AV14

PPGA Celeron processor
Based AGP MAIN BOARD

User's Manual

Shuttle AV14

PPGA Celeron processor based AGPset Mainboard
Manual Version 1.1

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1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience a success, right from the start, we have designed the **3 Hardware Installation** section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new AV14 mainboard.

Experienced DIY User

Congratulations on your purchase of the Shuttle AV14 mainboard. You will find that installing your new Shuttle AV14 mainboard is just that easy. Bundled with an array of onboard functions, the highly-integrated AV14 mainboard provides you with a total solution to build the most stable and reliable system. Refer to section **3.2 Jumper Settings** and **Chapter 4 Software Utility** to find out how to get the best out of your new mainboard. **Chapter 5 BIOS Setup** also contains relevant information on how to tune up your system to achieve higher performance.

System Integrator

You have wisely chosen Shuttle AV14 to construct your system. Shuttle AV14 incorporates all the state-of-the-art technology of the VT82C694X chipset from VIA. It integrates the most advanced functions you can find to date in a compact ATX board. Refer to section **3.2 Jumper Settings** and **Chapter 4 Software Utility** for an in-depth view of system construction.

1.2 Item Checklist

Check all items you received with your AV14 mainboard to make sure nothing is missing. The complete package should include:

✳ One Shuttle AV14 Mainboard
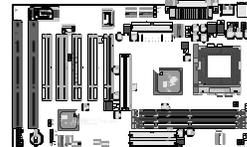
✳ One ATA/66 Ribbon Cable
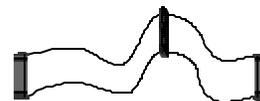
✳ One Floppy Ribbon Cable
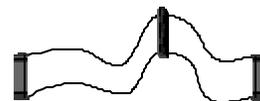
✳ This AV14 User's Manual
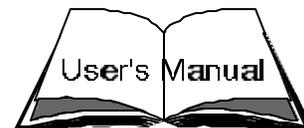
✳ One CD-ROM containing:
   ➢ The AV14 user's manual on PDF format
   ➢ The VIA 4 IN 1 Drivers
   ➢ The Award Flashing Utility

2 FEATURES

The AV14 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

Support Intel PPGA Celeron Processor 300 ~ 500+ MHz
Intel FC-PGA Coopermine Processor 500 ~ 933+ MHz

✱ Chipset

Features VIA VT82C694X AGPset and VT82C596B Chipset.

✱ Jumperless CPU Configuration

According to the FC-PGA/PPGA CPU user may adjust CPU voltage.
Soft-configure CPU Speed (The CPU operating speed is software configurable in menu of the BIOS Setup utility.)

✱ Versatile Memory Support

Equipped with three DIMM banks of PC66/100/133 compliant SDRAM to provide up to 1.5GB of system memory.
Configurable support for EC (Error Checking) and ECC (Error Checking and Correcting)

✱ AGP Slot

Supports 2X/4X Accelerated Graphics Port cards for high-performance, component level interconnect directed at 3D graphical display applications.

✱ PCI and ISA Expansion Slots

Provides five 32-bit PCI slots which meet PCI spec. and two optional 16-bit ISA slots.

✱ Super I/O Onboard

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

format or for 5.25-inch FDD with 360KB or 1.2MB format.

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

✱ PCI Bus Master IDE Controller Onboard

Two UltraDMA 33/66 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 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 savings modes: Snoop, Suspend to RAM, Suspend to Disk, and Soft-Off. ACPI provides more efficient Energy Savings Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

✱ System BIOS

Provides licensed Award V6.0PG BIOS on 2MB Flash EEPROM.
Supports Green PC and Desktop Management Interface (DMI).

✱ ATX Form Factor

System board conforms to the ATX specification.

Board dimensions: 304mm × 190mm

✹ Advanced Features

➢ **Dual Function Power Button -** The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode.
   When the power button is pressed for longer than 4 seconds, the system enters the Soft-Off mode.

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

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

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

✹ Optional Features

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

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

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

3 HARDWARE INSTALLATION

This section outlines how to install and configure your AV14 mainboard. Refer to the following mainboard layout to help you identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of AV14
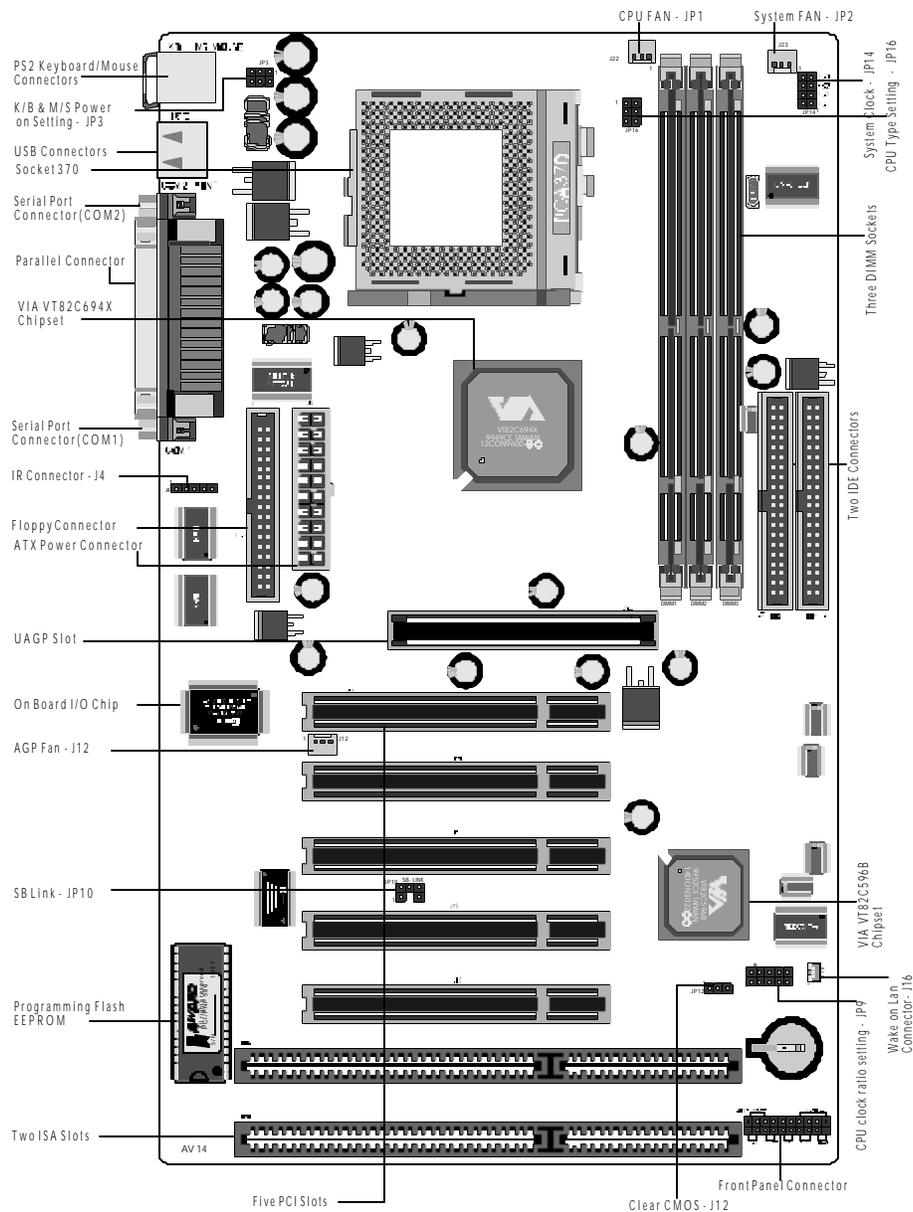
Step 1

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 FC-PGA or PPGA370 processor in the ZIF socket. Note thatthe CPU's edges have been purposely designed non-symmetrical to prevent from inserting the processor in the wrong direction. The following dia gram demonstrates the correct placement of the CPU in the ZIF socket. You can see that the two blunt-edged corners should face towards the socket-lever.

Celeron PPGA CPU   Coppermine FC-PGA CPU

Blank   Lever   Blank   Notch   Notch
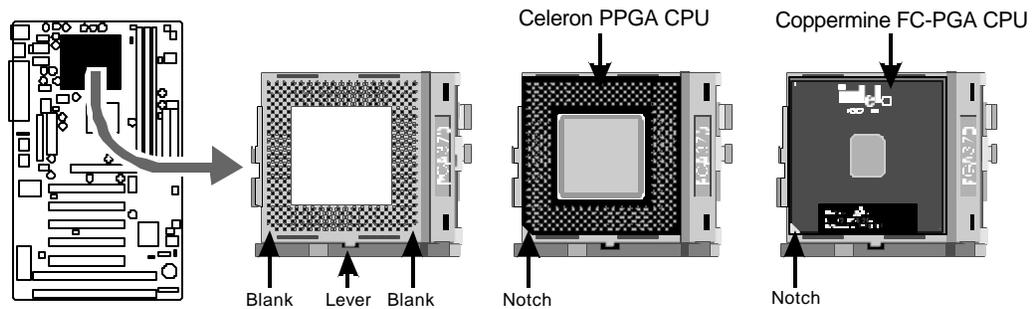
4. Slightly push the CPU into the socket without applying excessive force while making sure there is no gap between CPU and socket.   Then lower the socket-lever all the way down to its horizontal position and lock it to secure the CPU in place.

5. The FC-PGA or PPGA 370 CPU requires a set of heatsink/fan to ensure proper cooling of the processor. If they are not already mounted on your CPU, you must purchase the heatsink/fan separately and have it installed. Plug the cable from the heatsink/fan to the CPU fan power connector located nearby. Note that there are several types of CPU fan connectors. Normally, if your mainboard supports the 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 in any cases below :

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

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

Step 3

Install SDRAM System Memory

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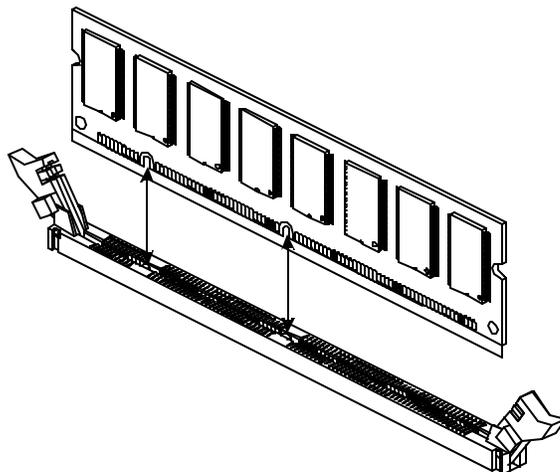
Step 4

Install Internal Peripherals in System Case

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

To install IDE & FDD drives, follow this procedure:

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

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

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

Step 5

Mount the Mainboard on the Computer Chassis

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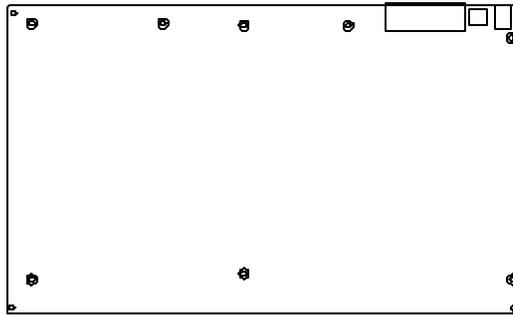
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system chassis and the mainboard, in order to avoid any electrical shorts between the board and the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

Step 6

Connect Front Panel Switches/LEDs/Speaker

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDD LED, Power LED, Reset Switch, PC Speaker, etc.)

These cables serve to connect the front-panel switches and LEDs to the mainboard's front-panel connectors group, as shown below.
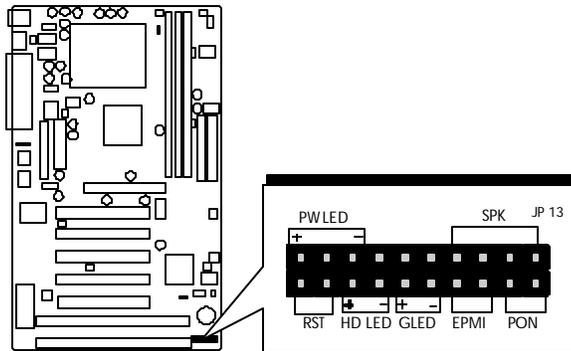
1. ATX Soft Power On/Off (PON)
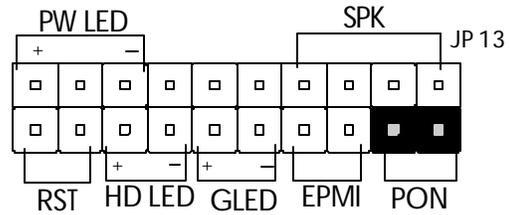
2. Green-LED (GLED)
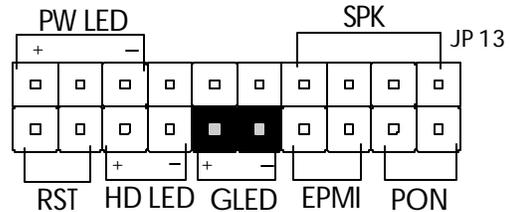
3. EPMI
   (Hardware System Management
   Interface)
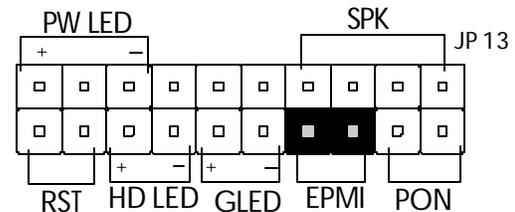
4. HDD-LED (HDLED)

PW LED

SPK

JP 13

RST HD LED GLED EPMI PON

5. Power-LED (PW LED)

PW LED

SPK

JP 13

RST HD LED GLED EPMI PON

6. Hardware Reset Switch (RST)

PW LED

SPK

JP 13

RST HD LED GLED EPMI PON

7. PC Speaker (SPK)

PW LED

SPK

JP 13

RST HD LED GLED EPMI PON
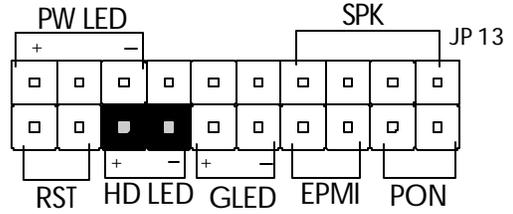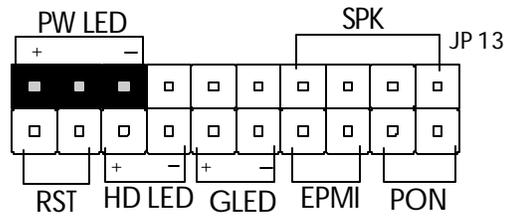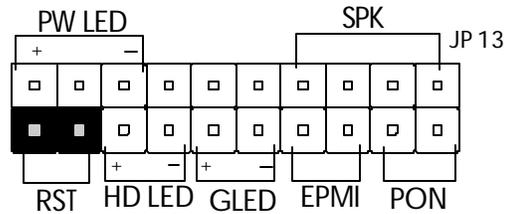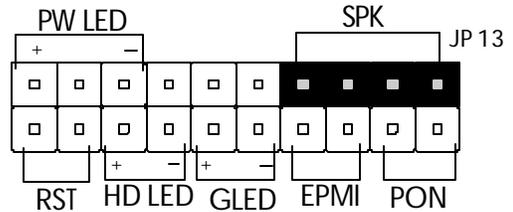
Step 7

Connect IDE & Floppy Disk Drives

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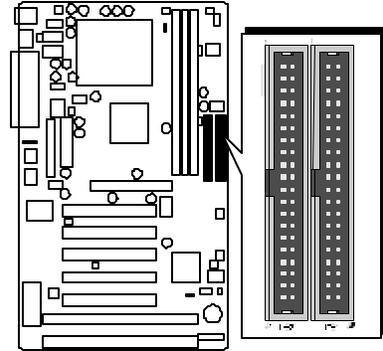
2. FDD cable connector
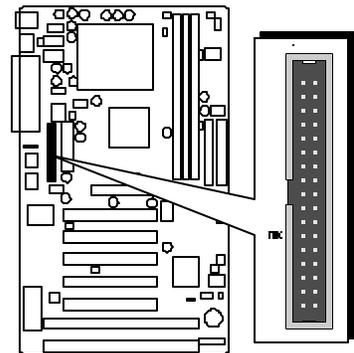
Step 8

Connect Other Internal Peripherals

1. IR connector
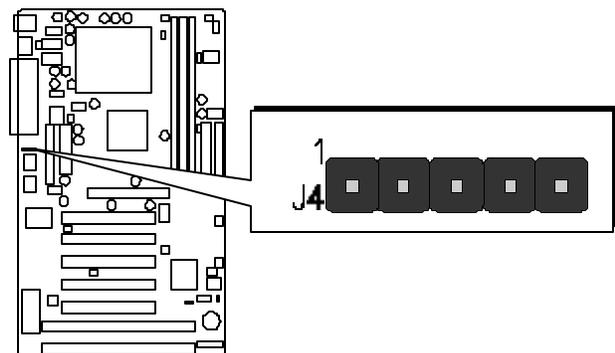
Step 9

Connect the Power Supply

1. System power connector
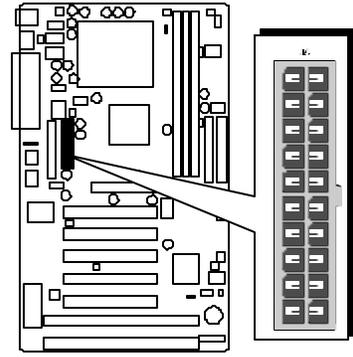
Step 10

Install Add-on Cards in Expansion Slots

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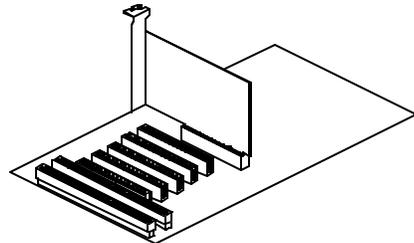
2. PCI Card
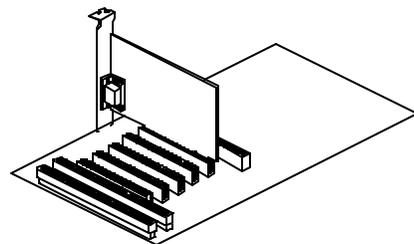
3. ISA Card
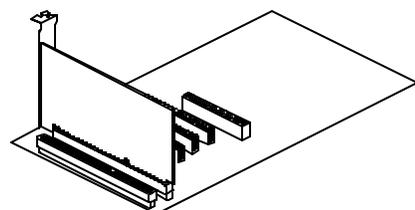
Step 11

Connect External Peripherals to Back Panel

You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back-panel.
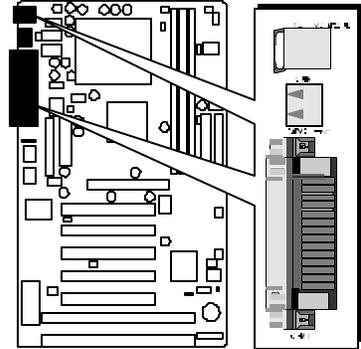
1. PS/2 Mouse and PS/2 Keyboard

PS/2 Mouse
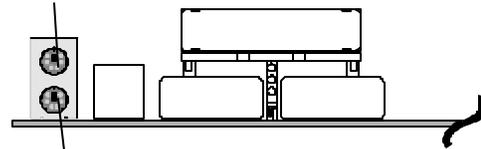
PS/2 keyboard

2. USB Devices
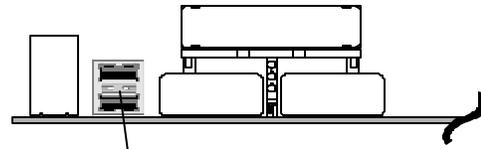
USB1 & USB2

3. COM Ports
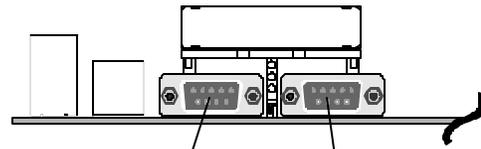
COM2   COM1

4. Parallel Port
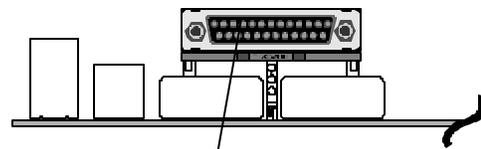
Parallel Port

Step 12

First Time System Boot Up

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

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

2. Turn on the system power.

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

> **Note:** DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only device 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 AV14 bundled CD-ROM into your CD-ROM drive. The auto-run program will display the drivers main installation window on screen.

2. Select the Mainboard related program.

3. Install AV14 Driver for Win9x/Win NT.

3.2 Jumper Settings

Several hardware settings are made through the use of jumper caps to con-
nect jumper pins on the mainboard. Pin #1 could be located at any corner
of each jumper, you just find a white right angle on the mainboard, that's pin
1#. There are several types of pin 1# shown as below:

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

Pin #1 on the left:

Pin #1 on the top:

Pin #1 on 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 top of its
   original packaging film, on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent
   electrostatic discharge (ESD) whenever handling this equipment.

Jumpers & Connectors Guide

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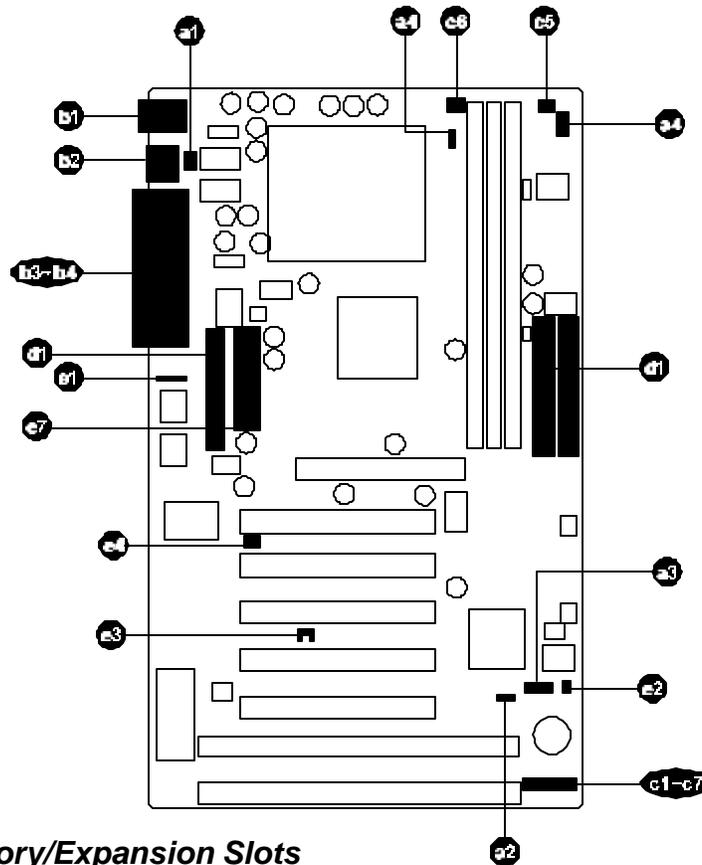
CPU/Memory/Expansion Slots

Socket370   : CPU Socket for FC-PGA/PPGA 370 processors

DIM4/5/6 : Three DIMM Sockets for 16,32,64,128,256MB 3.3V SDRAM

AGP   : One AGP (Accelerated Graphics Port) Slot

PCI   : Five 32-bit PCI Expansion Slots

ISA   : Two 16-bit ISA Expansion Slots

Jumpers

a1 JP3   : Keyboard & PS/2 Mouse Power-On
(requires to always set JP3 jumper in order to enable either or both KB & PS/2 mouse power-on functions. In addition, you need to set Power On Function in BIOS setup.)

a2 JP12 : Clear CMOS

a3 JP16 : CPU Multiplier

a3 JP14 : System clock setting

a4 JP9 : CPU clock ratio setting

Back Panel Connectors

b1 KB : PS/2 Keyboard

b1 MS : PS/2 Mouse

b2 USB : 2 × USB (Universal Serial Bus)

b3 COM1 : Serial Port 1 (DB9 male)

b3 COM2 : Serial Port 2 (DB9 male)

b4 PRINTER : Parallel Port (DB25 female)

Front Panel Connectors (JP13)

c1 RST : Hardware Reset Switch

c2 HDD LED : IDE Drive Active LED

c3 GLED : Green LED (ON when system is in power saving mode)

c4 EPMI : Hardware System Management Interface Momentary Type switch.

c5 PON : ATX Power On/Off Momentary Type Switch

c6 PW LED : System Power LED

c7 SPEAKER : Housing Internal Speaker

Internal Peripherals Connectors

d1 FDD : Floppy Disk Drive Interface

d1 IDE1 : IDE Primary Interface (Dual-channel)

d1 IDE2 : IDE Secondary Interface (Dual-channel)

Other Connectors:

e1 J4 : IR Connector

e2 J16 : Wake On Lan Connector

e3 JP10 : SB LINK Connector

e4 FAN (J12) : AGP Cooling Fan Power

e5 FAN (J23) : System Cooling Fan Power

e6 FAN (J22) : CPU Cooling Fan Power

e7 J5 : ATX Power (20-pin header)

a1 Set PS/2 Keyboard & PS/2 Mouse Power-On (JP3)

AV14 mainboard provides an easy power-on by PS/2 keyboard and PS/2 mouse.

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

To Power on the system by PS/2 keyboard, simply strike the proper hot-key. (A hot-key is the combination of $< Ctrl > + <$ configured function key F1 ~ F12$>$)

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

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

JP3 3-5, 4-6 (default)
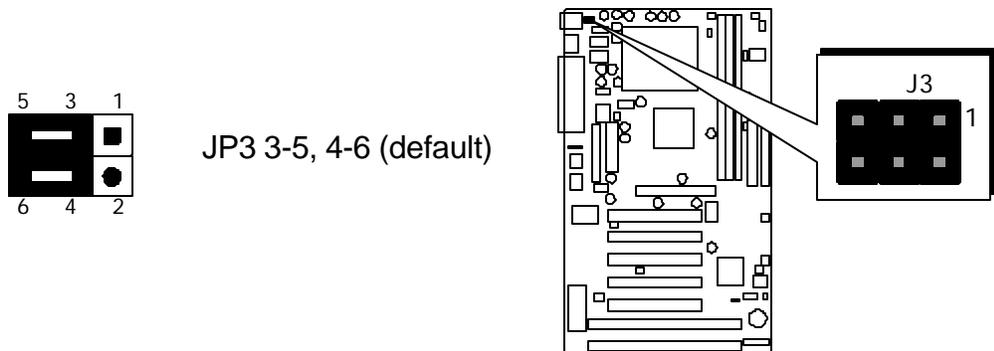
Step 1. Adjust the jumper group JP3 as shown in the following table.

PS/2 K/B & PS/2 Mouse Power On - JP 3		
PS/2 Mouse Power On - Enable	PS/2 Keyboard Power On - Enable	PS/2 Keyboard & PS/2 Mouse Power On - Enable

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

ⓐ2 Clear CMOS (JP12)

JP12 is used to clear CMOS data. Clearing CMOS will result in permanently erasing the previous system configuration settings and restoring the original (factory-set) system settings.

Pin 1-2 (Default)

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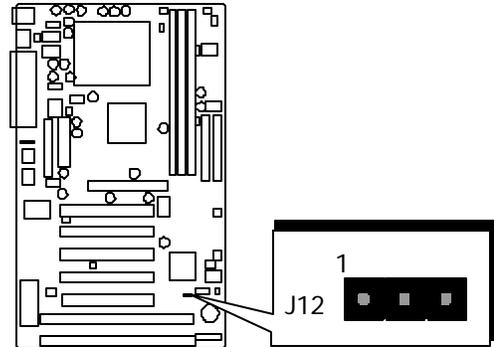
Step 1. Turn off the system power (PC-> Off)

Step 2. Remove jumper cap from JP12 pins 1-2

Step 3. Place the jumper cap on JP12 pin 2-3
for a few seconds

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

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

ⓐ3 Front Side Bus (FSB) Speed Auto Config. Setting (JP16 and JP14)

AV14 provides jumper JP14 and JP16 to set auto configure front side bus at 66MHz, 100MHz and 133MHz. Inserting mini-jumper caps on JP16 and leave JP14 all open as below to identify automatically the FSB speed.

Default
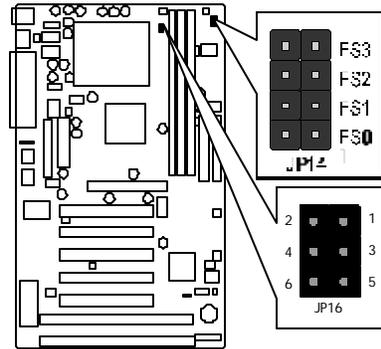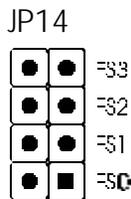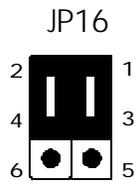
When the FSB auto config. function is enabled, the user may still adjust CPU Host clock on each FSB from Chipset Feature Control of BIOS Setup program.

For experienced users, AV14 mainboard provides an alternative hardware configure function to adjust Front Side Bus (FSB) manually. Before you adjust FSB frequency by jumper, you need to remove all jumper caps from JP16 and insert jumper caps properly on JP14 and set CPU Host/PCI Clock to **default** in Chipset Features Control of BIOS setup program.

Manual

JP16   JP14
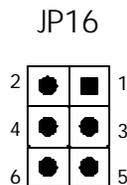
System Clock (JP14)	FS0	FS1	FS2	FS3
66 MHz	OFF	OFF	ON	ON
75 MHz	OFF	ON	ON	ON
83 MHz	ON	OFF	ON	ON
100 MHz	OFF	OFF	OFF	ON
103 MHz	ON	ON	OFF	ON
112 MHz	OFF	ON	OFF	ON
124 MHz	ON	OFF	OFF	OFF
133 MHz	OFF	OFF	OFF	OFF

❹ CPU Clock Ratio Setting (JP9)

AV14 mainboard provides a jumper group JP9 to set CPU speed configure by BIOS or by hardware jumper. By inserting jumper pack on Manual group properly, the user can configure the CPU Clock Ratio manually.

Note: Normally, JP9 is not functional for the processors whose ratio setting are fixed.
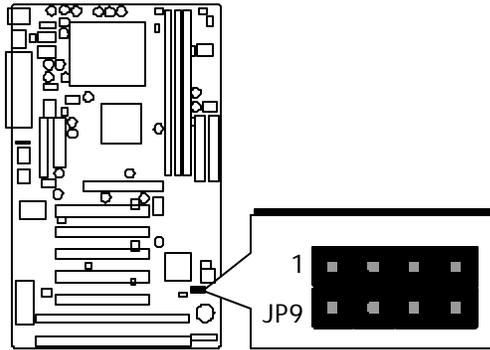
Multiplier (JP9)	1-6	2-7	3-8	4-9	(66) MHz	(100) MHz	(133) MHz
3.5 x	ON	OFF	ON	OFF		350	
4 x	OFF	ON	ON	ON		400	533
4.5 x	OFF	ON	ON	OFF	300	450	600
5 x	OFF	OFF	ON	ON	333	500	667
5.5 x	OFF	OFF	ON	OFF	366	550	733
6 x	ON	ON	OFF	ON	400	600	800
6.5 x	ON	ON	OFF	OFF	433	650	866
7 x	ON	OFF	OFF	ON	466	700	933
7.5 x	ON	OFF	OFF	OFF	500	750	
8 x	OFF	ON	OFF	ON		800	

Processor	X 4	X 4.5	X 5	X 5.5	X 6
Multiplier JP 9					
Processor	X 6.5	X 7	X 7.5	X 8	
Multiplier JP 9					

⓫ 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.

PS/2 Mouse

PS/2 keyboard
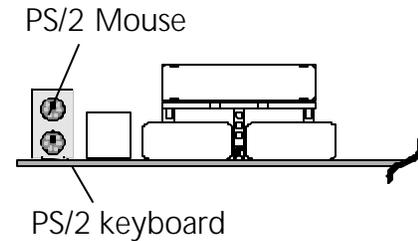
⓬ USB1/USB2 Port Connectors

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

USB1 & USB2
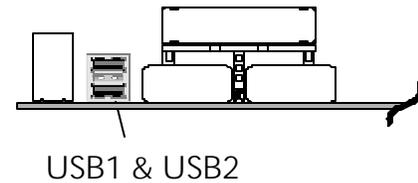
⓭ COM1 / COM2 Connector

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

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

COM2   COM1
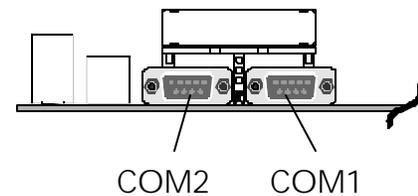
⓮ Parallel Port Connector

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
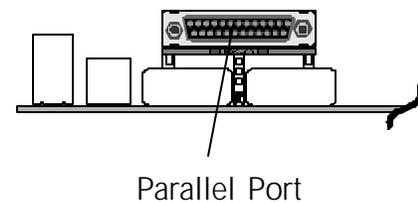
C1 Hardware Reset Connector (RST)

Attach the 2-pin hardware reset switch cable to the RST header. Pressing the reset switch causes the system to restart.
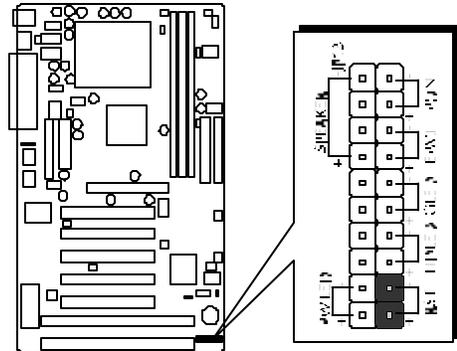
C2 HDD LED Connector (HDLED)

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.
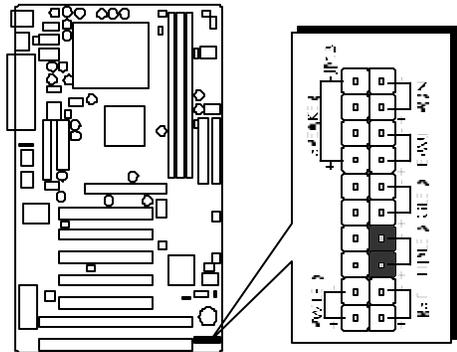
C3 Green LED Connector (GLED)

The Green LED (GLED) indicates that the system is currently in one of the power savings mode (Doze/Standby/Suspend). When the system resumes to normal operation, mode, the Green LED will go off. Attach a 2-pin Green LED cable to GLED header.
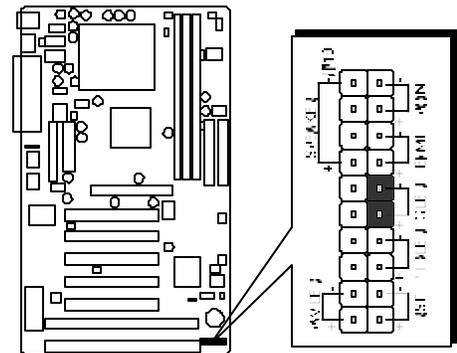
C4 EPMI Connector (EPMI)

Hardware System Management Interface (EPMI) header may attach to a 2-pin momentary switch. Press the EPMI switch to force the system into power savings mode; press again to resume normal operation.
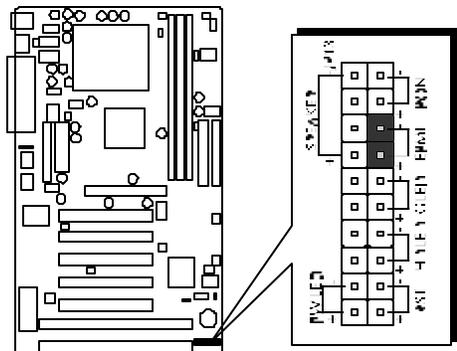
C5 ATX Power On/Off Switch Connector (PON)

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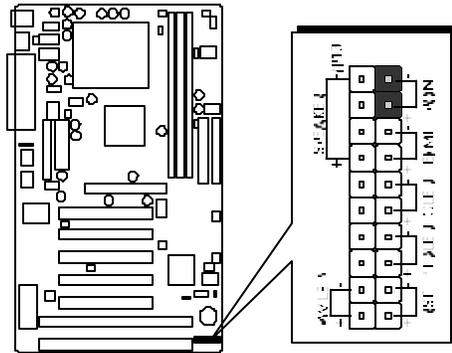
Note : Please notice the Speaker and all the LED connectors are directional. If your chassis's LED does not light during running, please simply change to the opposite direction.

C6 PWR LED Connector (PWLED)

Attach the 3-pin Power-LED connector cable from the housing front panel to the PWR header on the mainboard. The power LED stays lit while the system is running.
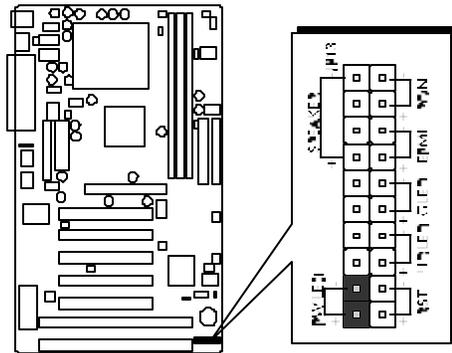
C7 Speaker Connector (SPK)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPK).
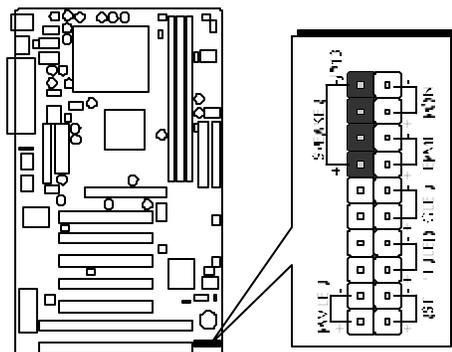
✪ Enhanced IDE Ports and Floppy Connectors

The AV11 mainboard features two 40-pin dual-channel IDE device connectors (IDE1/IDE2) providing support for up to four IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.). This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (F.D.D.). Moreover, this mainboard comes with one 40pin ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.

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

Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.
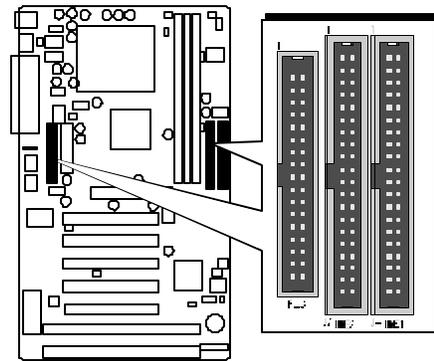
e1 IR Connector (J4)

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

IR Pin Assignments:
  1 = VCC
  2 = NC
  3 = IRRX
  4 = GND
  5 = IRTX
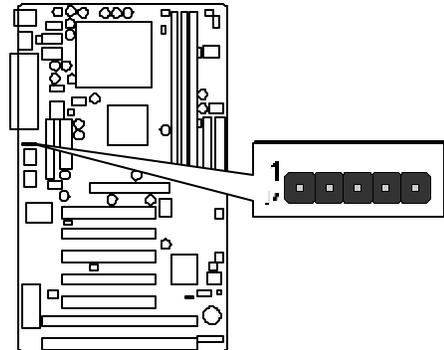
> **Note:** Please make sure to refer on board IR Pin Assignments to match your IR devices cable. Unmatchable Pin Assignment may do damage to your IR device.

Step 1. Attach the 5-pin infrared device cable to J4 connector. (Refer to the above diagram for IR pin assignments.)

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

e2 Wake-on LAN Connector (J16)

Attach a 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function. This function lets users wake up the connected system through the LAN card.
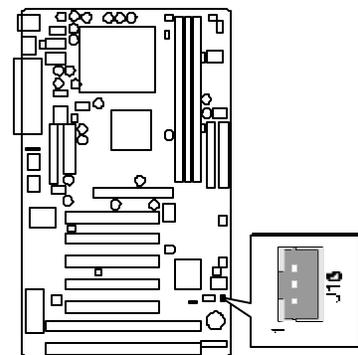
e3 SB-Link Connector (JP10)

The mainboard provides a 2x3 pin SB-Link header accepts the Creative CT4600 series PCI sound cards with PCI solution to connect the legacy Sound Blaster compatible audio to the PCI bus.
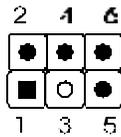
SB-Link Pin Assignments:
- 1 = GNT#A
- 2 = GND
- 3 = Empty
- 4 = REQ#A
- 5 = GND
- 6 = SERIRQ
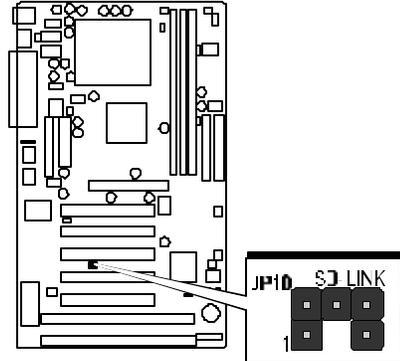
e4~6
CPU, Cooling Fan Connectors (J12, J23, J22)

The mainboard provides three onboard 12V cooling fan power connectors to support AGP (J12), System (J23) and CPU (J22) cooling fans.

> **Note:** Both cable wiring and type of plug may vary depending on the fan maker. Keep in mind that the red wire should always be connected to the +12V header and the black wire to the ground (GND) header.
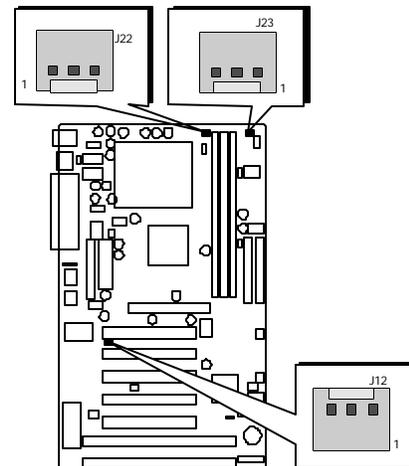
ⓔ⑦ ATX Power Supply Connector (J5)

Locate the 20-pin male header ATX power connector (J5) on your mainboard. Plug the power cable from the ATX power supply unit directly into J5 ATX power supply connector.
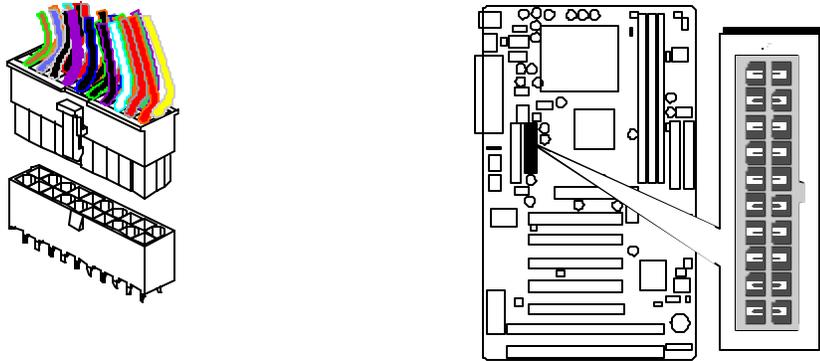
Note 1: The ATX power connector is directional and will not go in unless the guides match perfectly. Make sure the pin#1 is properly positioned.

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

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

3.3 System Memory Configuration

The AV14 mainboard has three 168-pin DIMM sockets that allow you to install from 16MB up to 1.5GB of system memory with PC66/100/133 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 64 or 72-bit wide data path SDRAM modules.

The AV14 mainboard supports data integrity algorithms including EC (Error Checking) and ECC (Error Checking and Correction) in the memory array. In EC mode, single and multiple bit error detection is provided. In ECC mode, when the memory is being read from DRAM, the AV14 provides both error checking and correction of the data.

Install Memory:

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

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

Upgrade Memory:

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

4 SOFTWARE UTILITY

4.1 AV14 Mainboard CD Overview

Note: The AV14 mainboard attachment CD contents are subject to change without notice.

To start your mainboard CD, 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 Mainboard Drivers for Windows

☞ **Manual** - AV14 series mainboard user's manual in PDF format.

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

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

☞ **Quit** - Close this CD.
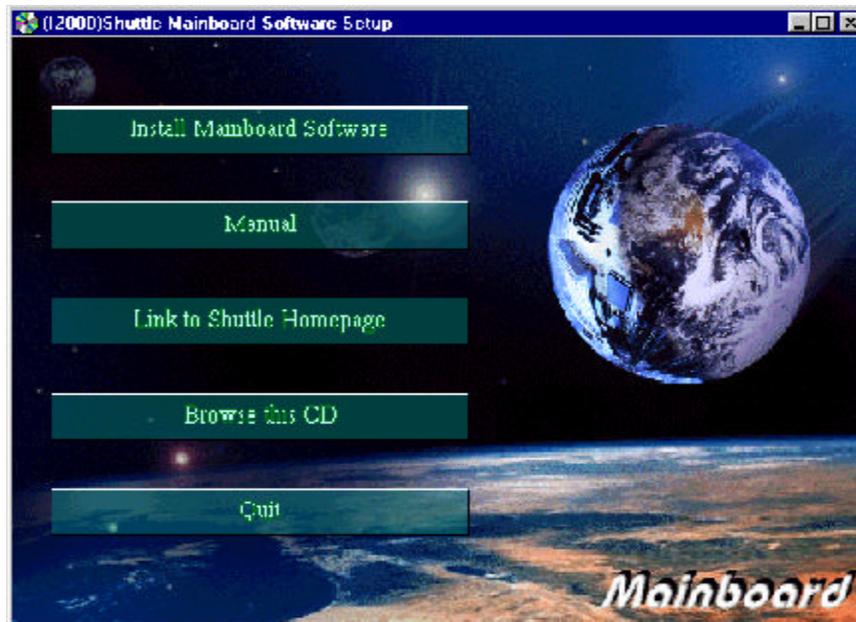
4.2 Install Mainboard Driver

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

Select using your pointing device (e.g. mouse) on the "**Install Mainboard Software**" bar.

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

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

Note: The mainboard software VIA 4 In 1 Driver includes four drivers (VIA Registry (ACPI) Driver, VIA AGP VxD driver, VIA ATAPI Vender support Driver and VIA PCI IRQ Miniport Driver).

According to the operating system users may have different selection to install driver. Please refer to the following table :

	Windows 2000	Windows 98/SE	Windows 95	Windows NT
VIA Registry Driver	Not Require	Not Require	Not Require	Not Require
VIA AGP VxD Driver	Not Require	Suggest	Not Require	Not Require
VIA ATAPI Vender Support Driver	Not Require	Not Require	Not Require	Suggest
VIA PCI IRQ Miniport Driver	Not Require	Suggest	Not Require	Not Require

4.3 To View the User's Manual

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

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

Then **Online Information** windows will appear on your screen. Click on the "**Install Acrobe Reader 3.0**" bar if you need to install acrobe reader.

Then click on "**AV14 Manual**" bar to view AV14 user's manual.

5 BIOS SETUP

AV14 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

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

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Entering BIOS

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

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

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

Note 1. If you miss the train (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the < RESET > switch located at the computer's front panel. You may also reboot by simultaneously pressing the < Ctrl > , < Alt > , < Del > keys.

Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message and you will be given the following options:

"Press F1 to Continue, DEL to Enter Setup"

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

5.2 The Main Menu

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

```
         CMOS Setup Utility - Copyright (C) 1984-2000 Award Software

    ▸ Standard CMOS Features          ▸ Frequency/Voltage Control

    ▸ Advanced BIOS Features           Load Fail-Safe Defaults

    ▸ Advanced Chipset Features         Load Optimized Defaults

    ▸ Integrated Peripherals           Set Supervisor Password

    ▸ Power Management Setup            Set User Password

    ▸ PnP/PCI Configurations           Save & Exit Setup

    ▸ PC Health Status                 Exit Without Saving

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

                    Time, Date, Hard Disk Type...
```

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

Standard CMOS Setup

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

BIOS Features Setup

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

Chipset Features Setup

This setup page includes all items of chipset features.

Integrated Peripherals

This setup page includes all items of peripheral features.

Power Management Setup

This setup page includes all items of Power Management features.

PnP/PCI Configuration setup

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

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

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

Load Optimized Defaults

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

Supervisor Password

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

User Password

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

Save & Exit Setup

Save all the CMOS values changed to CMOS and exit setup

Exit Without Saving

Abandon all the CMOS values changed and exit setup.

✎ *Standard CMOS Setup*

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

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          Standard CMOS Features
┌─────────────────────────────────────────────┬──────────────────────┐
│ Date (mm:dd:yy)          Tue, Mar 21 2000    │     Item Help        │
│ Time (hh:mm:ss)          15 : 53 : 43        ├──────────────────────┤
│                                              │ Menu Level   ▶       │
│ ▶ IDE Primary Master     Press Enter None    │                      │
│ ▶ IDE Primary Slave      Press Enter None    │ Change the day, month,│
│ ▶ IDE Secondary Master   Press Enter None    │ year and century     │
│ ▶ IDE Secondary Slave    Press Enter None    │                      │
│                                              │                      │
│ Drive A                  1.44M, 3.5 in.      │                      │
│ Drive B                  None                │                      │
│                                              │                      │
│ Video                    EGA/VGA             │                      │
│ Halt On                  All,But Keyboard    │                      │
│                                              │                      │
│ 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

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

Time

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

Hard Disks Type

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

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

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

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

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

Drive A type/Drive B type

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

Video

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

Halt On

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

Memory

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

Base Memory

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

Extended Memory

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

✎ *BIOS Features Setup*

```
           CMOS Setup Utility - Copyright (CC) 1984-2000 Award Software
                             Advanced BIOS Features

   Virus Warning               Disabled              |       Item Help
   CPU Internal Cache          Enabled               |------------------------
   External Cache              Enabled               | Menu Level  ▶
   CPU L2 Cache ECC Checking   Enabled               |
   Processor Number Feature    Enabled               | Allows you to choose
   Quick Power On Self Test    Disabled              | the VIRUS warning
   First Boot Device           Floppy                | feature for IDE Hard
   Second Boot Device          HDD-0                 | Disk boot sector
   Third Boot Device           LS120                 | protection. If this
   Boot Other Device           Enabled               | function is enabled
   Swap Floppy Drive           Disabled              | and someone attempt to
   Boot Up Floppy Seek         Enabled               | write data into this
   Boot Up NumLock Status      On                    | area, BIOS will show a
   Gate A20 Option             Fast                  | warning message on
   Typematic Rate Setting      Disabled              | screen and alarm beep
 x Typematic Rate (Chars/Sec)  6                     |
 x Typematic Delay (Msec)      250                   |
   Security Option             Setup                 |
   OS Select For DRAM > 64MB   Non-OS2               |
   Video BIOS Shadow           Enabled               |
   C8000-CBFFF Shadow          Disabled              |
   CC000-CFFFF Shadow          Disabled              |
   D0000-D3FFF Shadow          Disabled              |
   D4000-D7FFF Shadow          Disabled              |
   D8000-DBFFF Shadow          Disabled              |
   DC000-DFFFF Shadow          Disabled              |

 ↑↓→←: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

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

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

➢ The choice: Enabled, Disabled.

CPU Internal Cache

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

➢ The choice: Enabled, Disabled.

External Cache

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

➢ The choice: Enabled, Disabled.

CPU L2 Cache ECC Checking

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

➢ The choice: Enabled, Disabled.

Processor Number Feature

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

➢ The choice: Enabled, 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, Disabled.

First/Second/Third Boot Device

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

➢ The choice: Floppy, LS/ZIP, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, LAN, Disabled.

Boot Other Device

Select Your Boot Device Priority.

➢ The choice: Enabled, Disabled.

Swap Floppy Drive

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

➢ The choice: Enabled, Disabled.

Boot Up Floppy Seek

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

➢ The choice: Enabled, Disabled.

Boot Up NumLock Status

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

➢ The choice: On, Off.

Gate A20 Option

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

➢ The choice: Normal, Fast.

Typematic Rate Setting

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

➢ The choice: Enabled, Disabled.

Typematic Rate (Chars/Sec)

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

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

Typematic Delay (Msec)

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

➢ The choice: 250, 500, 750, 1000.

Security Option

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

➢ The choice: Setup, System.

OS Select For DRAM > 64MB

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

➢ The choice: Non-OS2, OS2.

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, Disabled.

C8000-CBFFF Shadow/DC000-DFFFF Shadow

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

➢ The choice: Enabled, Disabled.

☜ *Chipset Features Setup*

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                        Advanced Chipset Features
 ┌──────────────────────────────────────────────────┬────────────────────┐
 │ Bank 0/1 DRAM Timing        SDRAM 8/10ns        ▲ │     Item Help      │
 │ Bank 2/3 DRAM Timing        SDRAM 8/10ns          │                    │
 │ Bank 4/5 DRAM Timing        SDRAM 8/10ns          │  Menu Level   ►    │
 │ SDRAM Cycle Length          3                     │                    │
 │ DRAM Clock                  Host CLK              │                    │
 │ Memory Hole                 Disabled              │                    │
 │ P2C/C2P Concurrency         Enabled               │                    │
 │ Fast R-W Turn Around        Disabled              │                    │
 │ System BIOS Cacheable       Disabled              │                    │
 │ Video RAM Cacheable         Disabled              │                    │
 │ AGP Aperture Size           64M                   │                    │
 │ AGP-4X Mode                 Enabled               │                    │
 │ AGP Driving Control         Auto                  │                    │
 │ x AGP Driving Value         DA                    │                    │
 │ AGP Fast Write              Disabled              │                    │
 │ OnChip USB                  Disabled              │                    │
 │ x USB Keyboard Support      Disabled              │                    │
 │ CPU to PCI Write Buffer     Enabled               │                    │
 │ PCI Dynamic Bursting        Enabled               │                    │
 │ PCI Master 0 WS Write       Enabled               │                    │
 │ PCI Delay Transaction       Enabled               │                    │
 │ PCI#2 Access #1 Retry       Enabled               │                    │
 │ AGP Master 1 WS Write       Disabled              │                    │
 │ AGP Master 1 WS Read        Disabled              │                    │
 │ Memory Parity/ECC Check     Disabled              │                    │
 │ CPU Voltage Regulator       Default             ▼ │                    │
 ├──────────────────────────────────────────────────┴────────────────────┤
 │ ↑↓:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
 │    F5:Previous Values     F6:Fail-Safe Defaults   F7:Optimized Defaults │
 └────────────────────────────────────────────────────────────────────────┘
```

Bank x/x DRAM Timing

This value in this field is set by the system board manufacturer, depending on whether the board has paged DRAMS or EDO DRAMS.

➢ The choice: SDRAM 10ns, SDRAM 8ns, Normal, Medium, Fast, Turbo.

SDRAM Cycle Length

This field allows you to set the SDRAM latency timer.

➢ The choice: 2, 3.

DRAM Clock

This item set the DRAM Read/Write timings that the system uses.

➢ The choice: Host CLK, HCLK-33M.

Memory Hole

In order to improve performance, some space in memory can be reserved for ISA cards.

➢ The choice: Disabled, 15M-16M.

P2C/C2P Concurrency

This item allows you to enabled/disabled the PCI to CPU, CPU to PCI concurrency.

Fast R-W Turn Around

This item controls the DRAM Timing. It allows you to enabled/Disabled the fast read/write turn around.

➢ The choice: Enabled, Disabled.

System BIOS Cacheable

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

➢ The choice: Enabled, Disabled.

Video RAM Cacheable

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

➢ The choice: Enabled, Disabled.

AGP Aperture Size

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

➢ The choice: 4M, 8M, 16M, 32M, 64M, 128M.

AGP-4X Mode

This item allows you to enable/disable AGP-4X function. Go to the website at www.apgforum.org for AGP information.

➢ The choice: Enabled, Disabled.

AGP Driving Control

This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system

➢ The choice: Auto, Manual

AGP Driving Value

This item allows you to adjust the AGP driving force

➢ The choice: Min:00 ~ Max:FF

AGP Fast Write

This item allows user to enable/disable AGP Fast Write function.

➢ The choice: Enabled, Disabled.

On Chip USB

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

➢ The choice: Enabled, Disabled.

USB Keyboard Support

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

➢ The choice: Enabled, Disabled.

CPU to PCI Write Buffer

When enabled, up to four Dwords of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals that it is ready to receive the data.

➢ The choice: Enabled, Disabled.

PCI Dynamic Bursting

When Enabled, data transfer on the PCI bus, where possible, make use of the high performance PCI burst protocol, in which greater amounts of data are transferred at a single command.

➢ The choice: Enabled, Disabled.

PCI Master 0 WS Write

When Enabled, writes to the PCI bus runs with zero wait states.

➢ The choice: Enabled, Disabled.

PCI Delay Transaction

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

➢ The choice: Enabled, Disabled.

PCI #2 Access #1 Retry

This item allows you to enable/disable the PCI #2 Access #1 Retry.

➢ The choice: Enabled, Disabled.

AGP Master 1 WS Write

This implements a single delay when writing to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

➢ The choice: Enabled, Disabled.

AGP Master 1 WS Read

This implements a single delay when reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

➢ The choice: Enabled, Disabled.

Memory Parity/ECC Check

This item allows you to Enabled/Disabled memory error checking and correction (ECC). In order for ECC to function, 9-chip (8 memory chips + 1 ECC chip) SDRAM modules must be installed on the mainboard.

➢ The choice: Enabled, Disabled.

CPU Voltage Regulator

This item allows user to adjust CPU Vcore as below :

The user may fine tune CPU voltage from 1.75V to 2.2V when you use Celeron processor(Vcore is 2.0v). Using Coopermine processor with 1.6V Vcore, then the range is between 1.35V and 1.90V. Also, from 1.35V to 1.95V is the range that Coopermine processor with 1.65V Vcore is used.

We strongly recommend the user remain on "default" setting unless you are familiar with CPU Vcore voltage.

Note: Improper Vcore voltage may damage your processor.

✎ *Integrated Peripherals*

```
         CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          Integrated Peripherals
  ┌─────────────────────────────────────────────┬───────────────────────┐
  │ OnChip IDE Channel0          Enabled         │      Item Help        │
  │ OnChip IDE Channel1          Enabled         ├───────────────────────│
  │ IDE Prefetch Mode            Enabled         │ Menu Level    ►       │
  │ Primary Master   PIO         Auto            │                       │
  │ Primary Slave    PIO         Auto            │                       │
  │ Secondary Master PIO         Auto            │                       │
  │ Secondary Slave  PIO         Auto            │                       │
  │ Primary Master   UDMA        Auto            │                       │
  │ Primary Slave    UDMA        Auto            │                       │
  │ Secondary Master UDMA        Auto            │                       │
  │ Secondary Slave  UDMA        Auto            │                       │
  │ Init Display First           PCI Slot        │                       │
  │ IDE HDD Block Mode           Enabled         │                       │
  │ POWER ON Function                            │                       │
  │ KD Power ON Password         Enter           │                       │
  │ Hot Key Power ON             Ctrl-F1         │                       │
  │ KBC input clock              8 MHz           │                       │
  │ Onboard FDC Controller       Enabled         │                       │
  │ Onboard Serial Port 1        3F8/IRQ4        │                       │
  │ Onboard Serial Port 2                        │                       │
  │ UART Mode Select                             │                       │
  │ UART2 Duplex Mode            Half            │                       │
  │ RxD , TxD Active             Hi,Lo           │                       │
  │ IR Transmission delay        Enabled         │                       │
  │ Onboard Parallel Port                        │                       │
  │ Parallel Port Mode                           │                       │
  │ ECP Mode Use DMA             3               │                       │
  │ EPP Mode Select              EPP1.7          │                       │
  └─────────────────────────────────────────────┴───────────────────────┘
  ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
      F5:Previous Values    F6:Fail-Safe Defaults   F7:Optimized Defaults
```

OnChip IDE Channel0

This item is used to defined on chip Primary PCI IDE controller is Enable or Disable setting.

➢ The choice: Enabled, Disabled.

OnChip IDE Channel1

This item is used to defined on chip Secondary PCI IDE controller is Enable or Disable setting.

➢ The choice: Enabled, Disabled.

IDE Prefetch Mode

Enable prefetching for IDE drive interfaces that support its faster drive accesses. If you are getting disk drive errors, change the setting to omit the drive interface where the errors occur. Depending on the configuration of your IDE subsystem, this field may not appear, and it does not appear when the Internal PCI/IDE field, above is Disabled.

➢ The choice: Enabled, Disabled.

Primary Master / Slave PIO

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

➢ The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Secondary Master / Slave PIO

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

➢ The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary Master / Slave UDMA

On this mainboard, AV11 PCIset improves IDE transfer rate using Bus Master UltraDMA 33/66 IDE which can handle data transfer up to 33MB/sec. *Auto* is the default settings for on board Primary Master / Slave *UltraDMA 33/66.*
Note : Your hard drive must also support UDMA for this feature to work.

➢ The choice: Auto, Disabled.

Secondary Master / Slave UDMA

On this mainboard, AV11 PCIset improves IDE transfer rate using Bus Master UltraDMA 33/66 IDE which can handle data transfer up to 33MB/sec. *Auto* is the default settings for on board Secondary Master / Slave *UltraDMA 33/66.*
Note : Your hard drive must also support UDMA for this feature to work.

➢ The choice: Auto, Disabled.

Init Display First

This item is used to determine initial device when system power on.
➢ The choice: AGP, PCI Slot.

IDE HDD Block Mode

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

➢ The choice: Enabled, Disabled.

POWER ON Function

This item is used to defined Keyboard & PS/2 mouse power-on function enabled or disabled.
- ➢ The choice: Password, Hot KEY, Mouse Left, Mouse Right, Button Only, keyboard 98.

Note:1. When item of PS/2 Mouse or HOT-Key is selected, please also adjust jumper JP3 to the proper position.
2. USB keyboard, USB Mouse and Serial Mouse are not supported to this function.

KB Power On Password

Power-on by soft-on/off
- ➢ The choice: Enter.

Hot Key Power ON

Power-on by soft-on/off button and keyboard are available.
- ➢ The choice: <Ctrl> <F1> to <Ctrl> <F12>.

KBC Input Clock

This item to set the input clock to onboard keyboard controller.
- ➢ The choice: 6MHz, 8MHz, 12MHz, 16MHz.

Onboard FDC Controller

This item specifies onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector. Choose the "*Disabled*" settings if you have a separate control card.
- ➢ The choice: Enabled, Disabled.

Onboard Serial Port 1

This item is used to define onboard serial port 1.
- ➢ The choice: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto, Disabled.

Onboard Serial Port 2

This item is used to define onboard serial port 2.
- ➢ The choice: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto, Disabled.

UART Mode Select

The main board support IrDA(HPSIR) and Amplitudes Shift Keyed IR(ASKIR) infrared through COM 2 port.

Note : FIR is not available currently.

➢ The choice: IrDA, ASKIR, Normal.

UART2 Duplex Mode

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

➢ The choice: Full, Half.

RxD, TxD Active

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

➢ The choice: Hi, Hi, Hi, Lo, Lo, Hi, Lo, Lo.

IR Transmittion delay

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

➢ The choice: Enabled, Disabled.

Onboard Parallel Port

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

Parallel Port Mode

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

ECP Mode Use DMA

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

➢ The choice: 1, 3

EPP Mode Select

This item select the EPP Mode.

➢ The choice: EPP1.7, EPP1.9.

✍ Power Management Setup

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          Power Management Setup
      ┌─────────────────────────────────────┬──────────────────────────┐
      │  ACPI function         Enabled       │       Item Help          │
      │ ▶ Power Management      Press Enter   ├──────────────────────────┤
      │  ACPI Suspend Type     S1(POS)        │ Menu Level   ▶           │
      │  PM Control by APM     Yes            │                          │
      │  Video Off Option      Suspend -> Off │                          │
      │  Video Off Method      V/H SYNC+Blank │                          │
      │  MODEM Use IRQ         3              │                          │
      │  Soft-Off by PWRBTN    Instant-Off    │                          │
      │ ▶ 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 you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI)

➢ The choice: Enabled, Disabled.

Power Management

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

➢ The choice: User Define, Min Saving, Max Saving.

ACPI Suspend Type

This item allows you to select the ACPI suspend type. Select S3(STR) for suspend to RAM or Select S1(POS) for power on suspend under Windows 98 ACPI mode.

➢ The choice: S1(POS), S3(STR)

PM Control by APM

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

➢ The choice: Yes, No.

Video Off Option

Thisitem define when to activate the video off feature for monitor power management.

➢ The choice: Suspend, Doze, N/A.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank   This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen   This option only writes blanks to the video buffer

DPMS   Initial display power management signaling.

➢ The choice: V/H SYNC + Blank, Blank Scrren, DPMS Support.

Modem Use IRQ

This item determines the IRQ in which the MODEM can use.

➢ The choice: 3, 4, 5, 7, 9, 10, 11, N/A

Soft-Off by PWRBTN

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

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

Wake Up Events

This item allows user to determine the wake up events

➢ The choice:

✎ *PnP/PCI Configuration*

```
         CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                           PnP/PCI Configurations

    PNP OS Installed           No                   │     Item Help
    Reset Configuration Data   Disabled             │
                                                    │  Menu Level   ►
    Resources Controlled By    Auto(ESCD)           │
  x IRQ Resources              Press Enter          │  Select Yes if you are
  x DMA Resources              Press Enter          │  using a Plug and Play
                                                    │  capable operating
    PCI/VGA Palette Snoop      Disabled             │  system Select No if
    Assign IRQ For VGA         Enabled              │  you need the BIOS to
    Assign IRQ For USB         Enabled              │  configure non-boot
                                                    │  devices

    ↑↓→←: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 configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

PNP OS Installed

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

➢ The choice: Yes, No.

Reset Configuration Data

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

➢ The choice: Enabled, Disabled.

Resources Controlled By

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system as Windows 95.

➢ The choice: Auto, Manual.

IRQ/DMA 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 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: Reserved, PCI Device.

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

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

➢ The choice: Legacy ISA, PCI/ISA PnP.

PCI/VGA Pallete Snoop

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

➢ The choice: Non-OS2, OS2.

Assign IRQ for VGA

This item allows the user to set VGA IRQ Routing table Enabled or Disabled.

➢ The choice: Enabled, Disabled.

Assign IRQ for USB

This item allows the user the option to assign an IRQ to on-board USB controller. Since the on-board controoler is always enabled, if no IRQ is assigned to it, there will be a question mark report on the system device under Windows 95/98.

➢ The choice: Enabled, Disabled.

✎ *PC Health Status*


```
       CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                            PC Health Status

  CPU Warning Temperature       60                         Item Help
  Current CPU1 Temperature
  Current CPUFAN1 Speed                           Menu Level  ►
  Current CPUFAN2 Speed
  Current CPUFAN3 Speed
  Vcore
  +3.3V
  + 5 V
  +12 V
  -12 V   -
    5 V
  Shutdown Temperature          Disabled



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

Note: This screen will be shown up if optional features are available.

CPU Warning Temperature

Since the mainboard supports PCU temperature monitoring and over-heat alert. This item allows the user to set the threshold of CPU warning temperature. When CPU temperature is over the threshold, an error message will appear.

➢ The choice: 45°C ~ 70°C.

Current CPU1 Temperature

Since the mainboard supports CPU temperature moinioring and over-heat alert. This item indicates the current Processor temperature.

Current CPU FAN1/2/3 Speed

The mainboard can detect three fans' rotation speed of J22/J23/J12.

Vcore, 3.3V, +5V, -5V, +12V, -12V

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.

Shutdown Temperature

Select any system shutdown temperature listed below. If the temperature extends beyond the predefined value, the system shuts down.

➢ The choice: Disabled, 60°C/140°F, 65°C/149°F, 70°C/158°F, 75°C/167°F.

✍ *Frequency/Voltage Control*

```
          CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                           Frequency/Voltage Control

   Auto Detect DIMM/PCI Clk       Disabled              Item Help
   Spread Spectrum                Disabled
   CPU Host/PCI Clock             Default          Menu Level   ▶








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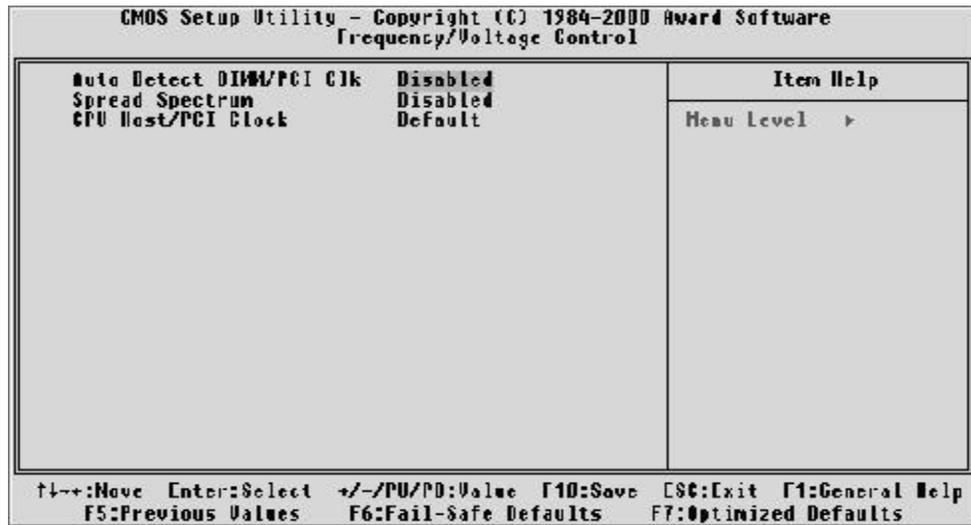
Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCIClock.

➢ The choice: Enabled, Disabled.

Spread Spectrum

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

➢ The choice: Disabled, 0.25%, 0.5%.

CPU Host /PCI Clock (CPU/PCI)

This item allows the user to be over CPU Host Bus Clock from BIOS when JP14 jumper is set to Default.

The user may adjust CPU Host Clock from 66MHz to 83MHz when you use 66MHz based Celeron processor. Using 100MHz based Celeron or Coopermine processor, then the range is between100MHz and 124MHz. Also, from 124MHz to 166MHz is the range that 133MHz based Coopermine processor is used.

➢ The choice:

(66 MHz based) 66/33MHz, 68/34MHz, 75/37MHz, 83/41MHz.

(100 MHz based) 100/33MHz, 103/34MHz, 112/37MHz, 124/31MHz.

(133 MHz based) 124/31MHz, 133/33MHz, 138/34MHz, 140/35MHz, 150/37MHz, 164/40MHz, 166/41MHz.

✍ Load Fail-Safe Defaults

When you press < Enter > on this item you 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 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 settings for optimal performance system operations.

✎ User Password Setting

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

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 seperate 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

Pressing < Enter> on this itemc, below dialog shows up and asks you for confirmation :

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

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

✎ Exit Without Saving

Pressing < Enter> on this item , below dialog shows up and asks you for confirmation :

Quit without saving (Y/N)? Y

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