

MV43VN

Pentium 4 Processor

Based DDR/SDR MAIN BOARD

User's Manual

Shuttle® MV43VN

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

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Statement of Shuttle Mainboard via the EMI Test

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

(A) Voltage: AC 230V/50HZ

(B) Tested Product Information:

Product Name: PC Mainboard

Status: Sample

Model Name: MV43VN

S/N: N/A

CPU:

External Frequency: 133 MHz

Intel Pentium4: 3.0 GHz

Keyboard Port: One port with 6 pins

Mouse Port: One port with 6 pins

USB 2.0 Port: Four ports with 4 pins respectively

Parallel Port: One port with 25 pins

Serial Port: One port with 9 pins respectively

VGA Port: One port with 15 pins

LAN Port: One port with 8 pins

Audio-In & Earphone & Microphone Ports: one port for each

DDR Memory: 256 MB *2

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

Test Mode	External Frequency	CPU	Case Open/Closed
1	133MHz	P4 3.0 GHz	Closed
2	133MHz	P4 3.0 GHz	Open

(C) Remedy for the Tested Product & Its EMI Interference:

Remedy: N/A

EMI Interference:

Crystal: 14.318 MHz(X4) / 25 MHz(X2) / 32.768 KHz(X5)

Clock Generator: CLK1

(D) Supported Host Peripherals:

Host Peripheral	Product Name	Model Name	S/N	FCC ID
#1	Case	MV43VN	N/A	
#2	Power Supply (TGR)	FV-300P20	0003877	3902A296 FCC DOC
#3	Maxtor HDD	D740X-6L	662203737160	3902B975 D33029
#4	MITSUMI FDD	D353M3	N/A	D62007003
#5	TEAC CD/R	CD-540E-082-U	5398376	3892A885 FCC DOC
#6	Intel CPU (3GHz)	P4	N/A	N/A
#7	KINGMAX RAM (256MHz)	MPXB62D-68KX3	E2A0011R0002	N/A

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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 successful, right from the start, we have designed the 3.1 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle MV43VN mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle MV43VN mainboard. You will find that installing your new Shuttle MV43VN mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated MV43VN mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections 3.2 Jumper Settings and Chapter 4 Drivers/Software Utilities to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains the relevant information on how to tune up your system to achieve higher performance.

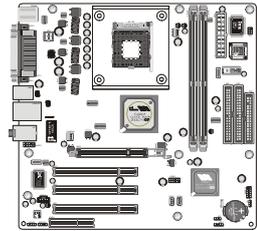
System Integrator

You have wisely chosen Shuttle MV43VN to construct your system. Shuttle MV43VN incorporates all the state-of-the-art technology of the P4M266A + VT8235CD chipset from VIA. It integrates the most advanced functions you can find to date in a compact Micro ATX board.

1.2 Item Checklist:

Check all items with your MV43VN mainboard to make sure nothing is missing. The complete package should include:

- ✦ One piece of Shuttle MV43VN Mainboard



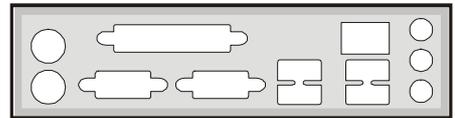
- ✦ One piece of ATA 133/100/66/33 Ribbon Cable



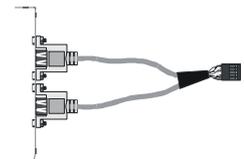
- ✦ One piece of Floppy Ribbon Cable



- ✦ I/O Shielding



- ✦ One piece of twin ports USB Cable (optional)



- ✦ MV43VN User's Manual



- ✦ One piece of Bundled CD-ROM with containing:

- MV43VN user's manual saved in PDF format
- VIA 4in1 Driver
- VIA VGA Driver
- VIA USB2.0 Driver
- Realtek LAN Driver
- Realtek Audio Driver
- Award Flashing Utility



2 FEATURES

MV43VN mainboard is carefully designed for the demanding PC user who wants high performance and maximum Intelligent features in a compact package.

2.1 Specifications

* CPU Support

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

* Chipset

Features VIA P4M266A N.B. and VIA VT8235CD S.B..

* Integrated Graphics Controller

P4M266A integrates S3® Savag4™ graphics accelerator into a single chip. P4M266A brings mainstream graphics performance to the Value PC with leading-edge 2D, 3D and DVD video acceleration into a cost effective package. Based on its capabilities, P4M266A is an ideal solution for the consumer, corporate mobile users and entry-level professionals.

Maximum-shared memory size is 32MB.

* Built-in Ethernet LAN

Built-in 10BaseT/100BaseTX Ethernet LAN. VT8235 integrates Fast Ethernet MAC and VT6103 LAN PHY in compliance with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3.263 TP-PMD standards.

In compliance with ACPI 1.0 and the Network Device Class Power Management 1.0. High performance achieved by 100Mbps clock generator and data recovery circuit for 100Mbps receiver.

* AC'97 Audio Codec

AC'97 2.3 compliant.

Spread independent PCI functions for Audio and Modem.

* Versatile Memory Support

Two 184-pin DIMM slots to support up to 2GB of PC1600 or PC2100 compliant DDR SDRAM module.

* PCI Expansion Slots

Provides three 32-bit PCI slots.

* AGP Expansion Slots

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

*** CNR Expansion Slot**

Provides one CNR (Communication/ Network Riser) slot.

*** 6 USB 2.0 Interface Onboard**

➤ 4 USB connectors on back-panel and one set of dual USB port header on mid-board.

*** I/O Interface**

Provides a variety of I/O interfaces:

- 1* Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, or 2.88MB format or for 5.25-inch FDD with 360K or 1.2MB format.
- 1*PS/2 mouse connector.
- 1*PS/2 Keyboard connector.
- 1*RJ45 LAN connector.
- 1*DB9 serial connector 16550 UART compatible.
- 4*USB ports.
- 1*VGA port.
- 1*DB25 Parallel port supports Standard Parallel Port and Bi-directional (SPP), Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP) data transmission schemes.
- 1*Line-Out port.
- 1*Line-In port.
- 1*Mic-In port.

*** PCI Bus Master IDE Controller Onboard**

Two Ultra DMA 133/100/66/33 Bus Master Dual-channel IDE ports provide support to a maximum of four IDE devices (one Master and one Slave per channel). The IDE Bus implements data transfer speeds of up to 133/100 /66/33 MB/sec and also supports Enhanced PIO Modes.

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

*** ATX Power Supply Connector**

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

The Pentium 4 ATX power includes one 4-pin + 12V ATX power connector.

★ **Advanced Configuration and Power Interface**

Features four power saving modes: S1 (Snoop), S4 (Suspend to DISK), 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 Award BIOS V6.0 PG on Intel Firmware Hub 4Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

★ **Micro ATX Form Factor**

System board conforms to Micro ATX specification.

Board dimension: 244mm*244mm.

★ **Advanced Features**

➤ Low EMI -

Built in spread spectrum and automatic clock shut-off of unused PCI/SDRAMS slots to reduce EMI.

➤ Dual Function Power Button -

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

➤ CPU Clock Setting -

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

➤ CPU Multiplier Setting -

This item allows users to adjust CPU Multiplier in BIOS.

★ **Intelligent Features**

➤ Voltage Monitoring -

Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through Mainboard components.

➤ Fan Status Monitoring -

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

➤ Temperature Monitoring -

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

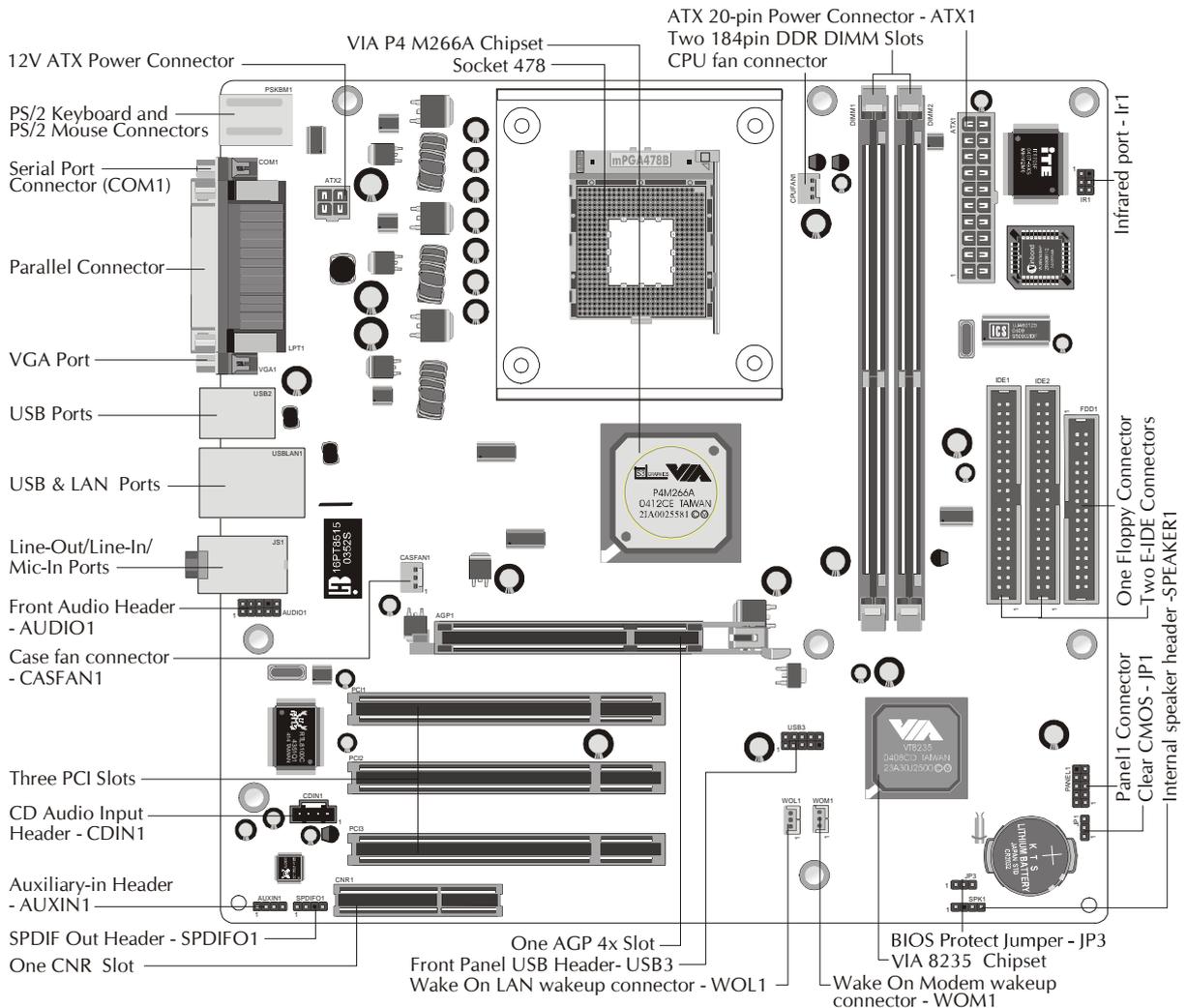
3 HARDWARE INSTALLATION

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

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

3.1 Step-by-Step Installation

Accessories Of MV43VN



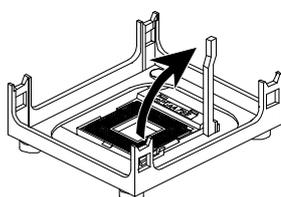
Step 1

CPU Installation:

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

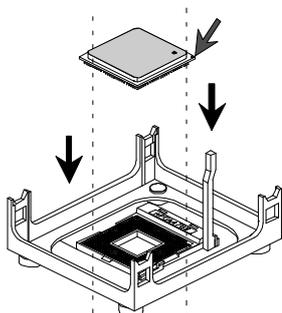
Note the CPU orientation when you plug it into CPU socket.

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



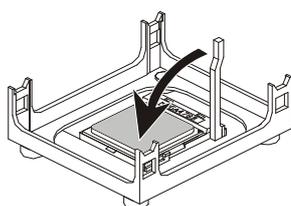
CPU socket lever up to 90-degree angle

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



CPU Pin 1 and cut edge

3. Press down the CPU socket lever and finish CPU installation.



Note: The CPU might be damaged if you do not match the CPU socket Pin 1 and cut edge well.

4. Intel Pentium 4/Celeron processors require a set of heatsink and fan to cool down the processor. You need to purchase a heatsink and fan if they are not bundled with your CPU. Required is that install the set and plug its cable in the CPU fan power connector. Note that there are kinds of CPU fan connectors. Normally, if your mainboard supports a hardware monitoring function, a 3-pin fan power connector can have your system detect the CPU fan's speed. A CPU fan with a 2-pin or 4-pin fan power connector does not support the detection of the CPU fan's speed, and must directly be connected to the system's power supply unit.

Step 2.

Set Jumpers

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

1. Clear CMOS
2. BIOS flash protect

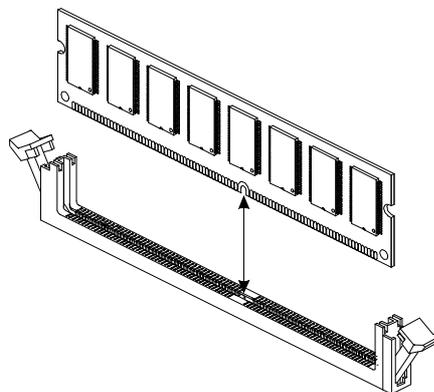
For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their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

Step 3

Install DDR SDRAM System Memory

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

DDR SDRAM



Step 4

Install Internal Peripherals in System Case

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

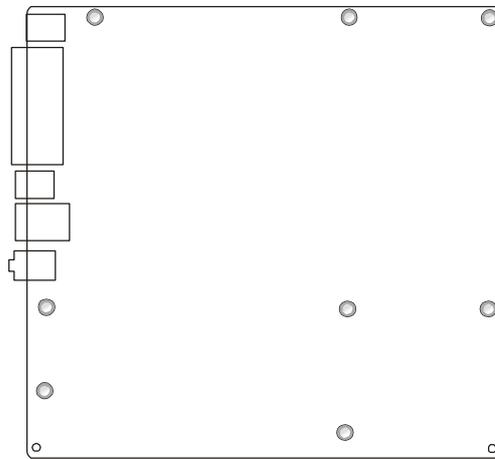
To install IDE & FDD drives, follow this procedure:

1. Set the required jumpers on 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 in red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.
3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

Step 5

Mount the Mainboard on the Computer Chassis

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



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

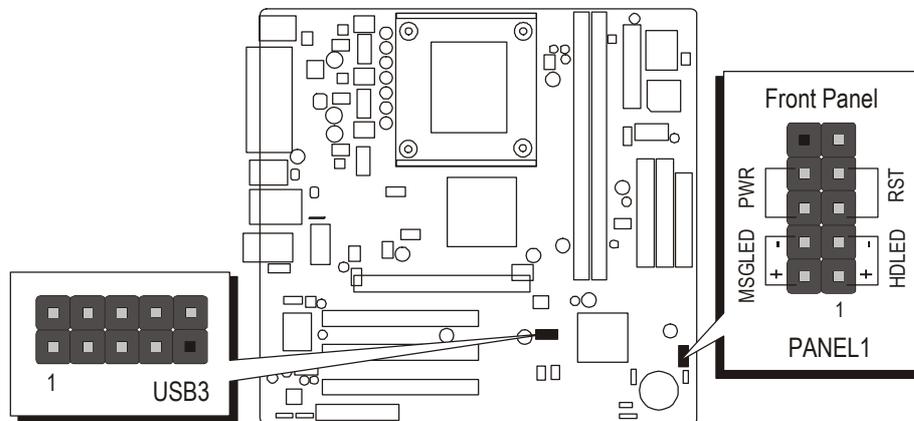
Note:

1. 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.
2. There are two rubber pads attached on the solder-side of the mainboard. It prevents the mainboard damaged by the improper force while installing devices such as IDE cable, DIMM modules. You may also move the rubber pad's position varies with your chassis design.

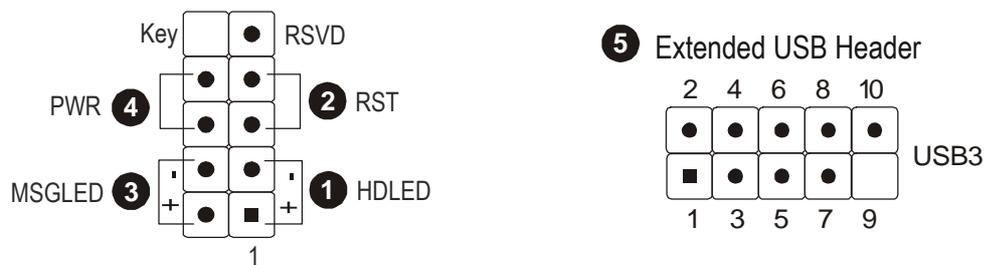
Step 6

Connect Front Panel LEDs/Switches/USB

You can find there are several different cables already existing in the system case and originating from the computer's front panel devices (HDLED, RST switch, MSGLED, PWR or USB device etc.). These cables serve to connect the front-panel LEDs, switch, and USB connectors to mainboard's front-panel connector groups (PANEL1 and USB3), as shown below.



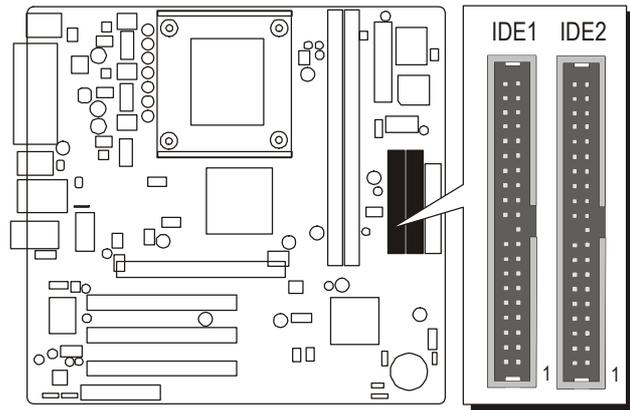
1. HDD LED (HDLED)
2. Hardware Reset Switch Button (RST)
3. Green-LED (MSGLED)
4. ATX Soft Power On/Off (PWR)
5. Extended USB Header (USB3)



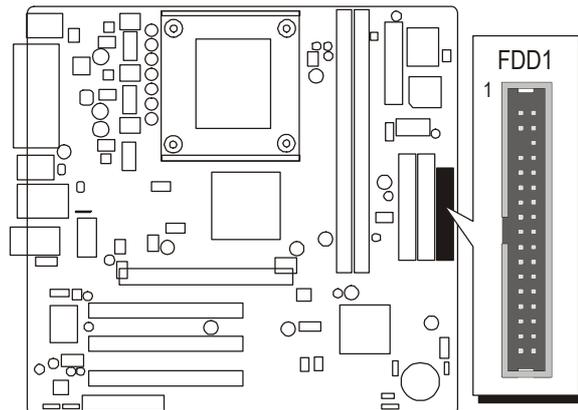
Step 7

Connect IDE and Floppy Disk Drives

1. IDE cable connector



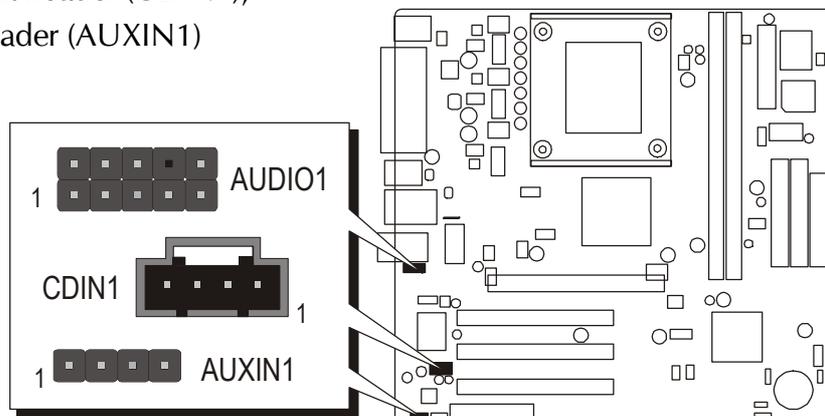
2. Floppy cable connector



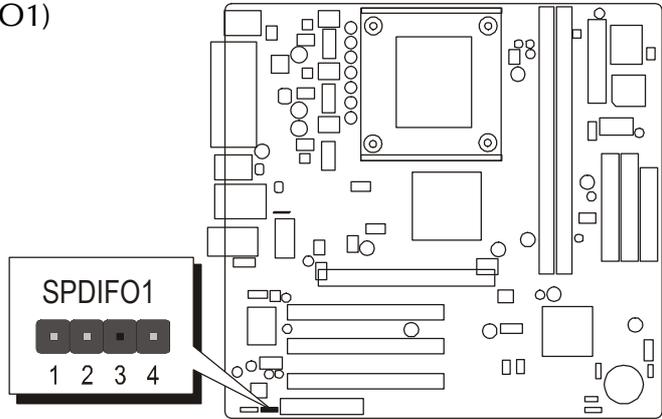
Step 8

Connect Other Internal Peripherals

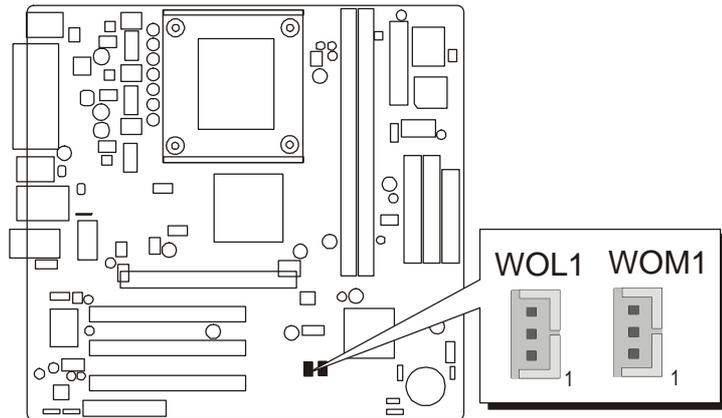
1. Front panel Audio header (AUDIO1);
CD Audio Input header (CDIN1);
Auxiliary In header (AUXIN1)



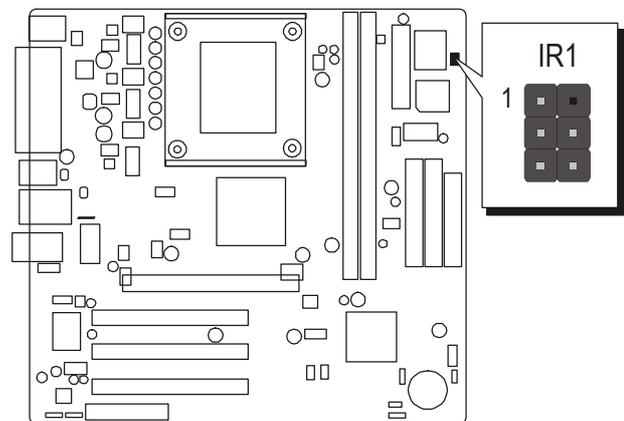
2. SPDIF Out header (SPDIFO1)



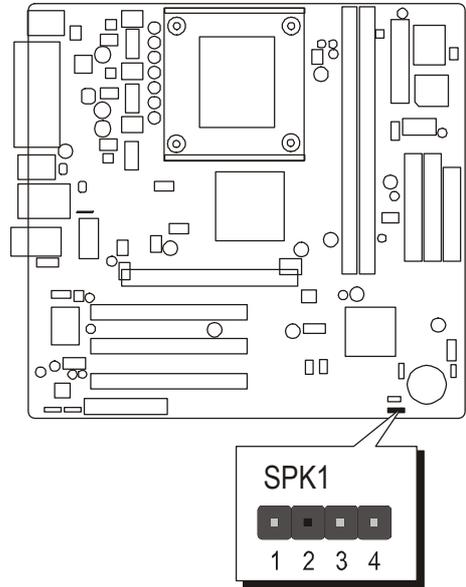
3. Wake On LAN wakeup connector (WOL1)
Wake On Modem wakeup connector (WOM1)



4. Serial infrared port (IR1)



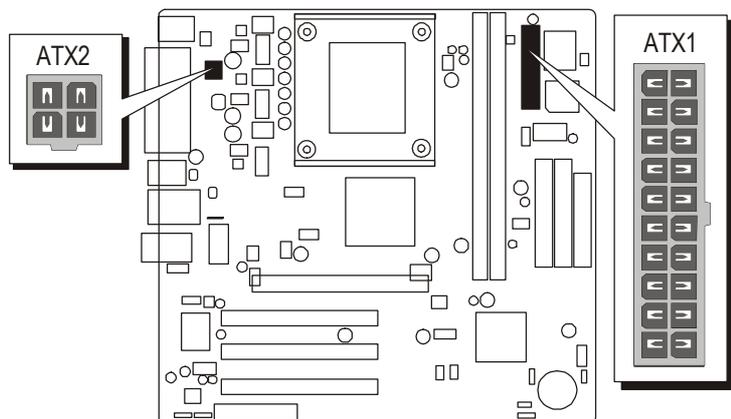
5. Internal speaker header (SPK1)



Step 9

Connect the Power Supply

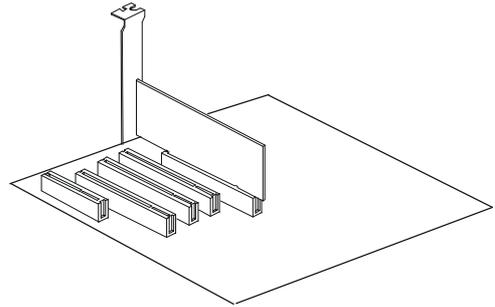
1. System power connectors



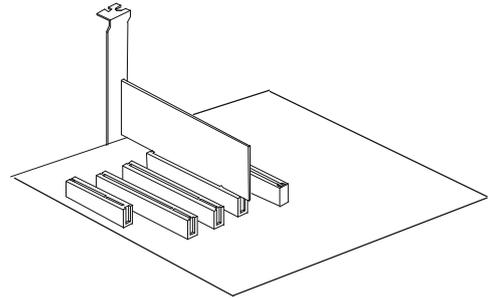
Step 10

Install Add-on Cards in Expansion Slots

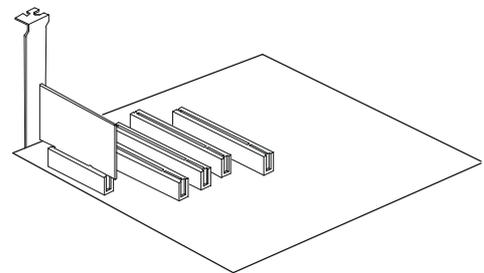
1. Accelerated Graphics Port (AGP) Card



2. PCI Card



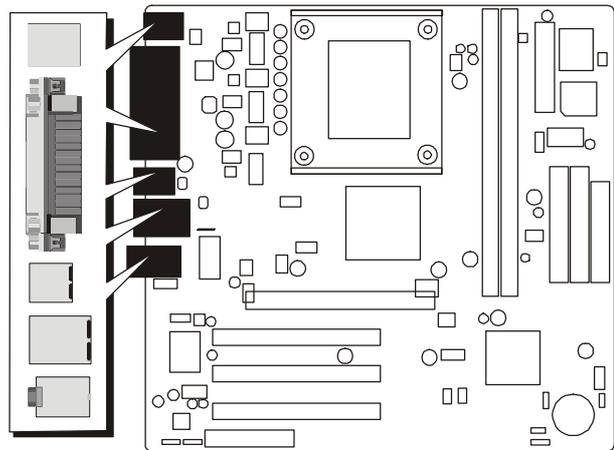
3. CNR Card



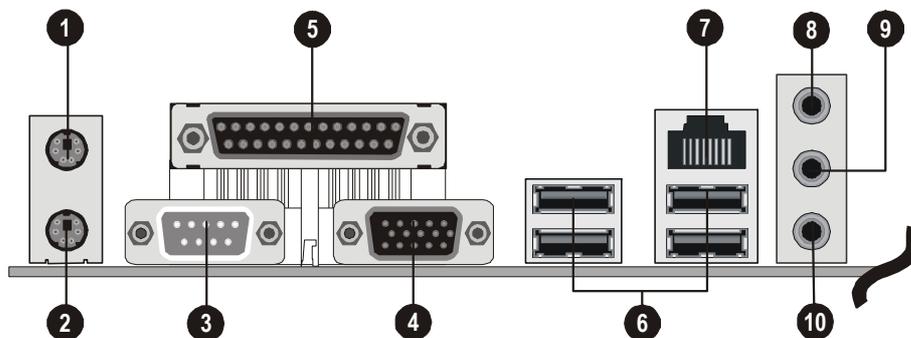
Step 11

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
2. PS/2 Keyboard
3. COM1 Port
4. VGA Port
5. Parallel Port
6. USB 1/2/3/4 Ports
7. LAN Port
8. Audio Line-In Port
9. Audio Line-Out Port
10. Audio Mic-In 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 install your HDD into partitions no larger than 2.1GB each.

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

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

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

Step 13

Install Drivers & Software Components

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

1. Insert the MV43VN bundled CD-ROM into your CD-ROM drive.
The autorun program will display the driver's main installation window on screen.
2. Choose "Install Mainboard MV43VN Software".
3. Choose "Install VIA 4in1 Driver" and complete it.
4. Choose "Install VIA VGA Driver" and complete it.
5. Choose "Install VIA USB2.0 Driver" and complete it.
6. Choose "Install Realtek LAN Driver" and complete it.
7. Choose "Install Realtek Audio Driver" and complete it.
8. Quit (from the auto-run installation program).

✿ Please refer to section Chapter 4 Software Utility to install driver.

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:



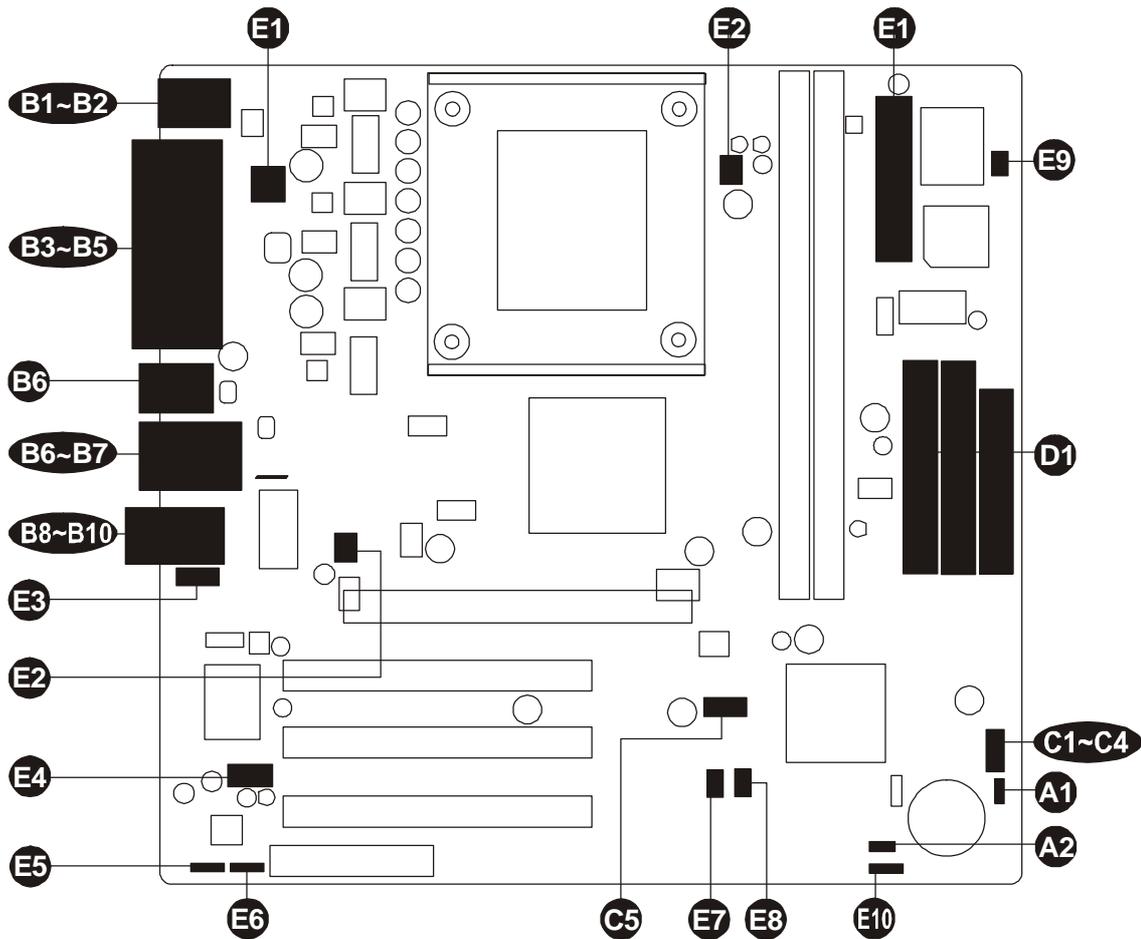
Jumpers with two pins are shown as  for Close [On] or  for Open [Off]. To Short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

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



CPU/Memory/Expansion Slots

- | | |
|-----------|--|
| Socket478 | : CPU Socket for Pentium 4 processors |
| DDR1/2 | : Two DIMM Slots for 64, 128, 256, 512 MB, and 1GB of 2.5V DDR SDRAM
(The total installed memory does not exceed 2GB) |
| AGP | : One AGP (Accelerated Graphics Port) Slot |
| PCI | : Three 32-bit PCI Expansion Slots |
| CNR | : One CNR (Communication Network Riser) Slot |

Jumpers

- A1** JP1 : Clear CMOS setting
- A2** JP3 : BIOS flash protect

Back Panel Connectors

- B1** MS : PS/2 mouse port
- B2** KB : PS/2 keyboard port
- B3** COM1 : Serial port (DB9 male)
- B4** LPT1 : Parallel port (DB25 female)
- B5** VGA1 : VGA port (DB15 female)
- B6** USB : 4x USB (Universal Serial Bus) ports 1/2/3/4
- B7** LAN : 1x LAN port
- B8** LINE_IN : Line-In port
- B9** LINE_OUT : Line-Out port
- B10** MIC_IN : Mic-In port

Front Panel Connectors

- C1** HDLED : IDE drive active LED
- C2** RST : Hardware reset switch
- C3** MSGLED : Green LED
- C4** PWR : ATX power on/off momentary type switch
- C5** USB3 : Front panel USB ports header

Internal Peripheral Connectors

- D1** IDE1 : IDE primary interface (Dual-channel)
- D1** IDE2 : IDE secondary interface (Dual-channel)
- D1** FDD1 : Floppy disk drive interface

Other Connectors

- E1** ATX1/2 : ATX power connector
- E2** CPUFAN1 : CPU fan connector
- E2** CASFAN1 : Case fan connector
- E3** AUDIO1 : Front audio header

E4	CDIN1	: CD Audio Input header
E5	AUXIN1	: Auxiliary in header
E6	SPDIFO1	: SPDIF Out header
E7	WOL1	: Wake On LAN wakeup connector
E8	WOM1	: Wake On Modem wakeup connector
E9	IR1	: Serial infrared port
E10	SPK1	: Internal speaker header

Jumpers

A1 Clear CMOS Setting (JP1)

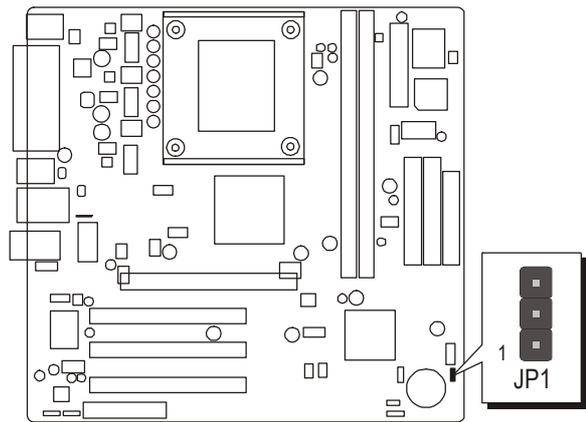
JP1 is used to clear CMOS data. Clearing CMOS will result in the permanently erasing previous system configuration settings and the restoring original (factory-set) system settings.



Pin 1-2 (Default)



Pin 2-3 (Clear CMOS)



- Step 1. Turn off the system power (PC-> Off).
- Step 2. Remove ATX Power cable from ATX Power connector.
- Step 3. Remove jumper cap from JBAT1 pins 1-2.
- Step 4. Place the jumper cap on JBAT1 pin 2-3 for a few seconds.
- Step 5. Return the jumper cap to pin 1-2.
- Step 6. Plug ATX Power cable into ATX Power connector.
- Step 7. Turn on the system power (PC-> On).

A2 BIOS flash protect jumper (JP3)

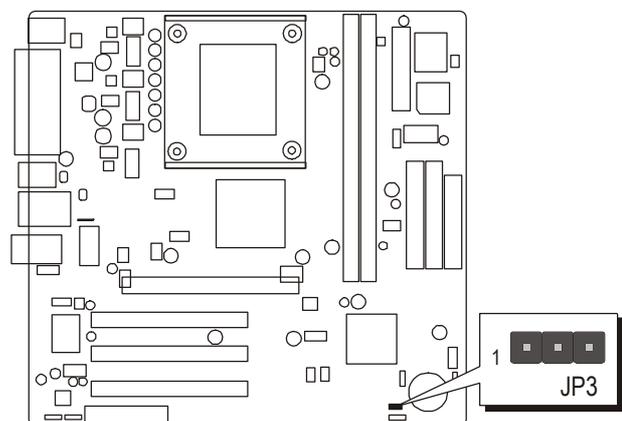
JP3 is used to set the BIOS flash protect.



Pin 1-2 (Default)



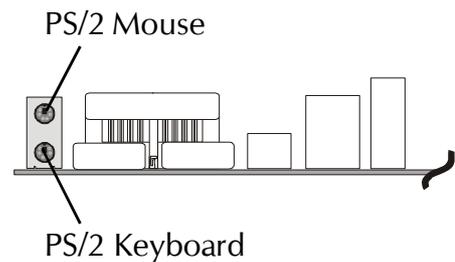
Pin 2-3 (Enable)



☞ **Back Panel Connectors**

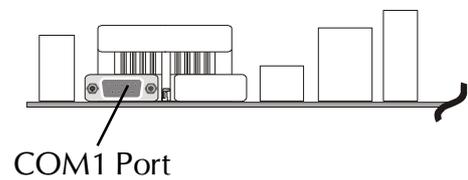
B1 PS/2 Mouse & PS/2 Keyboard Port Connectors

- B2** Two 6-pin female PS/2 Mouse & Keyboard connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a tower where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 Mouse and Keyboard jacks into their corresponding connectors.



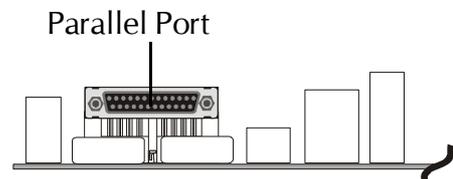
B3 COM1 Port Connector

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



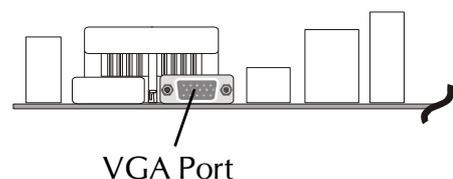
B4 Parallel Port Connector

One DB25 female parallel connector is located at the rear panel of the mainboard. Plug the connection cable from your parallel device (printer, scanner, etc.) into this connector.



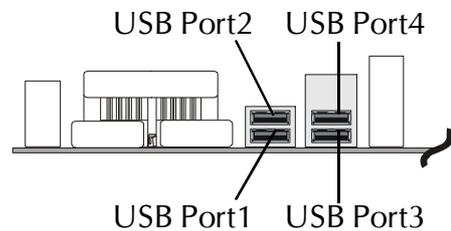
B5 VGA Port Connector

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



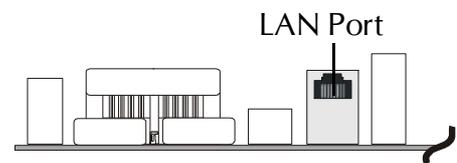
B6 USB1/2/3/4 Port Connectors

This mainboard offers 4 USB ports on back panel. Plug each USB device jack into an available USB1/2/3/4 connector.



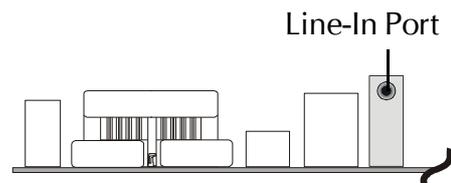
B7 LAN Port Connector

This mainboard can accommodate one device on LAN. Attach RJ-45 cable to this port connector to your PC to the LAN.



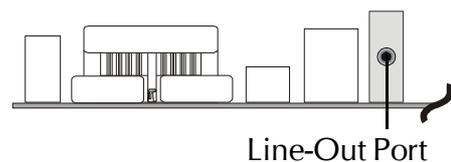
B8 Line-In Port Connector

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording.



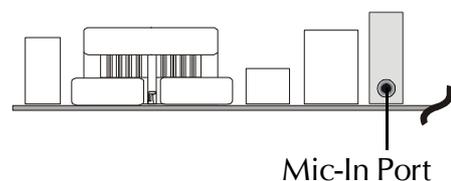
B9 Line-Out Port Connector

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



B10 Mic-In Port Connector

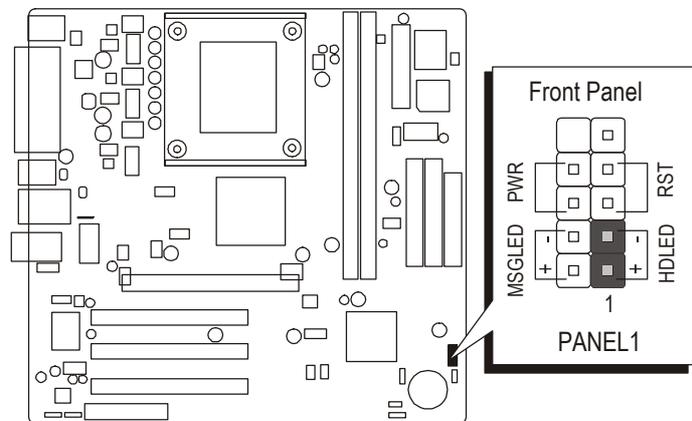
Mic-In is a 1/8-inch jack that provides a mono input. It can use a dynamic mono or stereo microphone with a resistance of not more than 600 Ohms.



👉 **Front Panel Connectors**

🔌 **Hard Drive Activity LED (HDLED)**

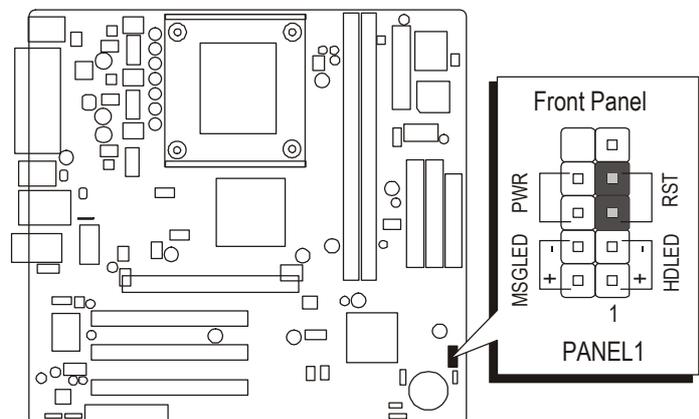
Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.



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

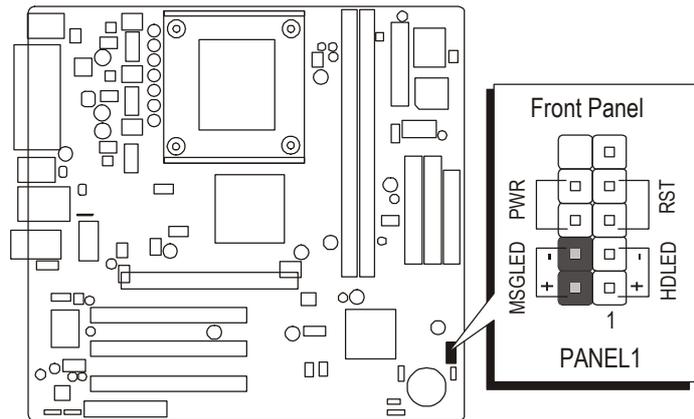
🔌 **Reset Switch (RST)**

Supporting the reset function requires connecting pins 5 and 7 to a momentarymomentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.



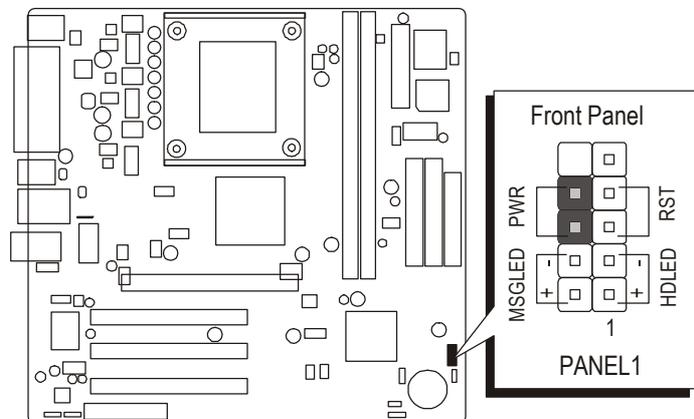
③ Power/Sleep/Message Waiting LED (MSGLED)

Connecting pins 2 and 4 to a single- or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.



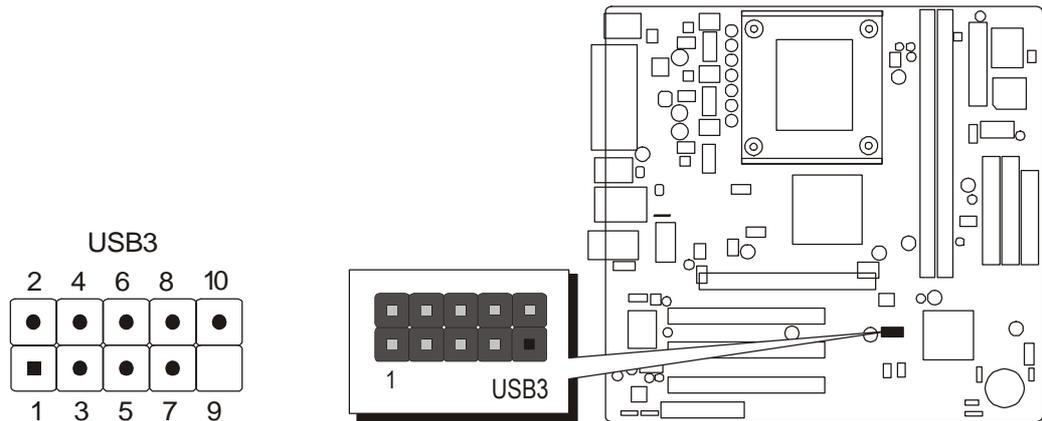
④ Power Switch (PWR)

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal debounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.



⑤ Front panel USB port header (USB3)

The header is used to connect the cable attached to a USB connector which is mounted on front panel or back panel. But the USB cable is optional at the time of purchase.



Pins Assignment:

1 = VREG_FP_USBPWR0

2 = VREG_FP_USBPWR0

3 = USB_FP_P0-

4 = USB_FP_P1-

5 = USB_FP_P0+

6 = USB_FP_P1+

7 = GND

8 = GND

9 = KEY

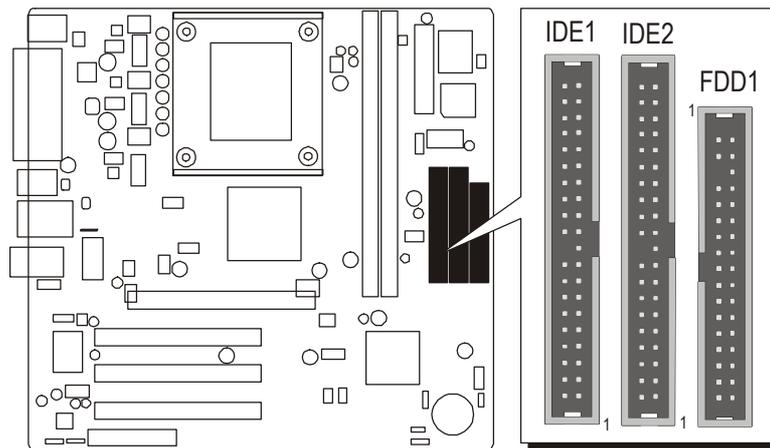
10 = USB_FP_OC0

☞ **Internal Peripherals Connectors**

① Enhanced IDE and Floppy Connectors

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

This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA 133/100/66/33 ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.



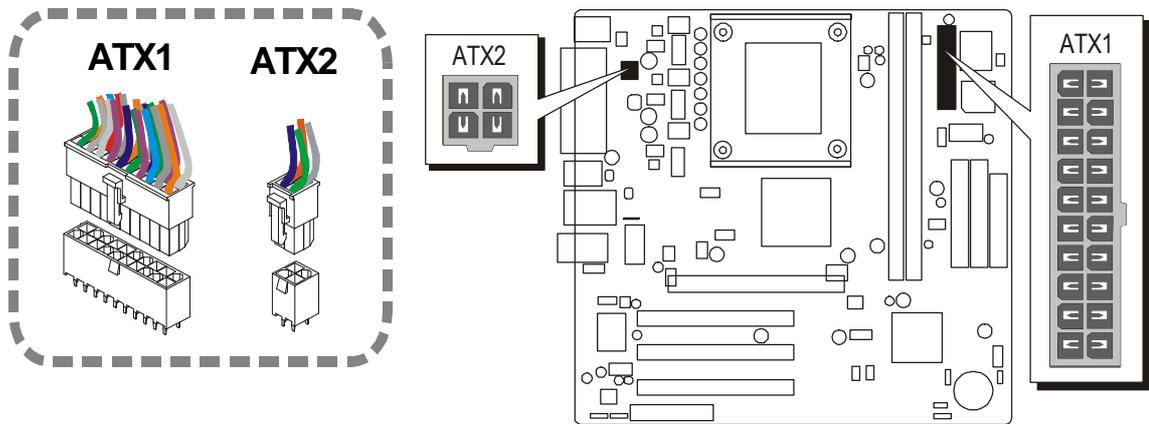
Important : Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.

☞ Other Connectors

③ ATX Power Supply Connector (ATX1/ATX2)

This mainboard uses 20-pin (ATX1) Pentium 4 standard ATX power header, and other ATX2 with 2x2-pin + 12V PC ATX power supply headers.

Please make sure you plug in the right direction.



A traditional ATX system should remain at power off stage when AC power resumes from power failure. In such case, if there is no an UPS to keep power-on, the kind of design is inconvenient for a network server or workstation.

However, this mainboard implements an AC Power Auto Recovery function to solve this problem. You may enable the function "Restore On AC/Power Loss" that is under sub-menu of Power Mangement Setup through BIOS setup program.

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

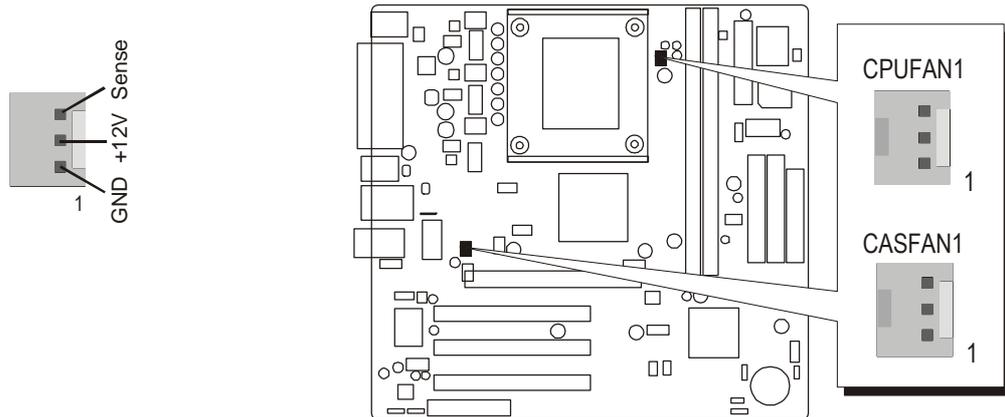
Note 2: Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.

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

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

② FAN Power Connectors (CPUFAN1, CASFAN1)

The mainboard provides two onboard 12V cooling fan power connectors to support CPU and Case cooling fans.



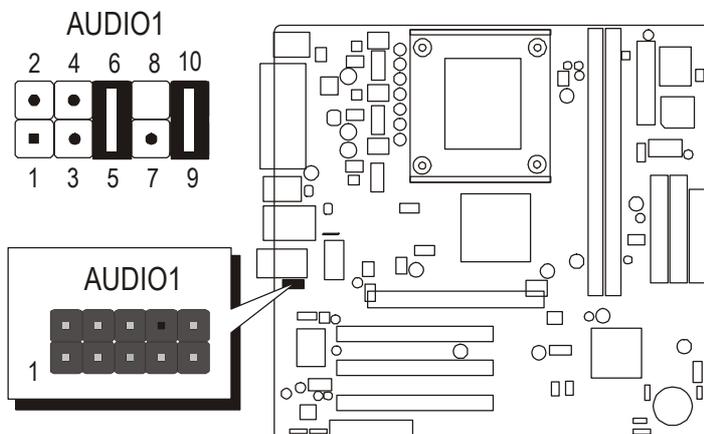
Note : Both cable wiring and type of plug may vary , which depends on the fan maker. Keep in mind that the red wire should always be connected to the + 12V header and the black wire to the ground (GND) header.

③ Front audio header (AUDIO1)

This header allows users to install an auxiliary Front-Oriented Microphone and Line-Out port for easier access. Either the Line-Out port connector on back panel or AUDIO1 header is available at the same time. If you would like to use this header on front panel, please remove all jumpers from this header and install your special extra microphone and line-out cable instead. Two mini jumpers must be setted on pins 5-6 and pins 9-10, when this header is not used.

Pin Assignments:

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

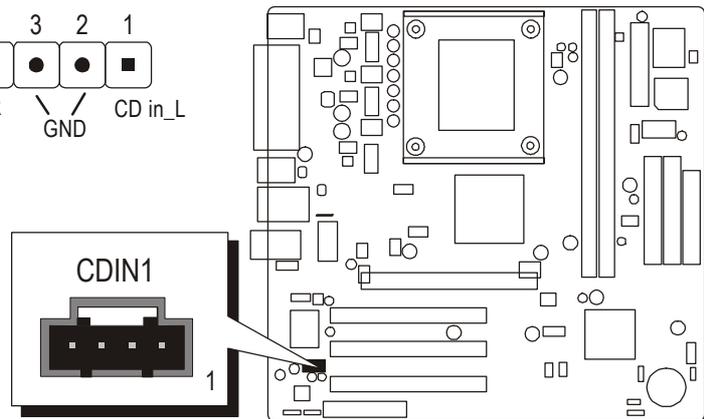
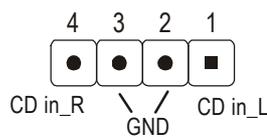


E4 CD Audio Input header (CDIN1) (Black)

Port CDIN1 is used to attach an audio connector cable from the CD-ROM drive.

Pin Assignments:

- 1 = CD in_L
- 2 = GND
- 3 = GND
- 4 = CD in_R

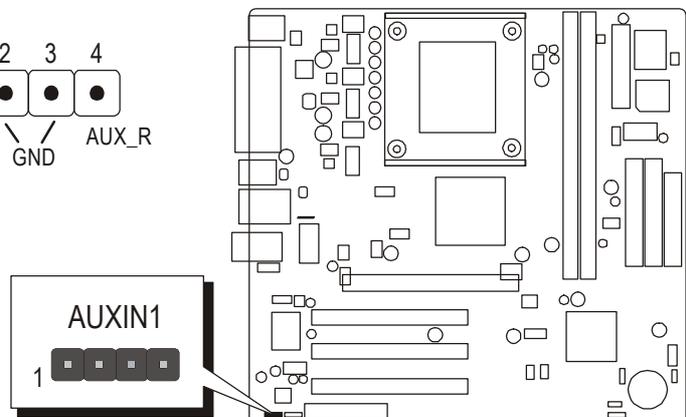
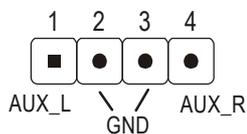


E5 Auxiliary in header (AUXIN1)

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

Pin Assignments:

- 1 = AUX_L
- 2 = GND
- 3 = GND
- 4 = AUX_R

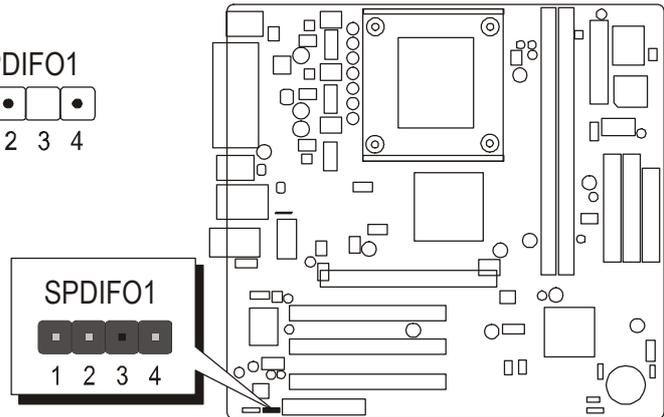
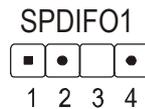


E6 SPDIF Out header (SPDIF01)

This is an optional header that provides an SPDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin Assignments:

- 1 = SPDIF Out
- 2 = VCC
- 3 = KEY
- 4 = GND

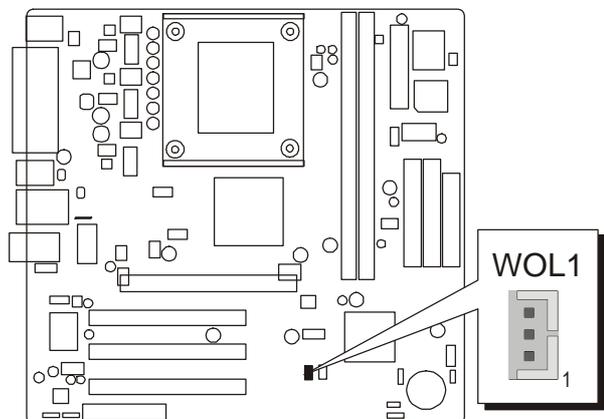
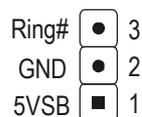


E7 Wake On LAN wakeup connector (WOL1)

If you have installed a LAN card, use the cable provided with the card to plug into the mainboard WOL1 connector. This enables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility.

Pin Assignments:

- 1 = 5VSB
- 2 = GND
- 3 = Ring#



E8 Wake On Modem wakeup connector (WOM1)

If you have installed a modem, use the cable provided with the modem to plug into the mainboard WOM1 connector. This enables the Wake On Modem (WOM1) feature. When your system is in a power-saving mode, any modem signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility.

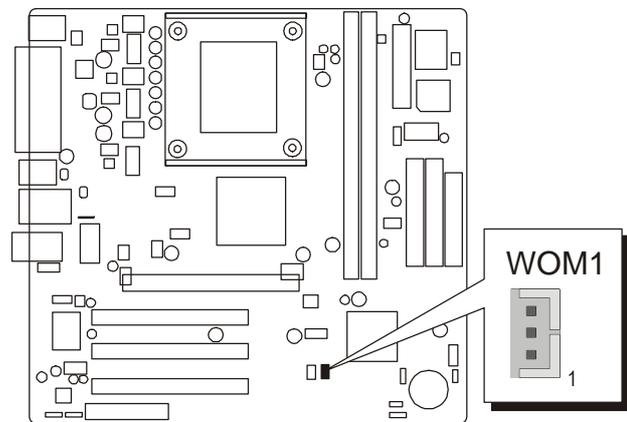
Pin Assignments:

1 = 5VSB

2 = GND

3 = Ring#

Ring#	●	3
GND	●	2
5VSB	■	1



E9 Serial infrared port (IR1)

The mainboard supports an Infrared (IR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pins Assignment:

1 = Not assigned

2 = KEY

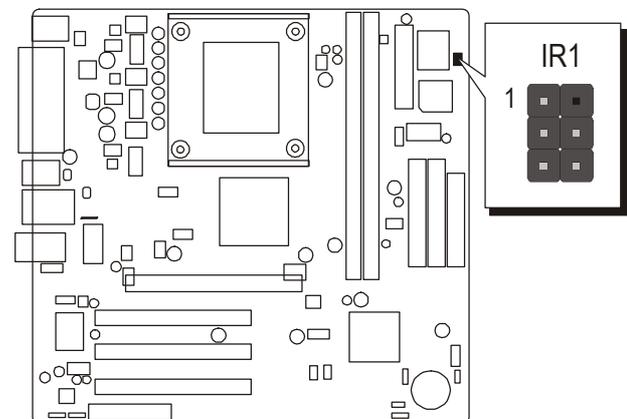
3 = +5V

4 = GND

5 = IRTX

6 = IRRX

1	■		2
3	●	●	4
5	●	●	6



E10 Internal speaker header (SPK1)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPK1).

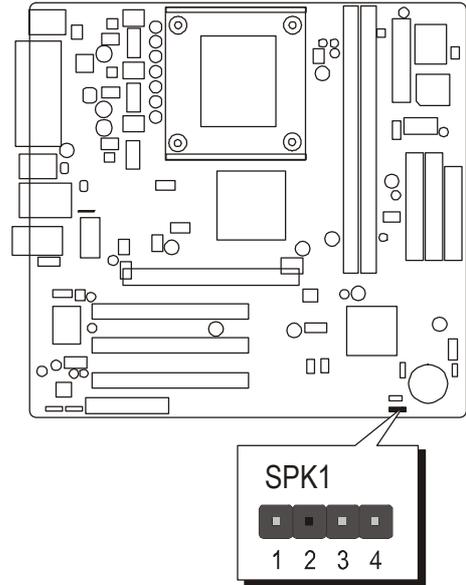
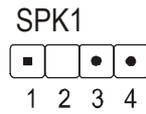
Pin Assignments:

1 = Signal

2 = NA

3 = GND

4 = VCC



3.3 System Memory Configuration

The MV43VN mainboard has two 184-pin DIMM banks that allow you to install from 128MB up to 2GB of system memory. Each 184-pin DIMM (Dual In-line Memory Module) bank can accommodate 128MB, 256MB, 512MB, and 1GB of PC1600/PC2100/PC2700 compliant 2.5V single or double side DDR SDRAM modules. DIMM slots are arranged in two banks, each memory bank made of one bank and providing a 64-bit wide data path.

1. Install Memory:

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

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

Note : The total installed memory does not exceed 2GB.

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

2. Upgrade Memory:

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

4 SOFTWARE UTILITY

4.1 Mainboard CD Overview

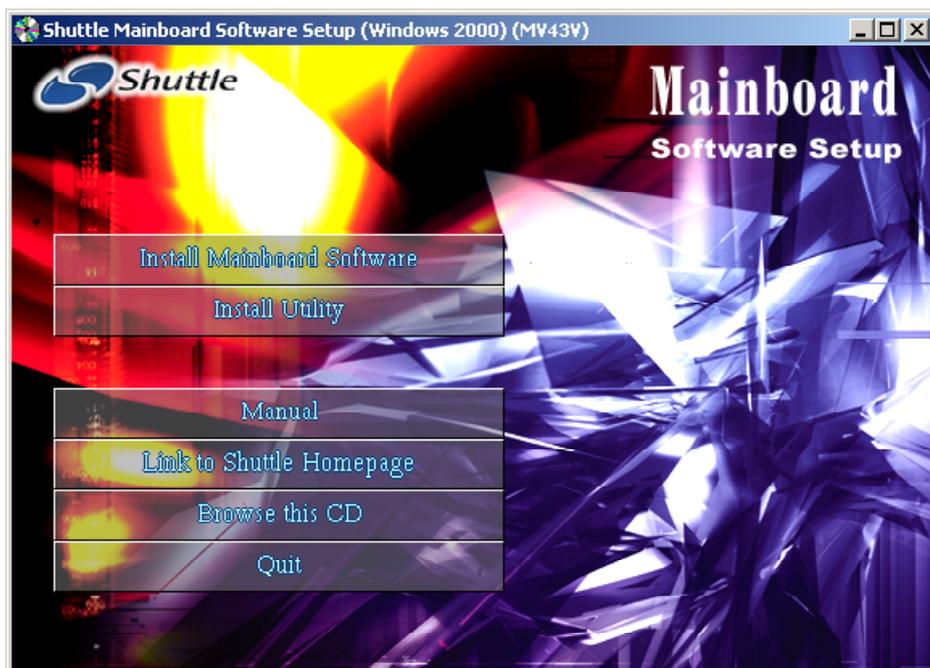
Note : The CD contents attached in MV43VN mainboard are subject to change without notice.

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 MV43VN Software - Installing VIA 4in1, VIA VGA, VIA USB2.0, Realtek LAN and Realtek Audio Drivers.
- ☞ Install Utility - Installing Acrobat Reader, WinFlash Utility
- ☞ Manual - MV43VN 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.



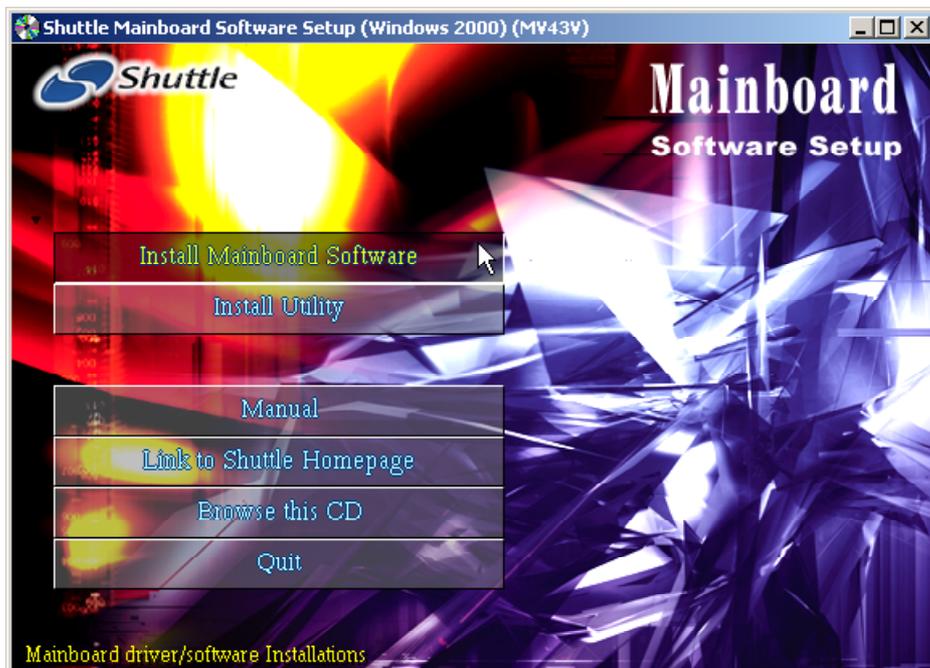
4.2 Install Mainboard Software

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.

The Mainboard Software include:

- [4.2.A] Install VIA 4in1 Driver
- [4.2.B] Install VIA VGA Driver
- [4.2.C] Install VIA USB2.0 Driver
- [4.2.D] Install Realtek LAN Driver
- [4.2.E] Install Realtek Audio Driver



4.2.A Install VIA 4in1 Driver

Select using your pointing device (e.g. mouse) on the "Install VIA 4in1 Driver" bar to install the chipset driver.



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.B Install VIA VGA Driver

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



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.C Install VIA USB2.0 Driver

Select using your pointing device (e.g. mouse) on the "Install VIA USB2.0 Driver" bar to install the USB2.0 driver.



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.D Install Realtek LAN Driver

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



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.E Install Realtek Audio Driver

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



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.3 View the User's Manual

Select using your pointing device (e.g. mouse) on the "Manual" bar. Click on the "Install Acrobat Reader" bar if you need to install it, or click on "Manual" bar to view MV43VN user's manual.



5 BIOS SETUP

MK40 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

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

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Enter the BIOS

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

- Step 1. Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.
- Step 2. Press key immediately, or at the following message: Press DEL to enter SETUP, or simultaneously press <Ctrl>, <Alt>, <Esc> keys

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

Note2. 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:

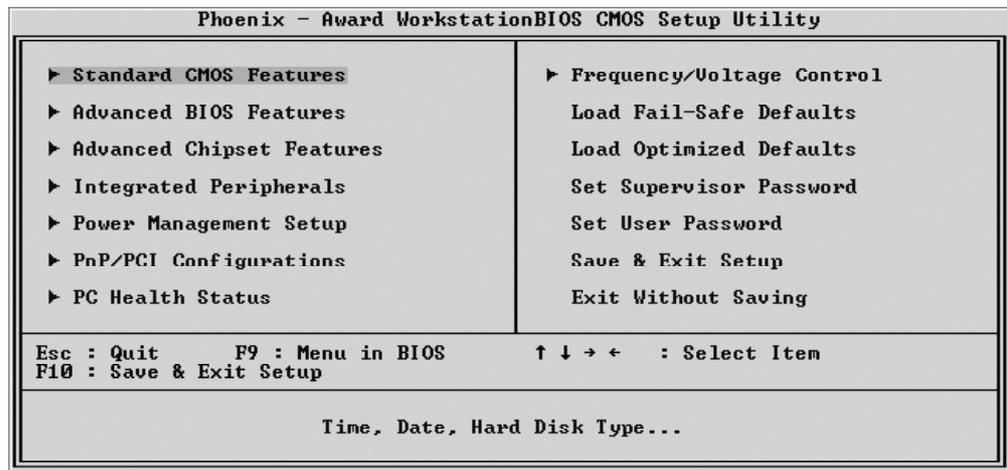
"Press F1 to Continue, DEL to Enter Setup"

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

Note: The content of this manual is subject to any change without notice in advance.

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.



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

Setup Items

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

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

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

Frequency/Voltage Control

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

Load Fail-Safe Defaults

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

Load Optimized Defaults

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

Supervisor/User Password

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

Save & Exit Setup

Save CMOS value changes in CMOS and exit from setup.

Exit Without Saving

Abandon all CMOS value changes and exit from setup.



Standard CMOS Features

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

Phoenix - Award Workstation BIOS CMOS Setup Utility		
Standard CMOS Features		
Date <mm:dd:yy>	Tue, May 18 2004	Item Help
Time <hh:mm:ss>	4 : 49 : 45	Menu Level ▶
▶ IDE Primary Master	[None]	Change the day, month, year and century
▶ IDE Primary Slave		
▶ IDE Secondary Master		
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/UGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Date (mm : dd : yy)

Set the system date. Note that if you are running a Windows OS, this items are automatically updated whenever you make changes to the Windows Date.

Time (hh : mm : ss)

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

IDE Primary/Secondary Master/Slave

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

Drive A/DriveB

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

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

Video

This item define the video mode of the system. This mainboard has a built-in VGA graphics system; leave this item at the default value.

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

Halt On

This item defines the operation of the system POST (Power-On Self Test) routine. You can use this item to select which situation you want the BIOS to stop the POST process and notify you.

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

Base Memory/Extended Memory/Total Memory

These items are automatically detected by the system at start up time. These are display-only fields. You can't make change to these fields.

IDE Adapters

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

IDE HDD Auto-Detection

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

IDE Primary Master

Selecting 'Manual' lets you set the remaining fields on this screen and select the type of fixed disk.

- The choice: None, Auto, or Manual.

Access Mode

Choose the access mode for this hard disk.

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

Capacity

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

The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual', and the 'Access Mode' item is set to 'CHS'.

Cylinder

Set the number of cylinders for this hard disk.

➤Min = 0, Max = 65535

Head

Set the number of read/write heads.

➤Min = 0, Max = 255

Precomp

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

➤Min = 0, Max = 65535

Landing Zone

Set the Landing Zone size.

➤Min = 0, Max = 65535

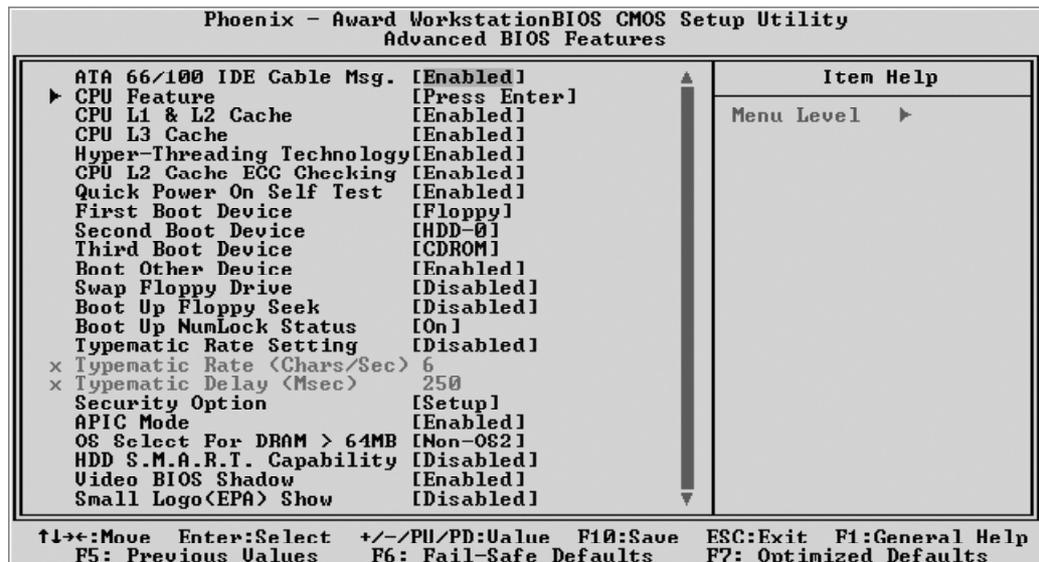
Sector

Number of sector per track.

➤Min = 0, Max = 255

Advanced BIOS Features

This section allows you to configure your system for basic operation.



ATA 66/100 IDE Cable Msg.

Enables or disables the ATA 66/100 IDE Cable Msg.

This message will appear during reboot when you use 40-pin cable on your 66/100 hard disks.

➤ The choice: Enabled or Disabled.

CPU Feature

Scroll to this item and press <Enter> to view the following screen, and the following items are only available when the mainboard supports Prescott CPU, but not every Prescott CPU has Thermal Monitor 2 function:

Thermal Management

This item sets CPU's thermal control rule to protect CPU from overheat. This feature is only available when CPU supports Thermal Monitor 2.

➤ The choice: Thermal Monitor 1 or Thermal Monitor 2.

TM2 Bus Ratio

This item helps you to set the frequency (bus ratio) of the throttled performance that will be initiated when the on die sensor goes from not hot to hot. You may set the bus ration number from 0 to 255.

➤ The choice: Min = 0, Max = 255

TM2 Bus VID

This item helps you to set the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

- The choice: 0.8375V ~ 1.6000V.

Limit CPUID MaxVal

This item limits the CPUID maximum value. Enable this item to install WinNT. Leave this item at the default value for other OS.

- The choice: Enabled or Disabled.

CPU L1&L2&L3 Cache

All processors that can be installed in this mainboard use internal level1(L1) , external 2(L2) and (L3) cache memory to improve performance.

Leave this item at the default value for better performance.

- The choice: Enabled or Disabled.

Hyper-Threading Technology

The latest Intel application defines a high-speed calculating ability to optimize your system by two CUPs supported(one virtual, one physical) in a multi-task environment.

- The choice: Enabled, or Disabled.

CPU L2 Cache ECC Checking

This item enables or disables ECC (Error Correction Code) error checking on the CPU cache memory. We recommend that you leave this item at the default value.

- The choice: Enabled or Disabled.

Quick Power On Self Test

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

- The choice: Enabled or Disabled.

First/Second/Third Boot Device

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

- The Choice: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, or Disabled.

Boot Other Device

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

- The choice: Enabled or Disabled.

Swap Floppy Drive

This item allows you to swap the logical arrangement of the floppy drives. Instead of opening up the mainboard case to do it physically, you can set this item to Enabled. Then the first drive will be mapped as drive B: and the second drive, mapped as drive A:, which is the opposite of the usual convention.

- The choice: Enabled or Disabled.

Boot Up Floppy Seek

If this item is enabled, it checks the size of the floppy disk drives at start-up time. You don't need to enable this item unless you have a legacy diskette drive with 360K capacity.

- The choice: Disabled or Enabled.

Boot Up NumLock Status

This item defines if the keyboard Num Lock key is active when your system is started.

- The choice: Off or On.

Typematic Rate Setting

If this item is enabled, you can use the following two items to see the typematic rate and the typematic delay settings for your keyboard.

- The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

Use this item to define how many characters per second are generated by a held-down key.

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

Typematic Delay (Msec)

Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

- The choice: 250, 500, 750, or 1000.

Security Option

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.

- The choice: Setup or System.

APIC Mode

This item allows you to enable APIC (Advanced Programmable Interrupt Con-troller) functionality. APIC is an Intel chip that provides symmetric multiprocessing (SMP) for its Pentium systems.

- The choice: Enabled or Disabled.

OS Select For DRAM > 64MB

This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default.

- The choice: Non-OS2 or OS2.

HDD S.M.A.R.T Capability

The S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer. The disk drive software monitors the internal performance of the motors, me-dia, heads, and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software, through the Client WORKS S.M.A.R.T applet, warns the user of the impending condition and advises appropriate action to protect the data.

- The choice: Disabled or Enabled.

Video BIOS Shadow

This item determines whether the BIOS will be copied to RAM for faster execution.

- The choice: Disabled or Enabled.

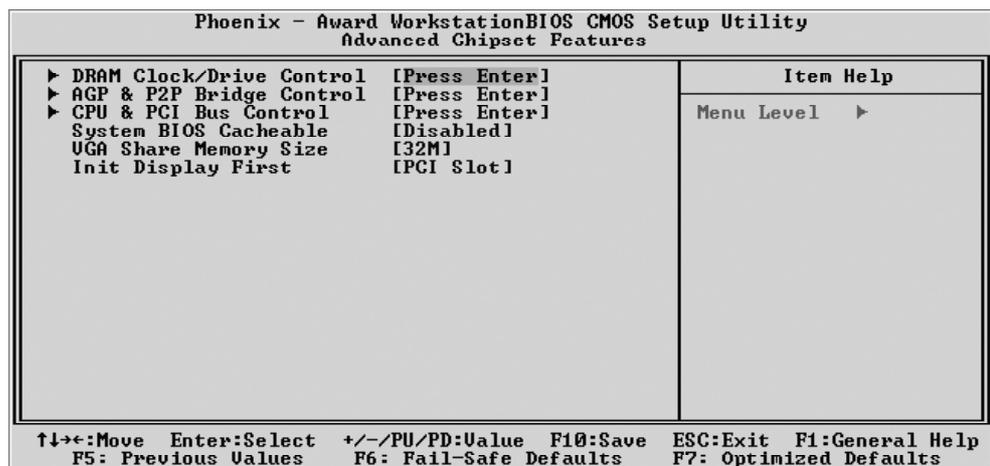
Small Logo(EPA) Show

Enables or disables the display of the EPA logo during boot.

- The choice: Enabled or Disabled.

Advanced Chipset Features

These items define critical timing parameters of the mainboard. You should leave the items at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly, you may introduce fatal errors or recurring instability into your system.



DRAM Clock/Drive Control

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

Current FSB Frequency

This item displays the frontside bus (FSB) frequency. This is a display-only item. You cannot make changes to this field.

Current DRAM Frequency

This item displays the memory (DRAM) frequency. This is a display-only item. You cannot make changes to this field.

DRAM Clock

This item enables you to manually set the DRAM Clock. We recommend that you leave this item at the default value.

- The Choice: 100 MHz, 133 MHz, or By SPD.

DRAM Timing

Set this to the default value to enable the system to automatically set the SDRAM timing by SPD (Serial Presence Detect). SPD is an EEPROM chip on the DIMM module that stores information about the memory chips it contains, including size, speed, voltage, row and column addresses, and manufacturer. If you disable this item, you can use the following three items to manually set the timing parameters for the system memory.

- The Choice: Turbo, Ultra or Auto By SPD.

* DRAM CAS Latency

Enables you to select the CAS latency time in HCLKs of 2/2 or 3/3. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The options are "2" and "3" default.

➤ The choice: 2 or 2.5.

* Bank Interleave

Enable this item to increase memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.

➤ The Choice: Disabled, 2 Bank, or 4 Bank.

* Precharge to Active <Trp>

This item is used to designate the minimum Row Precharge time of the SDRAM devices on the module. DRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for the Row Address Strobe (RAS) to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

➤ The Choice: 2T, 3T, 4T or 5T.

* Active to Precharge <Tras>

This item specifies the number of clock cycles needed after a bank active command before a pre-charge can occur.

➤ The choice: 6T or 5T.

* Active to CMD <Trcd>

This item specifies the minimum re-quired delay between activation of different rows.

➤ The Choice: 2T or 3T.

* DRAM Command Rate

This item enables you to specify the waiting time for the CPU to issue the next command af-ter issuing the command to the DDR memory. We recommend that you leave this item at the default value.

➤ The Choice: 2T Command or 1T Command.

DRAM Burst Length

This item describes which burst lengths are supported by the devices on the mainboard.

➤ The Choice: 4 or 8.

AGP & P2P Bridge Control

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

AGP Aperture Size

This item defines the size of the aperture if you use an AGP graphics adapter. The AGP aperture refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

- The Choice: 4M, 8M, 16M, 32M, 64M, 128M, 256M, 512M or 1G.

AGP Mode

This item allows you to enable or disable the caching of display data for the processor video memory. Enabling AGP-4X Mode can greatly improve the display speed. Disable this item if your graphics display card does not support this feature.

- The Choice: 4X, 2X, or 1X.

AGP Driving Control

This item is used to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to the default.

- The Choice: Auto or Manual.

* AGP Driving Value

When AGP Driving Control is set to Manual, use this item to set the AGP current driving value.

- Key in a HEX number: Min = 0000, Max = 00FF.

AGP Fast Write

This item lets you enable or disable the caching of display data for the video memory of the processor. Enabling this item can greatly improve the display speed. Disable this item if your graphics display card does not support this feature.

- The Choice: Disabled or Enabled.

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, providing greater stability.

- The Choice: Disabled or Enabled.

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: Disabled or Enabled.

CPU & PCI Bus Control

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

CPU to PCI Write Buffer

When enabled, writes from the CPU to PCU bus are buffered, to compensate for the speed differences between the CPU and PCI bus. When disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

- The Choice: Disabled or Enabled.

PCI Master 0 WS Write

When enabled, writes to the PCI bus are executed with zero wait states.

- The Choice: Disabled or Enabled.

PCI Delay Transaction

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

- The Choice: Disabled or Enabled.

System BIOS Cacheable

This item allows the system to be cached in memory for faster execution. Leave these items at the default value for better performance.

- The choice: Disabled or Enabled.

VGA Share Memory Size

This item enables you to specify the system memory size to allocate to the video memory.

- The choice: Disabled or Enabled.

Init Display First

Use this item to define if your graphics adapter is installed in one of the PCI slots or select onboard if you have a graphics system integrated on the motherboard.

- The choice: PCI Slot or AGP.

 **Integrated Peripherals**

Phoenix - Award Workstation BIOS CMOS Setup Utility		
Integrated Peripherals		
▶ VIA OnChip IDE Device	[Press Enter]	Item Help
▶ VIA OnChip PCI Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	
Onboard Lan Device	[Enabled]	Menu Level ▶
Onboard Lan Boot ROM	[Disabled]	

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

VIA OnChip IDE Device

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

OnChip IDE Channel0/Channel1

The chipset contains a PCI IDE interface with support to two IDE channels. Select Enabled/Disabled to activate/deactivate the primary/secondary IDE interface.

➤ The Choice: Enabled or Disabled.

IDE Prefetch Mode

The onboard IDE drive interface support IDE prefetching for faster drive access. If you install a primary and/or secondary add-on IDE interface, set this field to Disabled if the interface does not support prefetching.

➤ The Choice: Enabled or Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields define a PIO mode for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. Select Auto to make the system automatically determine the best mode for each device.

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

Primary/Secondary Master/Slave UDMA

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

➤ The choice: Auto or Disabled.

IDE HDD Block Mode

Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support and improves the speed of access to IDE devices.

- The Choice: Enabled or Disabled.

VIA OnChip PCI Device

Press <Enter> to enter into the detailed options.

AC97 Audio

Enables and disables the onboard audio chip. Disable this item if you are going to install a PCI audio add-in card.

- The Choice: Auto or Disabled.

MC97 Modem

This item allows you to control the onboard MC97 Modem.

- The Choice: Auto or Disabled.

OnChip USB Controller

Do not disable this item if your system has a USB installed on the system board and you want to use it.

- The choice: Enabled or Disabled.

USB 2.0 Support

Select Enabled if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB peripherals.

- The choice: Enabled or Disabled.

USB Legacy Support

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

- The Choice: Enabled or Disabled.

USB Mouse Support

Enable this item if you plan to use a mouse connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.

- The Choice: Disabled or Enabled.

SuperIO Device

Press <Enter> to enter into the detailed options.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC). If you install add-on FDC or the system has no floppy drive, select Disabled.

- The choice: Disabled or Enabled.

Onboard Serial Port1

This option is used to assign the I/O address and address and interrupt re-quest (IRQ) for onboard serial port 1 (COM1).

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

Onboard Serial Port2

This option is used to assign the I/O address and interrupt request (IRQ) for onboard serial port 2 (COM2).

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

UART Mode Select

This field is available if the Onboard Serial Port 2 field is set to any option but Disabled. UART Mode Select enables you to select the infrared communication protocol-Normal (default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps.

- The choice: Normal, IrDA, ASKIR or SCR.

UR2 Duplex Mode

This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default).

- The choice: Full or Half.

Onboard Parallel Port

Allows you to determine an I/O address and interrupt request (IRQ) for the onboard parallel port.

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

Parallel Port Mode

Enables you to set the data transfer protocol for your parallel port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP + EPP.

SPP allows data output only. Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) are bi-directional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP and ECP aware peripherals.

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

ECP Mode Use DMA

When the onboard parallel port is set to ECP mode, the parallel port can use DMA 3 or DMA 1.

- The choice: 1 or 3.

Onboard LAN Device

Enables and disables the onboard LAN chip.

- The choice: Enabled or Disabled.

Onboard Lan Boot ROM

Use this item to enable and disable the booting from the onboard LAN or a net-work add-in card with a remote boot ROM installed.

- The choice: Enabled or Disabled.



Power Management Setup

The Power Management Setup allows you to configure your system to most effectively saving energy.

Phoenix - Award WorkstationBIOS CMOS Setup Utility		
Power Management Setup		
ACPI function	Enabled	Item Help
ACPI Suspend Type	[S3<STR>]	
HDD Power Down	[Disable]	Menu Level ▶
Suspend Mode	[Disable]	
Video Off Option	[Suspend -> Off]	
Video Off Method	[DPMS Support]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant-Off]	
Run UGABIOS if S3 Resume	[Auto]	
Power on After Power fail	[Off]	
▶ IRQ/Event Activity Detect	[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

ACPI Function

This item defines the ACPI (Advanced Configuration and Power Management) feature that makes hardware status information available to the operating system, enables a PC to turn its peripherals on or off for improving the power management, and allows a PC turned on or off by external devices, so that a mouse or keyboard can wake up it.

ACPI Suspend Type

This item allows you to select sleep state when suspend. In the default, S1(POS), the suspend mode is equivalent to a software power down.

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

HDD Power Down

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

- The choice: Disabled or 1 Min ~ 15 Min.

Suspend Mode

After the selected period of system inactivity, all devices except for the CPU shut off.

- The choice: Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, or 1 Hour.

Video Off Option

This option defines if the video is powered down when the system is put into suspend mode.

- The choice: Always On or Suspend -> Off.

Video Off Method

This determines the manner in which the monitor is blanked.

Blank Screen The item only writes blanks to the video buffer.

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.

DPMS Support Initial display power management signaling.

➤ The choice: Blank Screen, V/H SYNC + Blank, or DPMS Support.

MODEM Use IRQ

If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the mainboard Wake On Modem connector for this feature to work.

➤ The choice: 3, 4, 5, 7, 9, 10, 11, or NA.

Soft-Off by PWRBTN

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

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

Run VGABIOS if S3 Resume

This determines whether or not to enable the system to run the VGA BIOS when resuming from STR/S3.

➤ The choice: Auto, Yes or No.

Power on After PWR-Fail

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

➤ The choice: On, Off, Former-Sts.

IRQ/Event Activity Detect

Press <Enter> to enter into the detailed options.

PS2KB Wakeup Select for S3

Enables you to choose either to press a keyboard hot key to awaken the system from power saving mode.

- The choice: Hot key or Password.

PS2KB Wakeup Hot key

This option allows you to set hot key combination to turn on the system by keyboard.

- The choice: Disabled, Ctrl + F1, Ctrl + F2, Ctrl + F3, Ctrl + F4, Ctrl + F5, Ctrl + F6, Ctrl + F7, Ctrl + F8, Ctrl + F9, Ctrl + F10, Ctrl + F11, Ctrl + F12, Power, Wake or Any Key.

Power Button Lock for S3

When this item is enabled, you can set the password to lock the system.

- The choice: Enabled or Disabled.

PS2MS Wakeup from S3

This option enables you to allow mouse activity to awaken the system from power saving mode.

- The choice: Enabled or Disabled.

USB Resume from S3

When set to "Enabled," the system power will resume the system from a power saving mode if there is any USB port activity.

- The choice: Enabled or Disabled.

VGA

When set to On, the system power will resume the system from a power saving mode if there is any VGA activity.

- The choice: OFF or ON.

LPT & COM

When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the serial ports, or the parallel port.

- The choice: NONE, LPT, COM, or LPT/COM.

HDD & FDD

When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the hard disk drive or the floppy diskette drive.

- The choice: OFF or ON.

PCI Master

When set to Off, any PCI device set as the Master will not power on the system.

- The choice: OFF or ON.

Resume by PCI PME

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

- The choice: Disabled or Enabled.

Modem Ring Resume

Enable Modem Ring-in to resume the system.

- The choice: Disabled or Enabled.

RTC Alarm Resume

When set to Enabled, the following two fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

- The choice: Disabled or Enabled.

* Date (of Month)

This item selects the alarm date.

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

* Resume Time (hh:mm:ss)

This item selects the alarm time.

- [hh] ➤ Key in a DEC number: Min = 0, Max = 23.

- [mm] ➤ Key in a DEC number: Min = 0, Max = 59.

- [ss] ➤ Key in a DEC number: Min = 0, Max = 59.

IRQs Activity Monitoring

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

Primary INTR

Select ON/OFF to enable/disable a specified IRQ.

- The choice: OFF or ON.

A cluster of IRQs is listed as follows. As one certain IRQ is enabled, any activity at it will awaken the system from a power-saving mode.

IRQ3 (COM 2)

IRQ4 (COM 1)

IRQ5 (LPT 2)
IRQ6 (Floppy Disk)
IRQ7 (LPT 1)
IRQ8 (RTC Alarm)
IRQ9 (IRQ2 Redir)
IRQ10 (Reserved)
IRQ11 (Reserved)
IRQ12 (PS/2 Mouse)
IRQ13 (Coprocessor)
IRQ14 (Hard Disk)
IRQ15 (Reserved)
➤ The choice: Disabled or Enabled.



PnP/PCI Configurations

This category configures how PnP and PCI operate in your system. Correctly setting up the IRQ and DMA (both PnP and PCI use) assignments will make your system work stably. It is strongly recommended that only technical users make changes to the default settings.

Phoenix - Award Workstation BIOS CMOS Setup Utility	
PnP/PCI Configurations	
Reset Configuration Data	[Disabled]
Resources Controlled By	[Manual]
▶ IRQ Resources	[Press Enter]
PCI/UGA Palette Snoop	[Disabled]
Assign IRQ For USB	[Enabled]
	Item Help
	Menu Level ▶
	Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Reset Configuration Data

When Enabled, any PnP configuration data stored in the BIOS will be cleared from memory, with new data created.

- The choice: Enabled or Disabled.

Resources Controlled By

Set to Auto(ESCD) makes the system dynamically allocate resources to PnP devices as required; to Manual, the following item available.

- The choice: Auto(ESCD) or Manual.

IRQ Resources

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

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

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

- The choice: PCI Device or Reserved.

PCI/VGA Palette Snoop

The item is designed to solve problems caused by some non-standard VGA cards. A built-in VGA system this mainboard contains does not need this function, so please leave this item disabled.

➤ The choice: Enabled or Disabled.

Assign IRQ For USB

The item aims at assigning the IRQ line to the USB on your system. When Enabled, activity from the USB will awaken the system.

➤ The choice: Disabled or Enabled.

 **PC Health Status**

Phoenix - AwardBIOS CMOS Setup Utility	
PC Health Status	
Shutdown Temperature [Disabled]	Item Help
CPU Vcoure	Menu Level ▶
+3.30	
+5.00	
+12V	
Voltage Battery	
Current System Temp	
Current CPU Temp	
CPU FAN Speed	
CAS FAN Speed	

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

Shutdown Temperature

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

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

The following items provide you with information about the system's current operating status. You cannot make changes to one of them, including:

CPU Vcoure

+ 3.30V

+ 5.0V

+ 12V

Voltage Battery

Current System Temp

Current CPU Temp

CPU FAN Speed

CASE FAN Speed

Frequency/Voltage Control

Phoenix - Award Workstation BIOS CMOS Setup Utility		
Frequency/Voltage Control		
CPU Clock Ratio	[8 X]	Item Help
CPU Voltage Adjust	[Normal]	
DIMM Voltage Adjust	[2.50]	
Auto Detect PCI/DIMM Clk	[Enabled]	Menu Level ▶
Spread Spectrum	[Enabled]	
CPU Clock	[100MHz]	

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

CPU Clock Ratio

Use the CPU Host/SDRAM/PCI Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz). Then use CPU Clock Ratio Jumpless to set a multiple. The multiple times the frontside bus must equal the core speed of the installed processor e.g., 3.5 (multiple) x 100 MHz (frontside bus) = 350 MHz (installed processor clock speed).

Min: 8 Max: 50

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

CPU Voltage Adjust

This item allows you to adjust the CPU voltage.

- The choice: Normal, +6.0%, +4.0% or +2.0%.

DIMM Voltage Adjust

This item allows you to adjust the DIMM voltage, and its range is adjustable from 2.50 to 2.90volts.

- The choice: 2.50, 2.55, 2.60 or 2.65.

Auto Detect PCI/DIMM Clk

When this item is enabled, BIOS will disable the clock signal of free DIMM and PCI slots.

- The choice: Enabled or Disabled.

Spread Spectrum

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

- The choice: Enabled or Disabled.

CPU Clock

This item allows the user to adjust CPU Host Clock from 100MHz to 199MHz by 1MHz step.

Min = BIOS auto detection CPU Host Clock.

Max = BIOS auto detection CPU Host Clock.

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



Load Fail-Safe Defaults

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

Load Fail-Safe Defaults (Y/N) ? N

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



Load Optimized Defaults

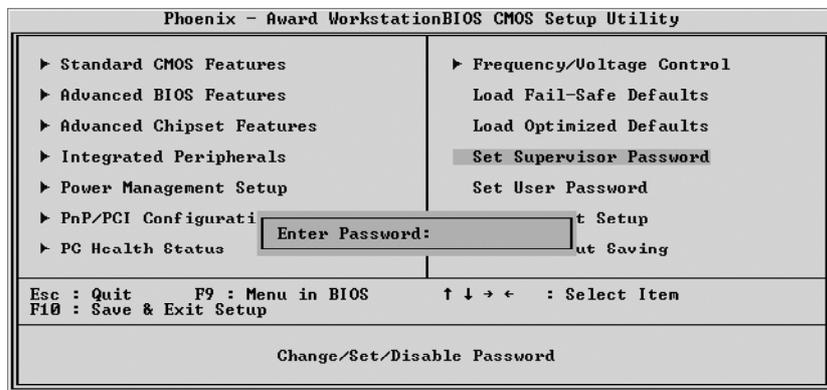
When you press <Enter> on this item, you will get a confirmation dialog box:

Load Optimized Defaults (Y/N) ? N

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



Set Supervisor/User Password



Steps to set supervisor/user password are described as follows:

New Password Setting:

1. While pressing <Enter> to set a password, a dialog box appears to ask you enter a password.
2. Key in a new password that can not exceed eight characters.
3. System will request you to confirm the new password again.
4. When completed, new code takes effect.

No Password Setting:

If you want to disable the password, just press <Enter> as a password input is requested.

If You Forget Password:

If you forget the password, the only way to access the system is to clear the CMOS memory. Please refer to page 28 on clear CMOS setting.

 **Save & Exit Setup**

Pressing <Enter> on this item asks for confirmation:

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

Pressing 'Y' stores the selections made in the menus of CMOS. Next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values, the system is restarted again.

 **Exit Without Saving**

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N) ? N

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