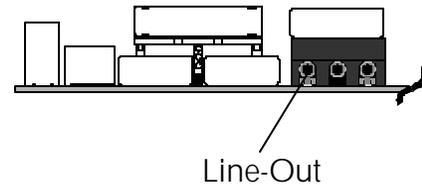
B5 Parallel Port Connector

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.



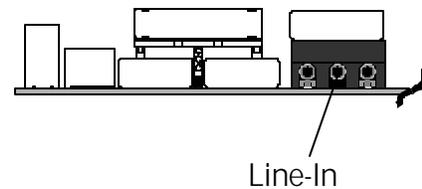
B6 Line-Out

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



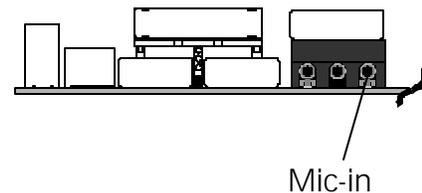
B7 Line-In

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.



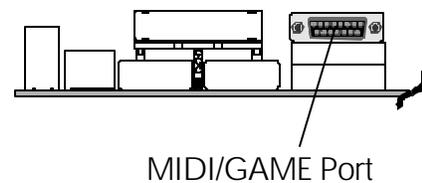
B8 Mic-In

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.



B9 MIDI/GAME Port

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.

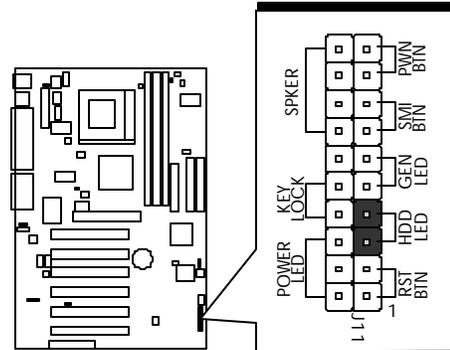


MIDI Instrument Connection

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

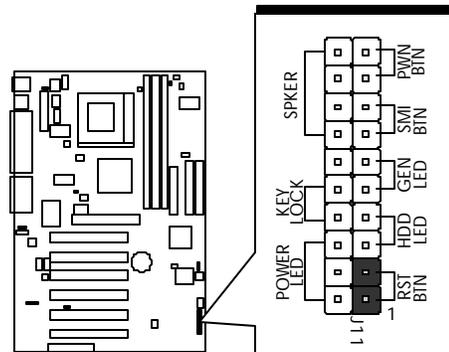
① HDD LED Connector (HDD LED)

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.



② Hardware Reset Connector (RST BTN)

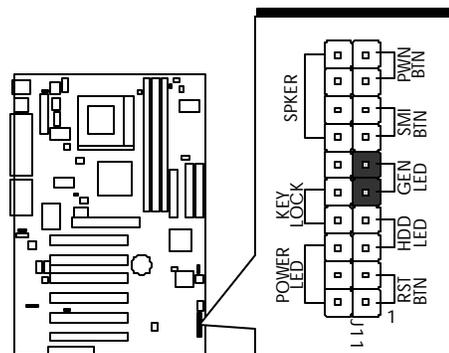
Attach the 2-pin hardware reset switch cable to the RST header. Pressing the reset switch causes the system to restart.



③ Green LED Connector (GEN LED)

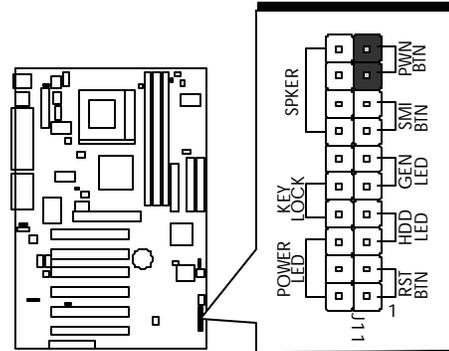
The Green LED (GEN LED) indicates that the system is currently in one of the power saving mode (Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off. Attach a 2-pin Green LED cable to GEN LED header.

Note : Please notice all the LED connectors are directional. If your chassis's LED does not light up during running, please simply change to the opposite direction.



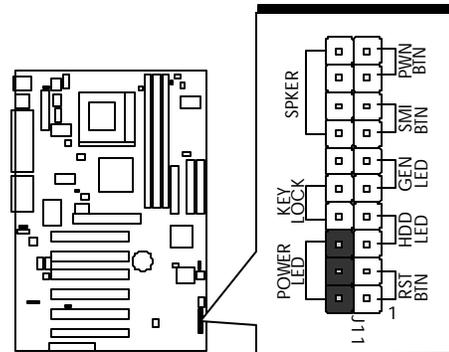
64 ATX Power On/Off Switch Connector (PWN BTN)

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 POW BTN header on the mainboard.



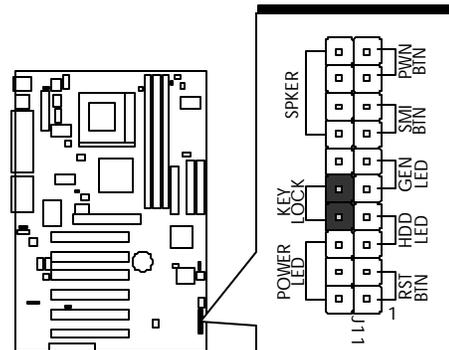
65 Power LED Connector (POWER LED)

Attach the 3-pin Power LED connector cable from the housing front panel to the POWER LED header on the mainboard. The power LED stays light while the system is running.



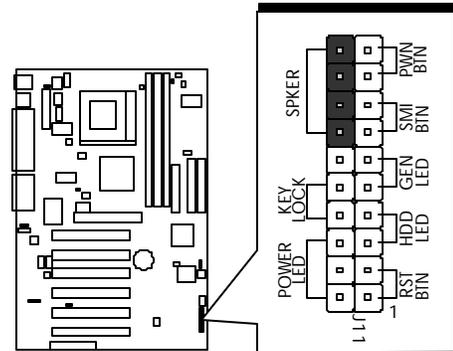
66 Keylock Connector (KEY LOCK)

Attach the 2-pin KEYLOCK connector cable from the housing front panel to the KEYLOCK header on the mainboard.



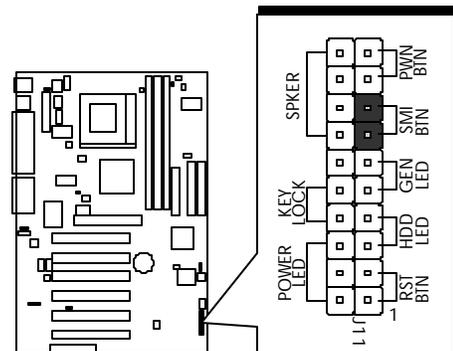
⑦ Speaker Connector (SPKER)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPKER).



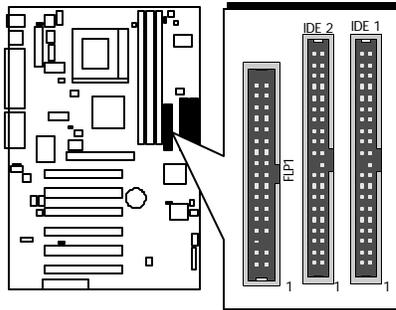
⑧ System Management Interface Connector (SMI BTN)

Hardware System Management Interface (SMI) header may attach to 2-pin momentary switch. Press the switch to force system into power saving mode; press it again to resume back the normal operation situation.



DI Enhanced IDE and Floppy Connectors

The AE22 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 (FLP1) to accommodate the Floppy Disk Drive (FLP1). Moreover, this mainboard comes with one 40-pin ATA 66/100 ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.

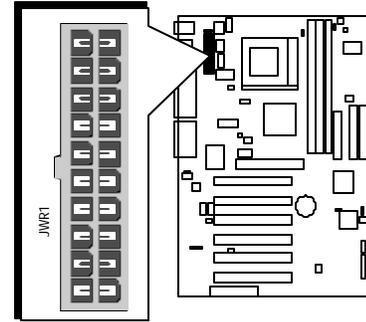
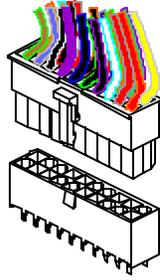


Note : Please connect your system H.D.D. to IDE 1.

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

③ ATX Power Supply Connector (JWR1)

Locate the 20-pin male header ATX power connector (JWR1) 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: 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.

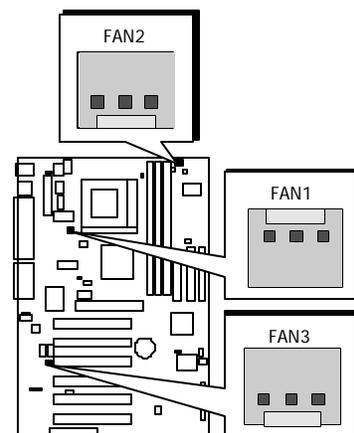
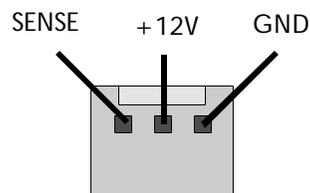
④ CPU and System or Chassis Fan connectors-

FAN1,FAN2,FAN3

The mainboard provides three onboard 12V cooling fan power connectors to support CPU (FAN1), System or Chassis (FAN2,FAN3) 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.

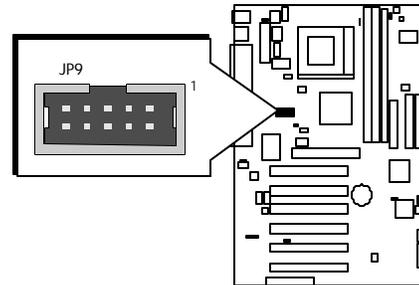


Ⓔ COM2 Connector (JP9)

This mainboard comes with one 10-pin ribbon cable for COM2 connector.
Pin Assignments:

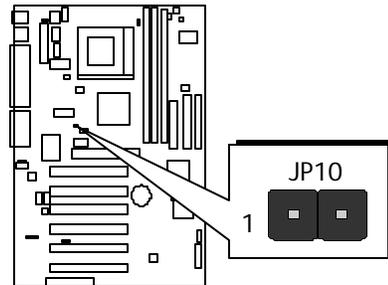
KEY			GND
RI2			DTR2
CTS2			TX2
RTS2			RX2
DSR2			DCD2

1



Ⓕ Wake-on Modem Connector (JP10)

Attach a 2-pin connector from the Modem which supports Wake-On Modem function. This function lets users ring in the connected system through Modem.



Ⓖ Audio Telephone_IN Header (JP11) (Green)

Port JP11 can be used to connector a modem audio line to AE22 mainboard. Typically, you would use this connector when running the voice mail software on your system for audio input and output.

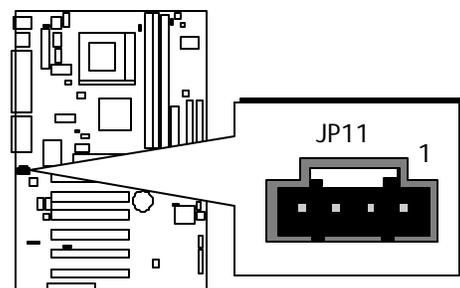
Pin Assignments:

1=MONO_PHONE

2=AGND

3=AGND

4=MONO_OUT

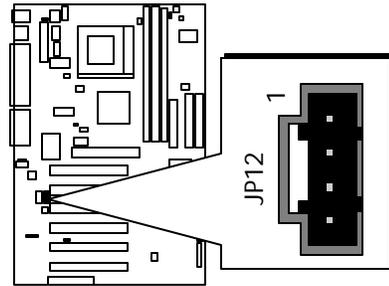


Ⓔ Audio AUXILIARY_IN Header (JP12) (White)

Port JP12 can be used to connect a stereo audio input from CD-ROM, TV-tuner or MPEG card.

Pin Assignments:

1=AUXL 2=AGND
3=AGND 4=AUXR

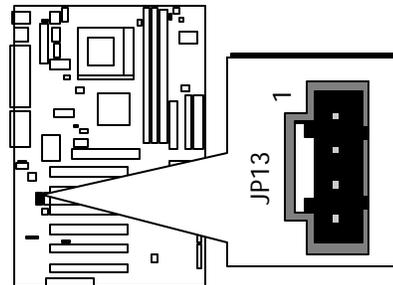


Ⓕ Audio CD_IN Header (JP13) (Black)

Port JP13 is used to attach an audio connector cable from the CD-ROM drive.

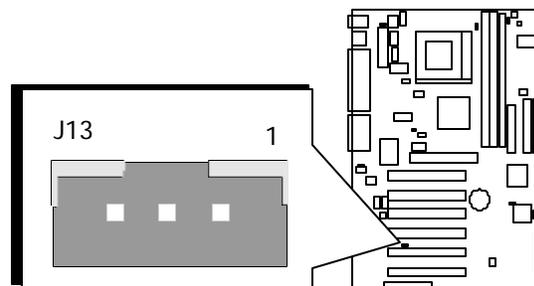
Pin Assignments:

1=CD-L 2=CD-GND
3=CD-GND 4=CD-R



Ⓖ Wake on Lan Connector (J13)

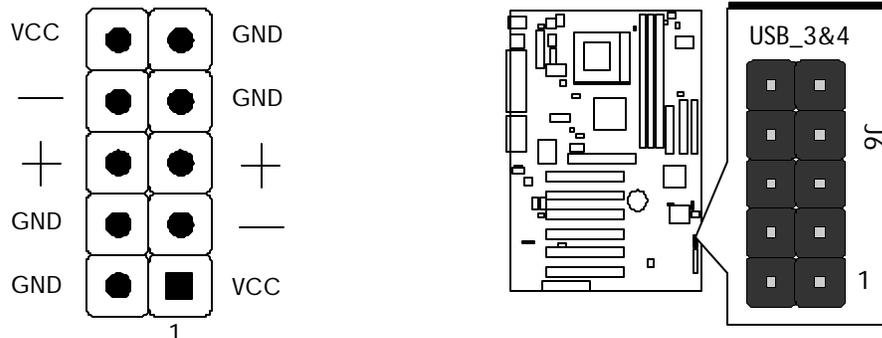
Attach a 3-pin connector from the LAN card which supports Wake-On-LAN (WOL) function. This function lets users wake up the connected system through LAN card.



E7 Dual USB Connectors Header (J6)

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.

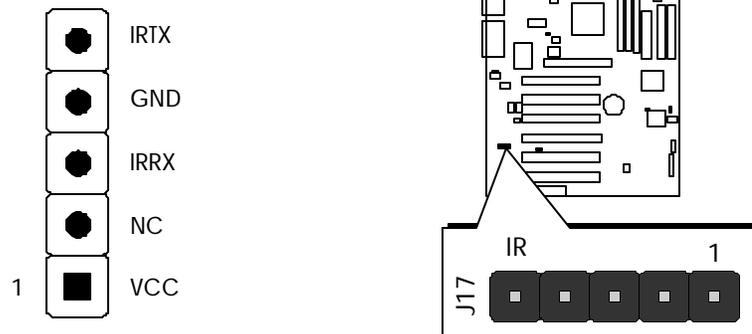
Pin Assignments:



E8 IR Connector (J17)

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:



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 5-pin infrared device cable to J17.
(Refer to the above diagram for IR pin assignment.)
- Step 2.** Configure the Infrared transfer mode in field "onBoard Serial PortB" of "Peripheral Setup" sub-menu in BIOS setup program. This mainboard supports IrDA, ASKIR, Normal transfer modes.

3.3 System Memory Configuration

The AE22 mainboard has two 168-pin DIMM sockets that allow you to install from 16MB up to 512MB of system memory with SDRAM (Synchronous DRAM). Each DIMM (Dual In-line Memory Module) socket can accommodate 16MB, 32MB, 64MB, 128MB, 256MB and 512MB 3.3V single or double side SDRAM modules. DIMM sockets are arranged in three banks, each memory bank made of one socket and providing a 64-bit wide data path. (The total installed memory does not exceed 512MB.)

1. 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, and 512MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 2	16MB, 32MB, 64MB, 128MB, 256MB, and 512MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 3	16MB, 32MB, 64MB, 128MB, 256MB, and 512MB 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.

2. 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 in the field "Standard CMOS Setup" of BIOS setup program.

4 SOFTWARE UTILITY

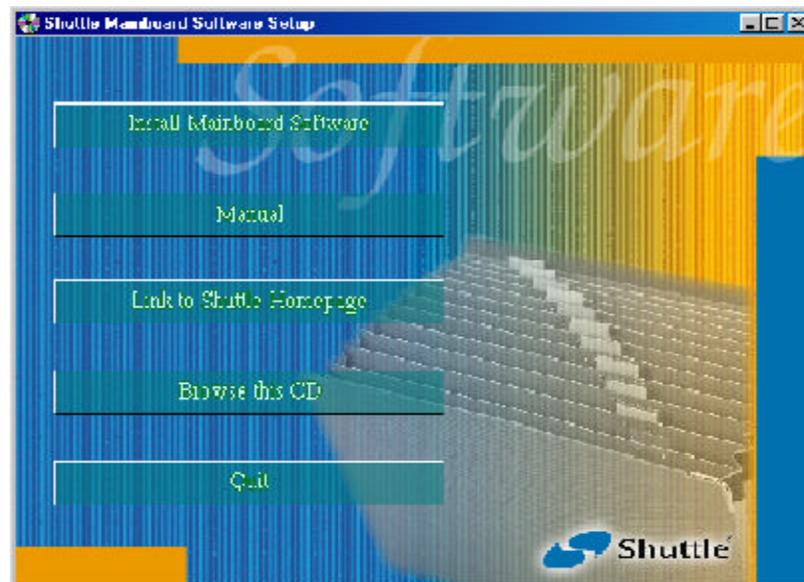
4.1 AE22 Mainboard CD Overview

Note: The CD contents attached in AE22 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:

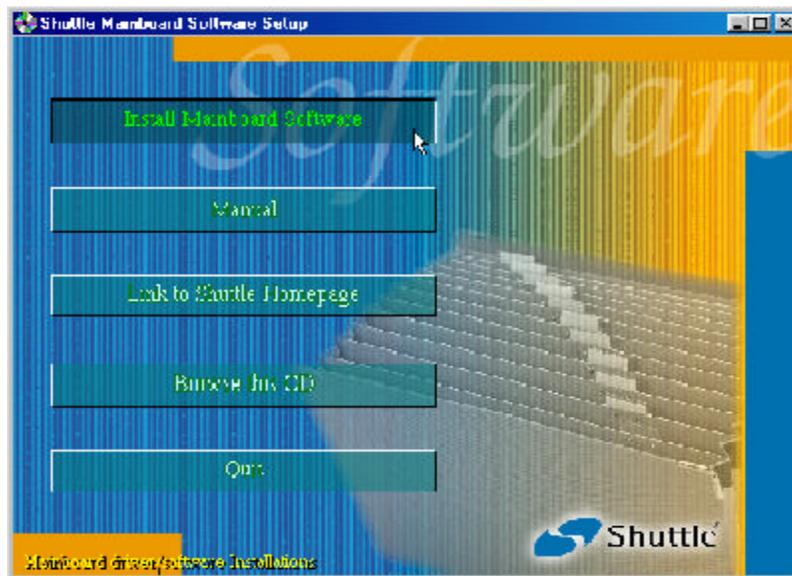
- ☞ **Install Mainboard Software** - Installing Chipset system driver, AGP device driver, AC97 Audio driver, Synthesizer.
- ☞ **Manual** - AE22 series mainboard user's manual in PDF format.
- ☞ **Link to Shuttle Homepage** - Link to shuttle website homepage.
- ☞ **Browse this CD** - Allows you to see contents of this CD.
- ☞ **Quit** - Close this CD.



4.2 Install Mainboard Software

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

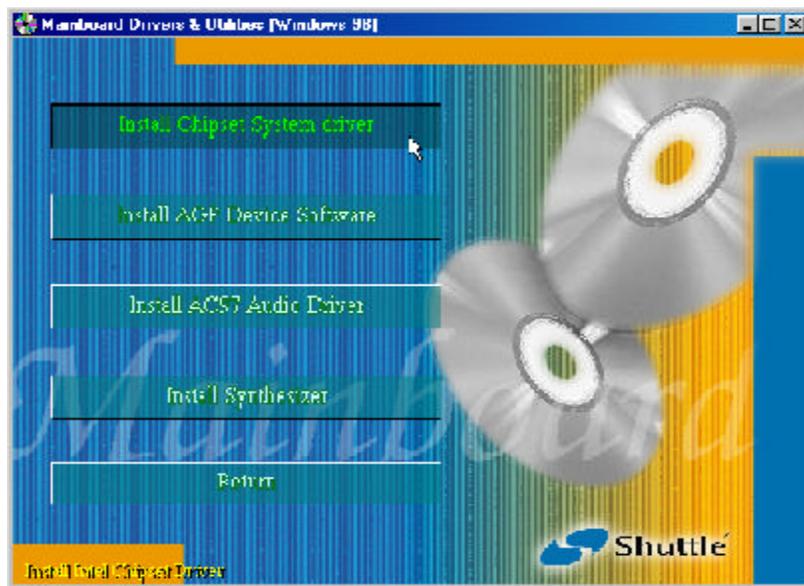
Select using your pointing device (e.g. mouse) on the “**Install Mainboard Software**” bar to run into sub-menu.



4.3 Install Chipset System Driver

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 Chipset System driver**" bar.



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

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

P.S.: After the first reboot, the system will continue the setup procedure and then reboot automatically. Please must be sure the complete installation.

Note: When the Windows 95/98 first reboot after Intel Chipset System 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.

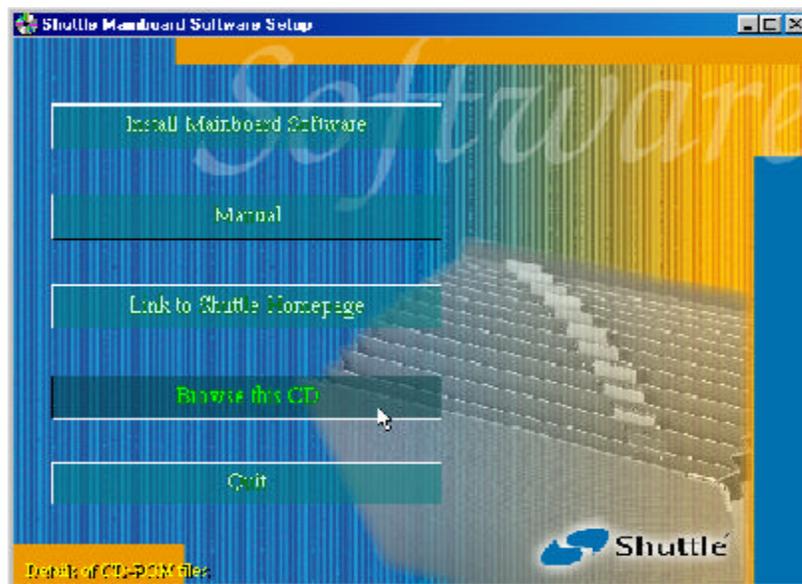
4.4 Install IDE Driver

This driver may do bad effect on some model or brand of IDE HDD devices. Hereby, we won't suggest users to install it cause it might crash your HDD data. However, if you are very sure that the driver matches your IDE HDD, please follow below indication to complete setup.

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 "**Browse this CD**" bar. And then find out the location: Mainboard/Ultraata/cd to install the driver.

P.S.: Before doing this IDE Driver installation, setup Chipset System Driver is necessary.



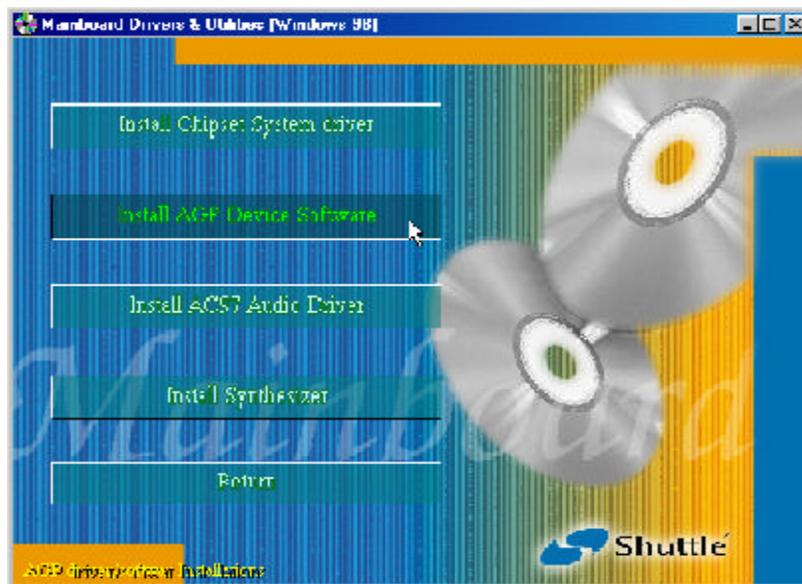
Once you made your selection, a Setup window runs the installation automatically.

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

4.5 Install AGP Device Driver

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 AGP Device Software**" bar.



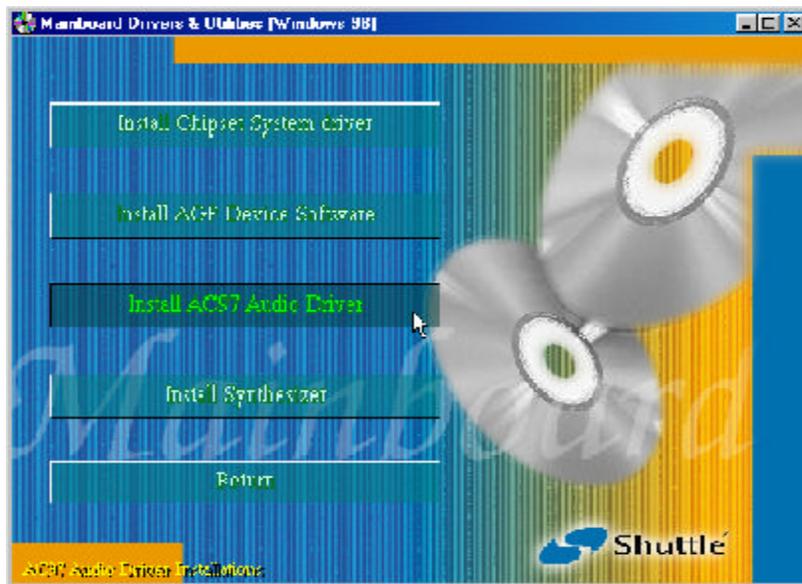
Once you made your selection, a Setup window runs the installation automatically.

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

4.6 Install AC97 Audio Driver

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 AC97 Audio Driver**” bar.



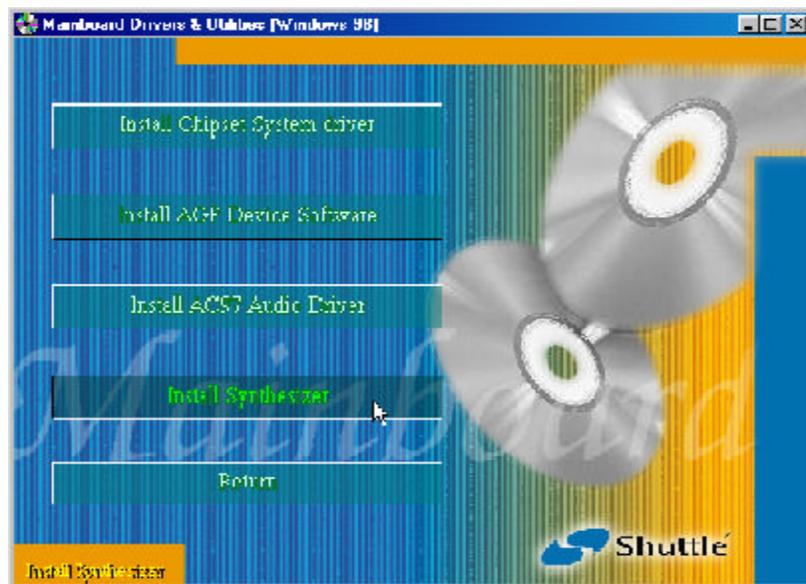
Once you made your selection, a Setup window runs the installation automatically.

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

4.7 Install Synthesizer

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 Synthesizer" bar.



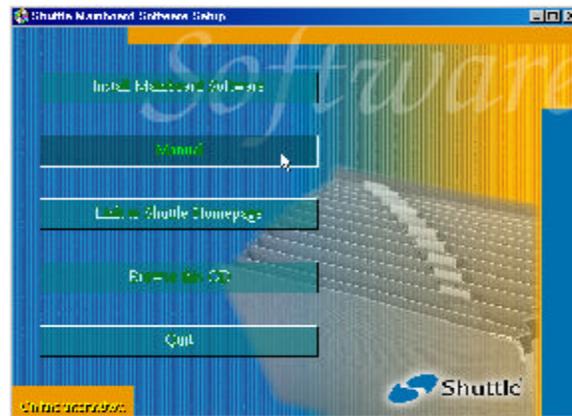
Once you made your selection, a Setup window runs the installation automatically.

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

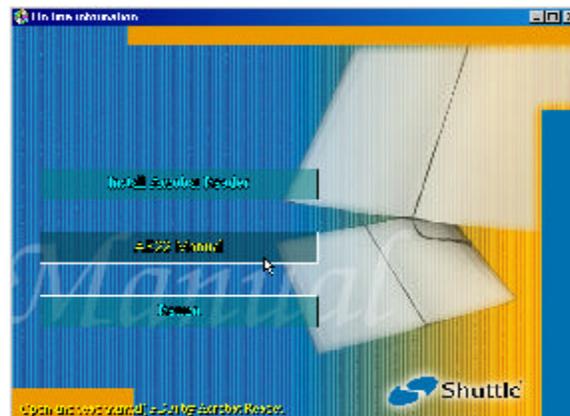
4.8 View the User's Manual

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 Adobe Reader**" bar if you need to install acrobe reader.



Then click on "**AE22 Manual**" bar to view AE22 user's manual.

5 BIOS SETUP

ME21 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 BIOS

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

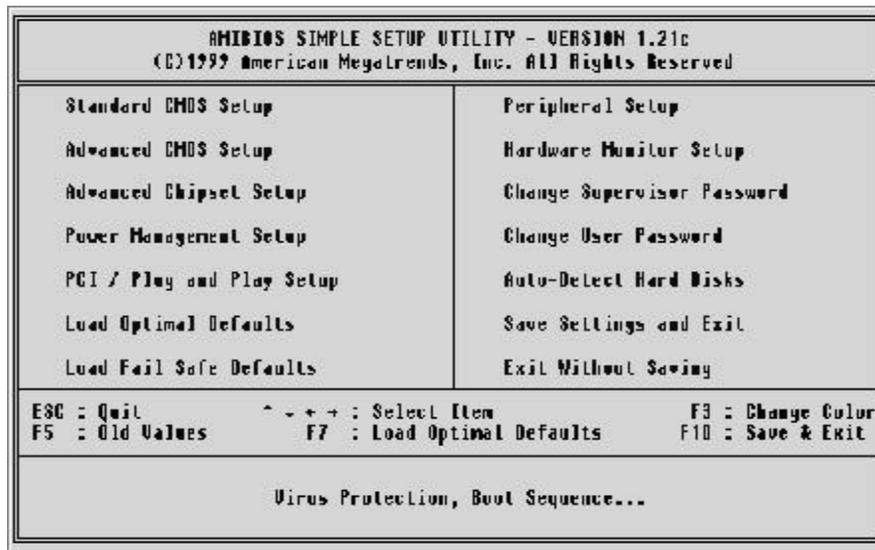
- Step 1.** Power on the computer and the system will perform its POST (Power-On Self Test) routine checks.
- Step 2.** As you see the message "Hit **DEL** if you want to run setup.", press < F2 > key immediately.

Note : 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.

- 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 AMI BIOS 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.



Please note that the function keys appear at the right bottom of screen.

Standard CMOS Setup

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

Advanced CMOS Setup

This setup page includes all items of AMI special enhanced CMOS features.

Advanced Chipset Setup

This setup page includes all items of chipset features.

Power Management Setup

This setup page includes all items of Power Management features.

PCI /Plug and Play 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 Optimal 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 Fail Safe 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.

Peripheral Setup

This setup page includes all items of peripheral features.

Hardware Monitor Setup

This setup page includes all items of hardware monitor features.

Change Supervisor Password

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

Change User Password

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

Auto-Detect Hard Disks

This setup page can detect the hard disk automatically.

Save Settings & Exit

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 several 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.

AMIBIOS SETUP - Standard CMOS Setup	
(C)1999 American Megatrends, Inc. All Rights Reserved	
Date (mm/dd/yyyy) : Wed Aug 30, 2000	
Time (hh/mm/ss) : 12:08:10	
TYPE	SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
Pri Master : AUTO	
Pri Slave : AUTO	
Sec Master : AUTO	
Sec Slave : AUTO	
Floppy Drive A: 1.44 M, 3.5 in.	Base Memory : 640 KB
Floppy Drive B: None	Other Memory : 384 Kb
Boot Sector Virus Protection Disabled	Extended Memory : 63488 KB
	Total Memory : 64512 kb
Month: Jan Dec	ESC : Exit
Day: 01 - 31	F4 : Select Item
Year: 1901 2099	PU/PD/+/ : Modify
	F3 : Color

Date

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

Time

The time format is < hour> < minute> < second> . The time is converted based 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.

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.

Advanced CMOS Setup

AMIBIOS SETUP - Advanced CMOS Setup (C)1999 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Disabled	C000,16k Shadow	Disabled
1st Boot Device	Disabled	C400,16k Shadow	Disabled
2nd Boot Device	Disabled	C800,16k Shadow	Disabled
3rd Boot Device	Disabled	CC00,16k Shadow	Disabled
Try Other Boot Devices	Yes	D000,16k Shadow	Disabled
Display Add-On ROM Init	Force BIOS	D400,16k Shadow	Disabled
Floppy Access Control	Read-Write	D800,16k Shadow	Disabled
S.M.A.R.T. for Hard Disks	Disabled	DC00,16k Shadow	Disabled
BootUp Num-Lock	Off		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
PS/2 Mouse Support	Disabled		
Primary Display	Absent		
Password Check	Setup		
Boot To OS/2 > 64MB	No		
CPU Serial Number	Disabled		
L1 Cache	Disabled		
L2 Cache	Disabled		
Cache Bus ECC	Disabled		
System BIOS Cacheable	Disabled		
		ESC : Quit	↑↓←→ : Select Item
		F1 : Help	F10/PD/+/- : Modify
		F5 : Old Values	F3 : Color
		F6 : Load Fail Safe Defaults	
		F7 : Load Optimal Defaults	

Quick Boot

This item allows you to power on computer without POST test.

- The choice: Enable, Disable

1st/2nd/3rd Boot Device

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

- The choice: Disabled, IDE-0, IDE-1, IDE-2, IDE-3, Floppy, LS-120/ZIP, ATAPI ZIP, CDROM, SCSI, NETWORK, USB FDD.

Try Other Boot Devices

This item allows you to decide selecting other device to boot system or not.

- The choice: Yes, No.

Display Add-On ROM Init

This option specifies the system display mode that is set at the time that AMI BIOS POST initializes an optional option ROM.

- The choice: Force BIOS, Keep Current.

Floppy Access Control

This option specifies the read/write access that is set when booting from a floppy drive.

- The choice: Read/Write, Read-Only

S.M.A.R.T. for Hard Disks

Set this option to Enabled to permit AMI BIOS to use the SMART (System Management and Reporting Technologies) protocol for reporting server system information over a network.

- The choice: Enable, Disable

BootUp Num-Lock

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

- The choice: On , Off.

Floppy Drive Swap

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

- The choice: Enable, Disable

Floppy Drive Seek

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

- The choice: Enable, Disable

PS/2 Mouse Support

Set this option to enable AMI BIOS support on PS/2-type mouse.

- The choice: Enable, Disable

Primary Display

This option configures the type of monitor attached to the computer.

- The choice: Mono, CGA40x25, CGA80x25, VGA/EGA, or Absent.

Password Check

This item enables to check password at every booting time or when running AMI BIOS setup.

- The choice: Always, Setup.

Boot To OS/2 > 64MB

To set this option to Yes if running OS/2 operating system and using more than 64 MB of system memory on the motherboard

- The choice: Yes, No.

CPU Serial Number

This item is for Pentium III Processor. During Enabled, this will check the CPU Serial number. Disable this option if you don't want the system to know the Serial number.

- The choice: Enable, Disable.

L1 Cache

This option enables the L1 internal cache memory.

- The choice: Enable, Disable.

L2 Cache

This option enables the L2 internal cache memory.

- The choice: Enable, Disable.

Cache Bus ECC

This option is for Pentium II/III processor. If you enable the function, this will affect system performance.

- The choice: Enable, Disable.

System BIOS Cacheable

When set to Enabled, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are always copied from the BIOS ROM to system RAM for faster execution.

- The choice: Enable, Disable

CX00,16k Shadow / DX00,16k Shadow

These options specify how the 64 KB of video ROM at C0000h is treated. Also, the contents of Video ROM area from C0000h - C7FFFFh can be written to or read from cache memory.

- The choice: Enable, Disable, Cached/WP.

Advanced Chipset Setup

AMIBIOS SETUP - Advanced Chipset Setup (C)1999 American Megatrends, Inc. All Rights Reserved			
ClkGen Spread Spectrum	Disabled	Display Cache Window Size	64MB
CPU/PCI Clock (MHz)	133	AGP Aperture Window	64MB
CPU Ratio Selection	Reserved	VRUload	No
USB Function	Disabled	Display Memory Frequency	100 MHz
Legacy USB Support	Disabled	Initialize Display Memory	Disabled
CPU Latency Timer	Disabled	Paging Mode Control	Open
CPU BIST Enable	Disabled	RAS-to-CAS	Default
ICU Delayed Transaction	Disabled	CAS Latency	Fast
DMA Collection Buffer	Disabled	RAS Timing	Fast
DRAM Page Closing Policy	Closed	RAS Precharge Timing	Fast
Memory Hole	Disabled		
System memory Frequency	100 MHz		
DRAM Refresh	Auto		
DRAM Cycle time (SCLks)	5/7		
CAS# Latency (SCLks)	3	ESC : Quit	F4++ : Select Item
RAS to CAS delay (SCLks)	3	F1 : Help	PU/PD/+/- : Modify
RAS# Precharge (SCLks)	3	F5 : Old Values	F3 : Color
Primary Graphics Adapter	Internal	F6 : Load Fail Safe Defaults	
Internal Graphics Select	Disabled	F7 : Load Optimal Defaults	

ClkGEN Spread Spectrum

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

- The choice: Enable, Disable

CPU/PCI Clock (MHz)

This item allows you to select CPU host clock and PCI clock.

Before you overclock CPU Host frequency from BIOS setup program, inserting jumpers properly on J1, JP3 and JP5 is necessary.

The user may adjust CPU Host Clock from 66MHz to 80MHz when you use 66MHz based Celeron processor. While you use 100MHz based FC-PGA Pentium III processor, then clock ranges from 100MHz to 115MHz. Also, from 133MHz to 160MHz is the range that 133MHz based FC-PGA Pentium III processor is used.

- The choice:
 - (66 MHz based CPU) 66/33MHz, 68/35MHz, 70/35MHz, 75/38MHz, 80/40MHz.
 - (100 MHz based CPU) 100/33MHz, 103/34MHz, 105/35MHz, 110/37MHz, 115/38MHz.
 - (133 MHz based CPU) 133/33MHz, 140/35MHz, 145/36MHz, 150/37MHz, 160/38MHz

CPU Ratio Selection

This item allows users to set CPU ratio.

USB Function

Set this option to enable USB (Universal Serial Bus) support.

- The choice: Enable, Disable.

Legacy USB Support

Set this option to enable or disable USB keyboard/mouse legacy support.

- The choice: Enable, Disable.

CPU Latency Timer

The CPU cycle is only deferred immediately after receiving another ADS# signal.

- The choice: Enable, Disable.

CPU Bist Enable

Set this option to enable CPU BIST.

- The choice: Enable, Disable.

ICH Delayed Transaction

Set this option to enable ICH Delayed Transaction.

- The choice: Enable, Disable.

DMA Collection Buffer

This items Enables DMA Collection Buffer for LPC I/F and PC/PCI DMA.

- The choice: Enable, Disable.

DRAM Page Closing Policy

If set to Closed, DRAM pages tend to be closed after use. If set to Open, DRAM pages tend to be left open.

- The choice: Closed, Open

Memory Hole

This option specifies the location of an area of memory that cannot be addressed on the ISA bus.

- The choice: Disabled, 15 MB -16 MB.

System Memory Frequency

This option item controls system memory frequency selection. AUTO setting means to be based on DIMM SPD data.

- The choice: 100, 133, AUTO.

DRAM Refresh

This option specifies the interval between Refresh signals to DRAM system memory.

- The choice: Auto, 15.6 *µ*S, 7.8 *µ*S, 128 Clocks.

DRAM Cycle time (SCLKs)

This option specifies the length of the DRAM cycle time in SCLKs.

- The choice: 6/8, 5/7.

CAS# Latency (SCLKs)

This option specifies the number of SCLKs between the time when the Read command is sampled by DRAM and the Solano Sample reads data from SDRAM.

- The choice: 3, 2.

RAS to CAS delay (SCLKs)

This option specifies the length of delay inserted between RAS and CAS signals of the DRAM system memory access cycle if SDRAM is installed.

- The choice: 2, 3, Auto.

RAS# Precharge (SCLKs)

This option specifies the length of the RAS precharge part of the DRAM system memory access cycle when SDRAM system memory is installed in this computer.

- The choice: 2, 3, Auto.

Primary Graphics Adapter

This specifies the primary Graphics Adapter.

- The choice: Internal, External AGP, External PCI, Auto.

Internal Graphics Select

This option selects the internal graphics device and the amount of system memory to be used as video memory.

- The choice: Disabled, 512KB, 1MB.

Display Cache Window Size

This option specifies the amount of cache available for the graphics local memory window.

- The choice: 32 MB, 64 MB.

AGP Aperture Window

This item sets the graphics display window size.

- The choice: 64M, 32M.

VBULoad

Set this item to refresh onboard video BIOS.

- The choice: Yes, No.

BELOW SETTINGS ON THIS PAGE ARE ONLY FOR OPTIONAL AIMM MEMORY INSTALLED :

Display Memory Frequency

This item controls display cache memory frequency.

- The choice: 100MHZ, 133MHZ.

Initialize Display Memory

Set this option to Enabled to initialize display cache memory at system boot. Set this option to Disabled to bypass the display cache initialization procedure.

- The choice: Enabled, Disabled

Paging Mode Control

This option is only available if the Initialize Display Cache Memory option is set to Enabled to open paging mode.

- The choice: Closed, Open.

RAS-to-CAS

This option is only available if the Initialize Display Cache Memory option is set to Enabled. If set to Override, the RAS-to-CAS delay override is fixed at 2 clocks. If set to Default, the delay is determined by the CL bit.

- The choice: Override, Default.

CAS Latency

This item controls the CAS Latency of local memory.

- The choice: Fast, Slow.

RAS Timing

This option is only available if the Initialize Display Cache Memory option is set to Enabled. If set to Fast, t_{RAS} is set to 5 clocks and t_{RC} is set to 8 clocks. If set to Slow, t_{RAS} is set to 7 clocks and t_{RC} is set to 10 clocks.

- The choice: Slow, Fast.

RAS Precharge Timing

This option is only available if the Initialize Display Cache Memory option is set to Enabled. If set to Fast, t_{RP} is set to 3 clocks. If set to Slow, t_{RP} is 2 clocks.

- The choice: Slow, Fast.

Power Management Setup

AMIBIOS SETUP - Power Management Setup (C)1999 American Megatrends, Inc. All Rights Reserved			
ACPI Aware O/S	No	Resume On Ring	Disabled
ACPI Standby State	S1/POS	LAN Resume From Soft Off	Disabled
Power Management/APM	Disabled	PME Function Support	Disabled
Video Power Down Mode	Disabled	Resume On RTC Alarm	Disabled
Hard Disk Power Down Mode	Disabled	RTC Alarm Date	Every Day
Suspend Time Out (Minute)	Disabled	RTC Alarm Hour	00
PS/2 KB/MS Access	Ignore	RTC Alarm Minute	00
FDG/LPT/COM Ports Access	Ignore	RTC Alarm Second	00
Audio Ports Access	Ignore		
MIDI Ports Access	Ignore		
ADLIB Ports Access	Ignore		
Primary Master IDE	Ignore		
Primary Slave IDE	Ignore		
Secondary Master IDE	Ignore		
Secondary Slave IDE	Ignore		
PIRQ[A] IRQ Active	Ignore	ESC : Quit	14+ : Select Item
PIRQ[B] IRQ Active	Ignore	F1 : Help	F0/P0/+/- : Modify
PIRQ[C] IRQ Active	Ignore	F5 : Old Values	F3 : Color
PIRQ[D] IRQ Active	Ignore	F6 : Load Fail Safe Defaults	
Power Button Function	On/Off	F7 : Load Optimal Defaults	

ACPI Aware O/S

You may set this item as Enable if your operating system meets Intel ACPI (Advanced Configuration Power Interface) specification.

- The choice: Yes, No.

ACPI Standby State

This item selects the ACPI Standby State. You may select S3 (STR) for suspend to ram or S1 (POS) for power on suspend under Windows 98 ACPI mode.

- The choice: S1/POS, S3/STR.

Power Management/APM

Set this option to enable the chipset power management and APM (Advanced Power Management) features.

- The choice: Enabled, Disabled.

Video Power Down Mode

This option specifies the power state that the video subsystem enters when AMI BIOS places it in a power saving state after the specified period of display inactivity has expired.

- The choice: Suspend, Disabled.

Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired.

- The choice: Disabled, Suspend.

Suspend Time Out (Minute)

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state.

- The choice: Disabled, 1, 2, 4, 8, 10, 20, 30, 40, 50, 60.

PS/2 KB/MS Access, FDC/LPT/COM Ports Access, Audio Ports Access, MIDI Ports Access, ADLIB Ports Access, Primary Master/Slave IDE , Secondary Master/Slave IDE , PIRQ (A) \ (B) \ (C) \ (D) IRQ Active,

When enable any of these options to event monitor, the BIOS will check the specified hardware IRQ. Once the activity takes place, the system enter the normal mode and the BIOS does a new one time count.

- The choice: Ignore, Monitor

Power Button Function

The setting of **On/Off** allows the ATX switch to function as a normal system power off button when pressed for less than 4 seconds. The setting of **Suspend** allows the button to have a dual function which 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 the system off.

- The choice: On/Off, Suspend.

Resume On Ring

This item determines the system will resume by activity of R.T.C. The first step is to enable this feature and enter resume date and time. Then system will power-on itself from power off, once date and time expire.

- The choice: Enabled, Disabled.

LAN Resume From Soft Off

This item determines the system will resume by activity of LAN. To enable this feature then system will power-on itself from power off, once you activate LAN Resume function.

Note: AE22 supports Wake-ON-LAN function only with Intel LAN card .

- The choice: Enabled, Disabled.

PME Function Support

This item supports to wake up the system by PCI card which meets PCI Specification. Rev2.2.

- The choice: Enabled, Disabled.

Resume On RTC Alarm

To power on your system, Enabling this item then select the alarm Time in the next few items.

- The choice: Enabled, Disabled.

RTC Alarm Date

This is for specifying the alarm Date which the system will boot up.

- The choice: Every Day, 01, 02, ~ , 31.

RTC Alarm Hour / Minute / Second

This is for specifying the alarm Hour/Minute/Second which the system will boot up.

- Key in the alarm Hour.

PCI / Plug and Play Setup

AMIBIOS SETUP - PNP/PCI CONFIGURATION (C)1999 American Megatrends, Inc. All Rights Reserved			
Plug and Play Aware O/S	No	Reserved Memory Size	Disabled
Clear NVRAM	No	Reserved Memory Address	C8000
PCI Latency Timer	32		
PCI VGA Palette Snoop	Disabled		
PCI IDE Busmaster	Disabled		
DMA Channel 0	PnP		
DMA Channel 1	PnP		
DMA Channel 3	PnP		
DMA Channel 5	PnP		
DMA Channel 6	PnP		
DMA Channel 7	PnP		
IRQ3	PCI/PnP		
IRQ4	PCI/PnP		
IRQ5	PCI/PnP		
IRQ7	PCI/PnP		
IRQ9	PCI/PnP	ESC : Quit	↑ : Select Item
IRQ10	PCI/PnP	F1 : Help	PH/PL/+/= : Modify
IRQ11	PCI/PnP	F5 : Old Values	F3 : Color
IRQ14	PCI/PnP	F6 : Load Fail Safe Defaults	
IRQ15	PCI/PnP	F7 : Load Optimal 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 of 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.

Plug and Play Aware O/S

Set this option to Yes to inform AMI BIOS that the operating system can handle plug and Play (PnP) devices.

- The choice: No, Yes.

Clear NVRAM

This item allows to clear the NVRAM data on every boot.

- The choice: No, Yes.

PCI Latency Timer

This item determines the latency timings (in PCI clocks) for all PCI devices on the PCI bus.

- The choice: 32, 64, 96, 128, 160, 192, 224, 248.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example: if there are two VGA devices in the computer (one PCI and one ISA) and the VGA Palette Snoop Bit is:

Disabled Data read and written by the CPU is only directed to the PCI VGA device's palette registers.

Enabled Data read and written by the CPU is directed to the both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical. This option must be set to Enabled if any ISA adapter card installed in the system requires VGA palette snooping. The Optimal and Fail-Safe default settings are Disabled.

➤ The choice: Disabled ,Enabled.

PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI bus has bus mastering capability.

➤ The choice: Disabled ,Enabled.

DMA Channel 0\1\3\5\6\7

These options allow you to specify the bus type used by each DMA channel.

➤ The choice: PnP ,ISA/EISA

IRQ Resources

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

IRQ 3\4\5\7\9\10\11\14\15 assigned to

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 compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

➤ The choice: ISA/EISA, PCI/PnP.

Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

- The choice: Disabled, 16K, 32K, 64K.

Reserved Memory Address

This option specifies beginning addresses (in hex) of the reserved memory area which is for the use by legacy ISA adapter cards.

- The choice: C0000, C4000, C8000, CC000, D0000, D4000, D8000, DC000.

Load Optimal Defaults

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

Load High Performance Settings

Pressing < Enter > loads the default values that are factory settings for optimal performance on system operations.

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 Settings

Pressing < Enter > loads the BIOS default values for the most stable, minimal-performance on system operations.

Peripheral Setup

AMIBIOS SETUP - INTEGRATED PERIPHERALS (C)1999 American Megatrends, Inc. All Rights Reserved		
AC97 Audio Controller	Enabled	Keyboard PowerOn Function Disabled
AC97 Modem Controller	Enabled	
OnBoard IDE	Reserved	
OnBoard FDC	Auto	
OnBoard Serial PortA	Auto	
OnBoard Serial PortB	Auto	
Serial PortB Mode	Normal	
IR Duplex Mode	Full Duplex	
IR Pin Select	S1MB/SOUTB.	
OnBoard CIR Port	Disabled	
CIR IRQ Select	3	
OnBoard Parallel Port	Auto	
Mode	Normal	
EPP Version	N/A	
IRQ Select	Auto	
DMA Channel	N/A	
OnBoard MIDI Port	Disabled	ESC : Quit ↑/↓ : Select Item
IRQ Select	5	F1 : Help P1/P2/+/- : Modify
OnBoard Game Port	Disabled	F5 : Old Values F8 : Color
Mouse PowerOn Function	Disabled	F6 : Load Fail Safe Defaults
		F7 : Load Optimal Defaults

AC97 Audio/Modem Controller

This item allows you to enable/disable 815 chipset family to support AC97 Audio / Modem.

- The choice: Enable, Disable.

OnBoard IDE

This option specifies the IDE channel used by the onboard IDE controller.

- The choice: Disabled, Primary, Both, Secondary, Reserved.

OnBoard FDC

Set this option to Enabled to enable the floppy drive controller on the motherboard.

- The choice: Auto, Enabled, Disabled.

OnBoard Serial Port A/B

This option specifies the base I/O port address of serial port 1.

- The choice: Auto, Disabled, 3F8/COM1, 2F8/COM2, 3E8/COM3, 2E8/COM4.

Serial PortB Mode

This item sets the Serial PortB operating mode while you plug an IR device in COM2.

- The choice: Normal, 1.6uS, 3/16 Baud, ASKIR.

IR Duplex Mode

This option indicates the infrared transmission method. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. There are no default settings.

- The choice: Full Duplex ,Half Duplex.

IR Pin Select

This item indicates the InfraRed module pin out.

- The choice: SINB/SOUTB, IRRX/IRTX.

OnBoard CIR Port

This option specifies infrared characteristics for serial port2.

- The choice: Enable, Disable.

CIR IRQ Select

This option specifies the IRQ used by the serial port2 as CIR.

- The choice: 3, 4, 9, 10, 11.

OnBoard Parallel Port

This option specifies the base I/O port address of the parallel port on the motherboard.

- The choice: Disabled, 378, 278, 3BC, Auto.

Mode

This option specifies parallel port mode.

- The choice: Normal, Bi-Dir, EPP, ECP.

EPP Version

This item indicates whether the EPP Mode is EPP 1.9 or EPP 1.7.

- The choice: N/A, 1.9, 1.7.

IRQ Select

This option indicates the IRQ used by the parallel port.

- The choice: Auto, 5, 7.

DMA Channel

This option is only available if the setting for the Parallel Port Mode option is ECP. This option indicates the DMA channel used by the parallel port.

- The choice: Auto, 0, 1, 3.

OnBoard Midi Port

This item selects the Midi Port Address.

- The choice: Disable, 300, 330, 290, 292.

IRQ Select

This item indicates Midi port IRQ.

- The choice: 5,7,9,10.

OnBoard Game Port

This item selects Game Port Address.

- The choice: Disable, 200, 208.

Mouse PowerOn Function

This item is used to define PS/2 Mouse power-on function.

- The choice: Disable, Left Button, Right Button.

Keyboard PowerOn Function

This item is used to define PS/2 keyboard power-on function.

- The choice: Disable, Wake key, Any key, Password.

Hardware Monitor Setup

AMIBIOS SETUP - Hardware Monitor Setup	
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CPU Temperature	XX°C / XXXX°F
System Temperature	XX°C / XXXX°F
Fan1 Speed	XXXX RPM
Fan2 Speed	XXXX RPM
Fan3 Speed	XXXX RPM
CPU VID	X.XX V
Vcore	X.XX V
Vid	X.XX V
+5.000V	X.XX V
+12.000V	XX.XX V
-12.000V	XX.XX V
-5.000V	X.XX V
Battery	X.XX V
+5V SB	X.XX V

ESC = Quit	F1-+ : Select Item
F1 = Help	PG/PD/+/- : Modify
F5 = Old Values	F3 = Color
F6 = Load Fail Safe Defaults	
F7 = Load Optimal Defaults	

CPU Temperature

Since the mainboard supports CPU temperature monitoring and overheat alert. This item indicates current Processor's temperature.

System Temperature

Since the mainboard supports system and CPU temperature monitoring and overheat alert. This item indicates current mainboard's temperature.

Fan1/2/3 Speed

The mainboard can detect the Fan1/2/3 speed in rotations per minute (RPM).

CPU VID

The mainboard supports CPU and mainboard voltages monitoring. The onboard hardware monitor is able to detect the CPU voltage (Vcore) and the voltage output from power supply.

Vcore

The mainboard supports CPU and mainboard voltages monitoring. The onboard hardware monitor is able to detect the CPU voltage (Vcore) and the voltage output from power supply.

Vio

This item displays the I/O voltage for reference.

+5V, +12V, -12V, -5V

The onboard hardware monitor is able to detect the voltage output of Power Supply.

Battery

The onboard hardware monitor is able to detect the Battery voltage.

+5V SB

The onboard hardware monitor is able to detect the +5V StandBy voltage output from Power Supply.

User Password Setting

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

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.21c (C)1999 American Megatrends, Inc. All Rights Reserved	
Standard CMOS Setup	Peripheral Setup
Advanced CMOS Setup	Hardware Monitor Setup
Advanced Chipset Setup	Change Supervisor Password
Power Management	Change User Password
PCI / Plug and Play	Load Optimal Defaults
Load Optimal Defaults	Exit Without Saving
Load Fail Safe Defaults	Exit Without Saving
ESC : Quit ↑ ↓ + → : Select Item F3 : Change Color	
F5 : Old Values F7 : Load Optimal Defaults F10 : Save & Exit	
Change/Set/Disable Password	

Supervisor Password and User Setting

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 28 "Clear CMOS".

Save & Exit Setup

While you press < Enter > key on this item and a similar dialog box shows up to ask you for following 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 restarts again.

Exit Without Saving

While you press < Enter > key on this item and a similar dialog box shows up to ask you for following 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.