

**MS51/MS51N**

**Pentium 4 Processor**

**Based DDR MAIN BOARD**

*User's Manual*

# Shuttle® Spacewalker™ MS51/MS51N

## Pentium 4 , 478-pin processor based DDR Mainboard

### Manual Version 1.0

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# WHAT'S IN THE MANUAL

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## About This Manual

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

# 1 INTRODUCTION

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## 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 MS51/MS51N mainboard.

### Experienced DIY User

Congratulate on your purchase of the Shuttle MS51/MS51N mainboard. You will find that installing your new Shuttle MS51/MS51N mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated MS51/MS51N 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 MS51/MS51N to construct your system. Shuttle MS51/MS51N incorporates all the state-of-the-art technology of the SiS 650 chipset from SiS. It integrates the most advanced functions you can find to date in a compact Micro ATX board.

This manual adopted in MS51 and MS51N mainboards at the same time. The difference between MS51 and MS51N is that MS51N equips with onboard LAN Controller. In the manual, if there are some standards, characters, equipment or software only appeared or adopted by MS51N; it will be mentioned **(MS51N only)**

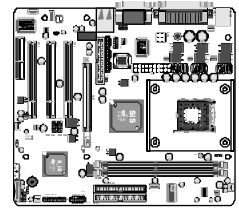


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## 1.2 Item Checklist:

Check all items with you MS51/MS51N mainboard to make sure nothing is missing. The complete package should include:

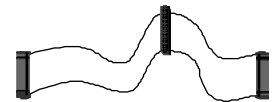
- ★ One piece of Shuttle MS51/MS51N Mainboard



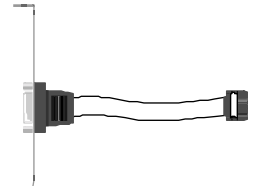
- ★ One piece of ATA100/66/33 Ribbon Cable



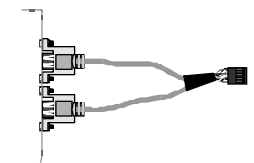
- ★ One piece of Floppy Ribbon Cable



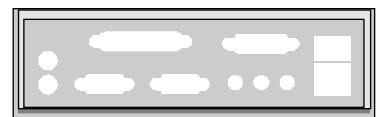
- ★ One piece of 9-pin Ribbon Cable



- ★ One piece of twin ports USB Cable (**optional**)



- ★ I/O Shielding



- ★ MS51/MS51N User's Manual



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

- MS51/MS51N user's manual saved in PDF format
- SiS Chipset driver
- SiS VGA driver
- AC'97 Audio driver
- LAN driver (**for MS51N**)
- Award Flashing Utility



# 2 FEATURES

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MS51/MS51N 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 MHz FSB.

### \* Chipset

Features SiS 650 N.B. and SiS 961 S.B..

#### **Onboard Lan (MS51N only)**

Realtek 8100, support 10Mb/s and 100Mb/s operation.

### \* Jumperless CPU Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100MHz to 133MHz in the Frequency/Voltage Control of BIOS setup program.)

### \* AC'97 Link for Audio and Telephony CODEC

AC'97 2.2 compliant.

Spread independent PCI functions for Audio and Modem.

### \* Versatile Memory Support

Two **184-pin DIMM** slots to support up to 2GB of PC1600, PC2100, and PC2700 compliant **DDR SDRAM** module.

### \* PCI Expansion Slots

Provides three 32-bit PCI slots.

### \* AGP Expansion Slot

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

### \* CNR Expansion Slot

Provides one Communication and Network Riser (CNR) slot.

### \* 6 USB Interface Onboard

➤ 2 × USB connectors on back-panel and two sets of dual USB ports header on mid-board.

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## \* 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 × DB15 VGA connector.
- 1 × DB9 Serial connector 16550 UART compatible.
- 1 × Infrared communication port.  
(Serial port COM2 can also be redirected to an external IrDA Adapter for wireless connection.)
- 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.
- 1 × MIDI/GAME port.
- 1 × RJ45 LAN connector. (MS51N only)

## \* PCI Bus Master IDE Controller Onboard

Two Ultra DMA **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 **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.

## \* ATX Power Supply Connector

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

The Pentium 4 ATX power include other 4-pin +12V ATX power connectors.

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## \* **Advanced Configuration and Power Interface**

Features four power saving modes: S1 (Snoop), S3 (Suspend to RAM), 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 2Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

## \* **ATX Form Factor**

System board conforms to Micro ATX specification.

Board dimension: 244mm × 220mm.

## \* **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.
- **Modem Ring Power-On** - The system can be powered on automatically by the activation of modem ringing.
- **CPU Host/DRAM/PCI Clock Setting** - This item allows users to adjust CPU Host Clock, DRAM, and PCI 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 (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.

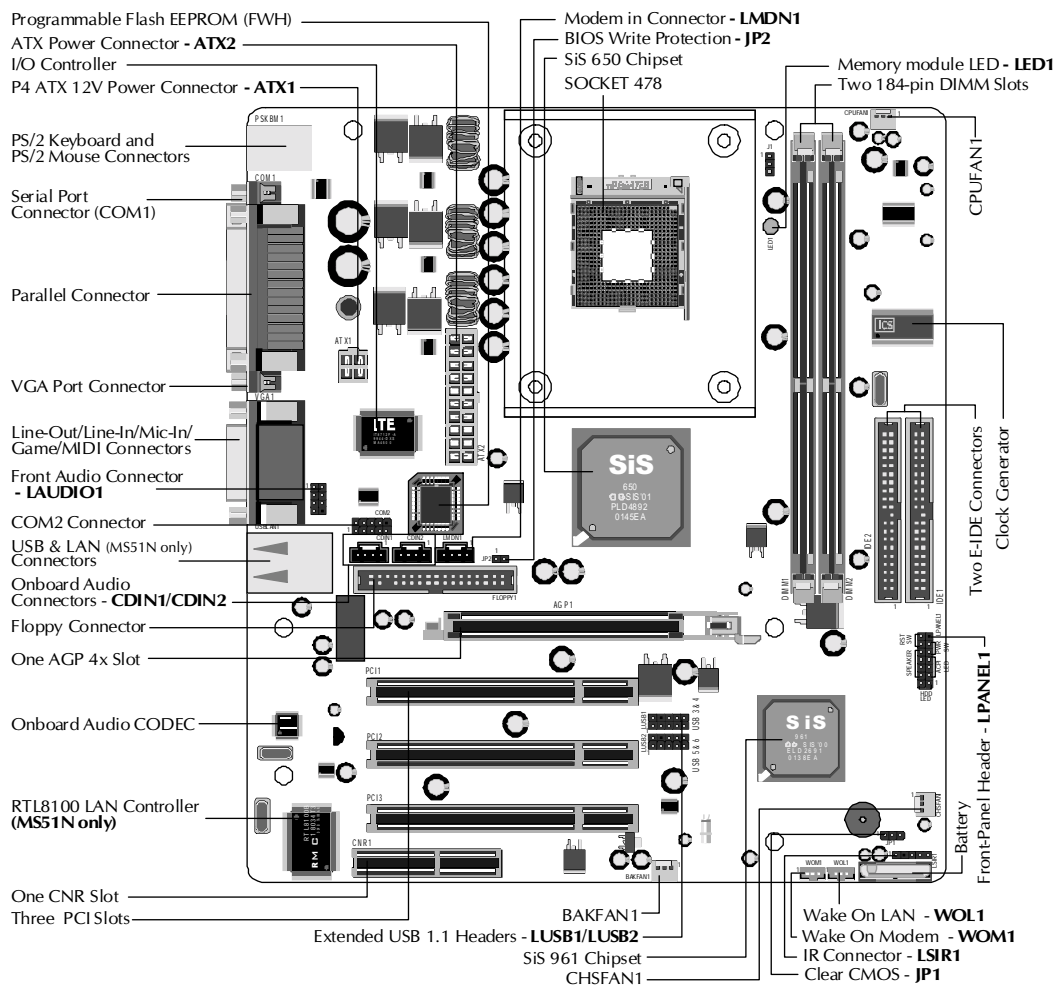
# 3 HARDWARE INSTALLATION

**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 MS51/MS51N



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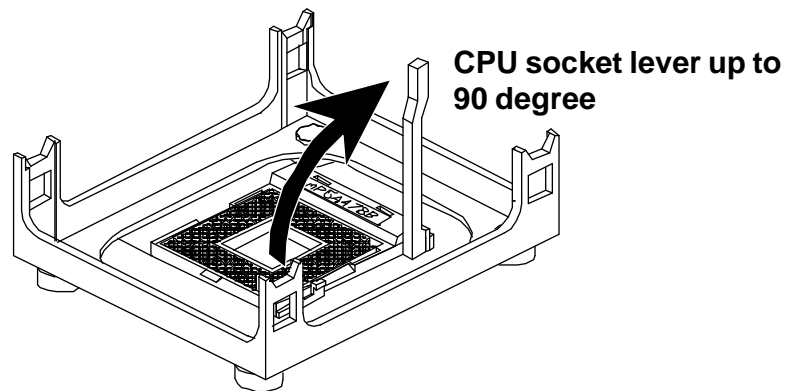
## Step 1

### CPU Installation:

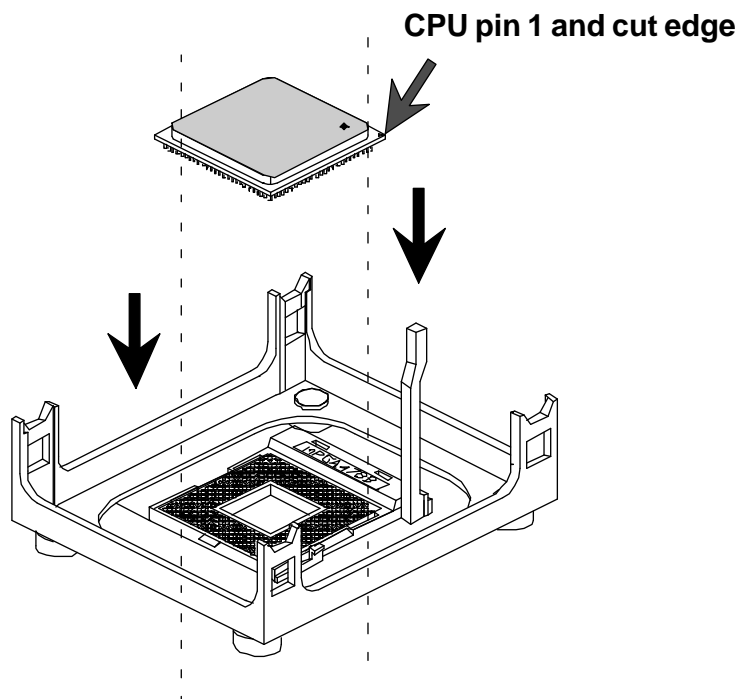
This mainboard supports Intel® Pentium® 4, Socket 478 series CPU. Please follow the step as below to finish CPU installation.

Be careful of CPU orientation when you plug it into CPU socket.

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

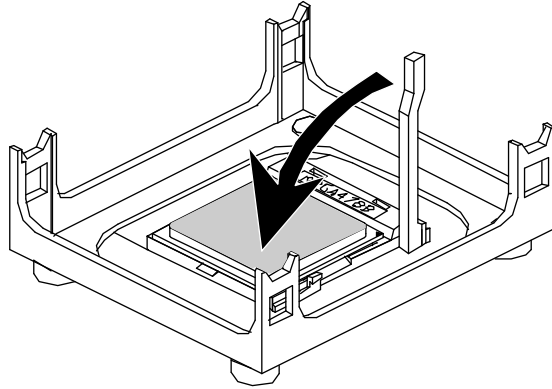


2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.



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



**Note:** If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU.

---

## Step 2.

### Set Jumpers

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

1. Clear CMOS
2. BIOS Write Protection

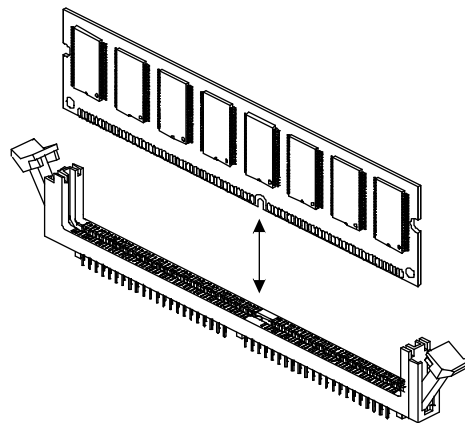
For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their 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 install memory, insert DDR SDRAM memory module(s) in DIMM slot(s). Note that DDR SDRAM modules are directional and will not go in the DIMM slots unless properly oriented. After the module is fully inserted into the DIMM slots, lift the clips of both sides of the DIMM slot to lock the module in place.

#### DDR SDRAM





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## **Step 4**

### **Install Internal Peripherals in System Case**

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

To install IDE & FDD drives, follow this procedure:

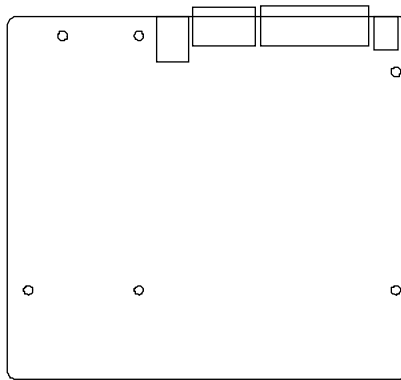
1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM, have to set jumpers to Master or Slave mode depending on whether you install more than one device of each kind.)
2. Connect IDE cable and FDD cable on the back-panel of the internal peripheral devices to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.
3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.
4. Connect serial port cable to on board COM2 header. And install the other side of CMOS cable to back-panel with a screw.

---

## Step 5

### Mount the Mainboard on the Computer Chassis

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



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

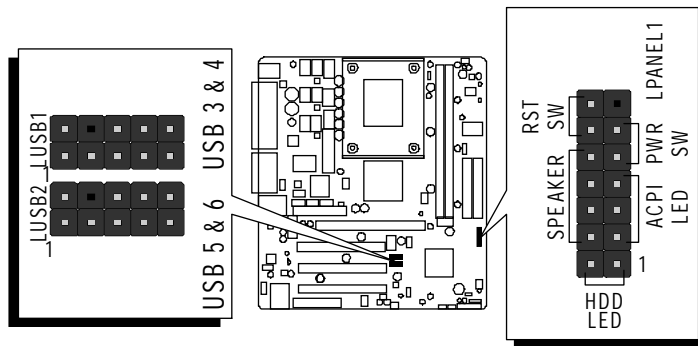
**Note:** In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and then fix the mainboard. If there aren't enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

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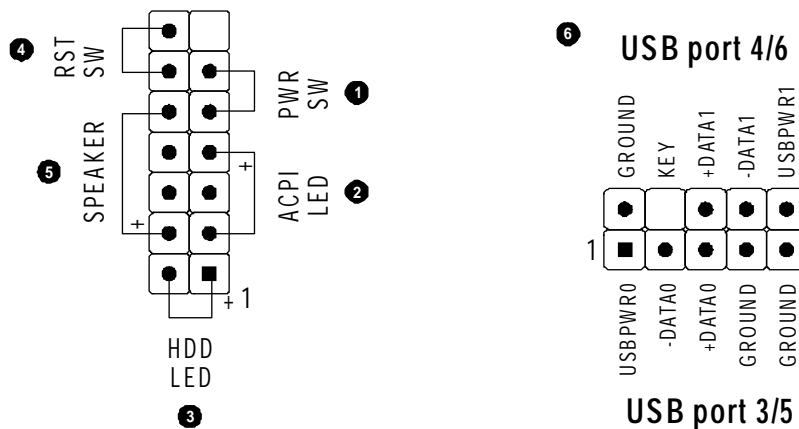
## Step 6

### Connect Front Panel Switches/LEDs/Speaker/USB

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDD LED, Power LED, Reset Switch, PC Speaker, or USB devices etc.) These cables serve to connect the front-panel switches, LEDs, and USB connectors to the mainboard's front-panel connectors group ( LUSB1/LUSB2 and LPANEL1), as shown below.



1. ATX Soft Power On/Off (PWR SW)
2. Green-LED and Power-LED (ACP LED)
3. HDD-LED (HDD LED)
4. Hardware Reset Switch Button (RST SW)
5. PC Speaker (SPEAKER)
6. Extended USB Headers

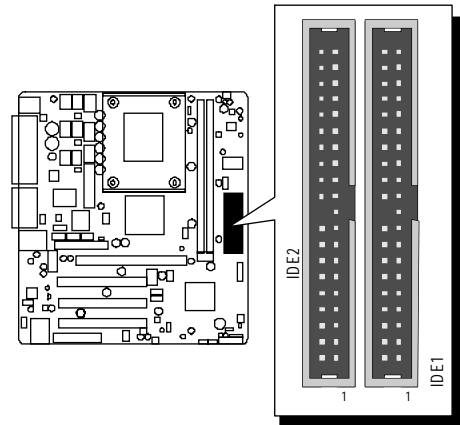


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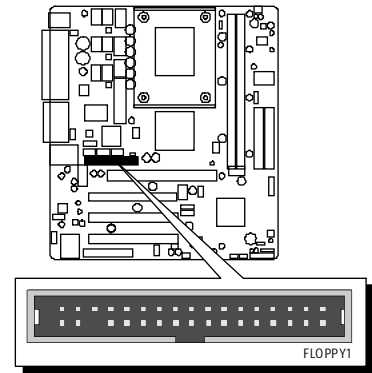
## Step 7

### Connect IDE and Floppy Disk Drives

1. IDE cable connector



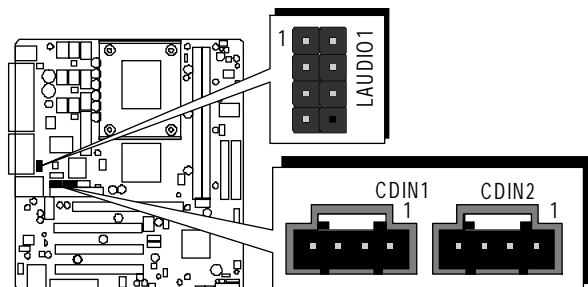
2. Floppy cable connector



## Step 8

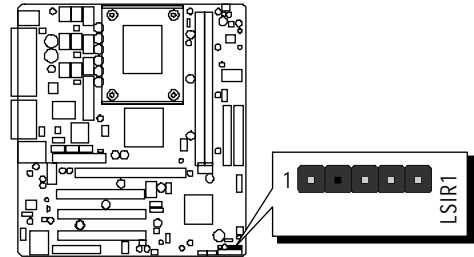
### Connect Other Internal Peripherals

1. CD-IN and Front Audio connectors

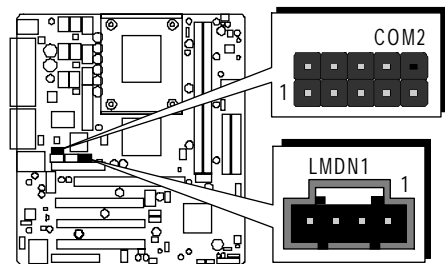


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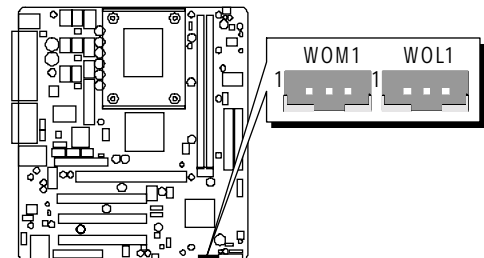
2. IR header



3. COM2 and Modem-IN connectors



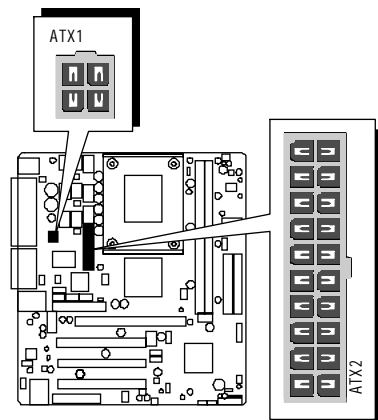
4. Wake On LAN and Wake On Modem headers



**Step 9**

Connect the Power Supply

1. System power connector

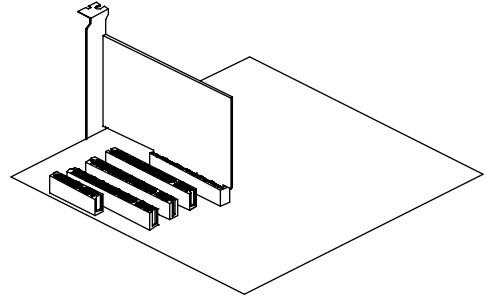


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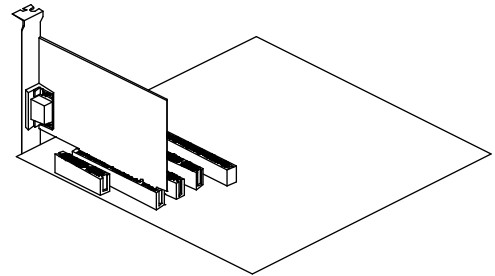
## Step 10

### Install Add-on Cards in Expansion Slots

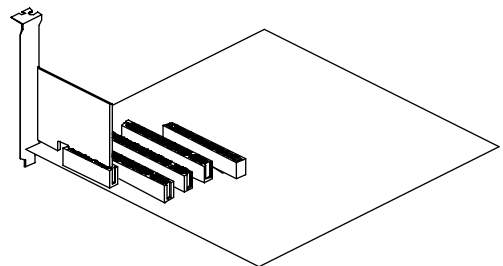
#### 1. Accelerated Graphics Port (AGP) Card



#### 2. PCI Card



#### 3. Communications and Network Riser (CNR) Card

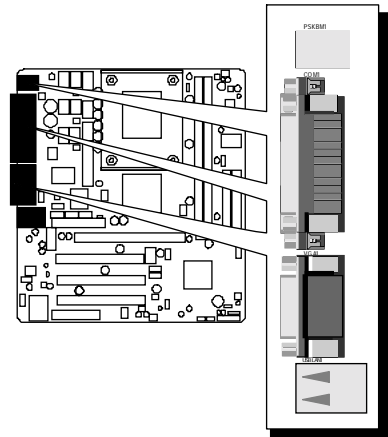


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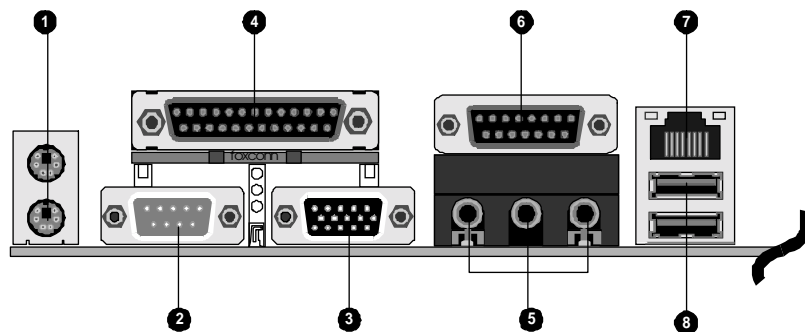
## Step 11

### 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
2. COM1Port
3. VGA Port
4. Parallel Port
5. Audio Line-Out /Line-In / Mic-In Ports
6. MIDI/GAME Port
7. LAN Port (MS51N only)
8. USB port 1/USB port 2



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## 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/XP/NT operating systems only. Make sure your operating system is already installed before running the drivers installation CD-ROM programs.

1. Insert the MS51/MS51N bundled CD-ROM into your CD-ROM drive. The autorun program will display the drivers main installation window on screen.
2. Choose "Install SIS Chipset Driver" and complete it.
3. Choose "Install Audio Device Driver" and complete it.
4. Choose "Install VGA Device Driver" and complete it.
5. Choose "Install LAN Driver" and complete it. (MS51N only)
6. Exit from the autorun drivers 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.

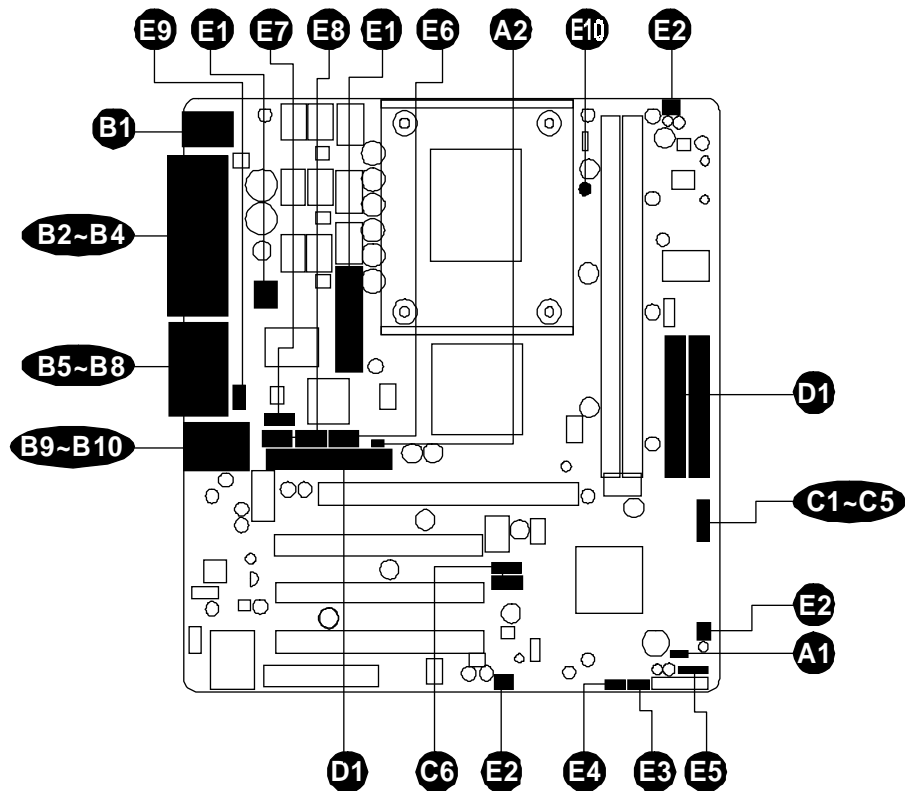
### **Caution!**

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  |
| DIMM1/2   | : Two 184-pin DIMM Slots for 64, 128, 256, 512 MB, and 1GB of 2.5V DDR SDRAM<br>(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 (Communications and Network Riser) Slot  |

---

### ***Jumpers***

- A1** JP1 : Clear CMOS setting
- A2** JP2 : BIOS Write Protection setting

### ***Back Panel Connectors***

- B1** KB : PS/2 keyboard port
- B1** MS : PS/2 mouse port
- B2** COM1 : Serial port 1 (DB9 male)
- B3** VGA : VGA port (DB15 female)
- B4** PRINTER : Parallel port (DB25 female)
- B5** LINE\_OUT : Line-Out port
- B6** LINE\_IN : Line-In port
- B7** MIC\_IN : Mic-In port
- B8** MIDI/GAME : MIDI/GAME port
- B9** LAN : RJ45 LAN port (MS51N only)
- B10** USB port 1/2 : 2 USB (Universal Serial Bus) ports

### ***Front Panel Connectors***

- C1** PWR SW : ATX power on/off momentary type switch
- C2** ACPI LED : Green LED (ON when system stays in power saving mode)/System power LED
- C3** HDD LED : IDE drive active LED
- C4** RST SW : Hardware reset switch
- C5** SPEAKER : Internal speaker in housing
- C6** LUSB1/2 : Extended USB connector headers (USB port 3 ~ USB port 6)

### ***Internal Peripherals Connectors***

- D1** FLOPPY1 : Floppy disk drive interface
- D1** IDE1 : IDE primary interface (Dual-channel)
- D1** IDE2 : IDE secondary interface (Dual-channel)

---

### ***Other Connectors***


- E1** ATX1/ATX2 : ATX power connector
- E2** CPUFAN1 : CPU fan connector
- E2** CHSFAN1 : Case fan connector 1
- E2** BAKFAN1 : Case fan connector 2
- E3** WOL1 : Wake On LAN wakeup connector
- E4** WOM1 : Wake On Modem wakeup connector
- E5** LSIR1 : IR header
- E6** LMDN1 : Modem-In connector
- E7** COM2 : Onboard serial port header COM2
- E8** CDIN1/CDIN2 : Primary/Secondary CD\_IN connector
- E9** LAUDIO1 : Front-Panel Audio connector
- E10** LED1 : Memory module LED

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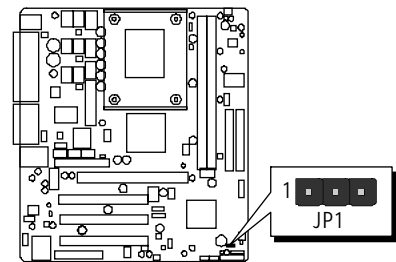
## 👉 Jumpers

### 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.

1  
 Pin 1-2 (Clear CMOS)

1  
 Pin 2-3 (Default)




- Step 1.** Turn off the system power (PC-> Off).
- Step 2.** Remove ATX Power cable from ATX Power connector.
- Step 3.** Remove jumper cap from JP1 pins 2-3.
- Step 4.** Place the jumper cap on JP1 pin 1-2 for a few seconds.
- Step 5.** Return the jumper cap to pin 2-3.
- Step 6.** Plug ATX Power cable into ATX Power connector.
- Step 7.** Turn on the system power (PC-> On).

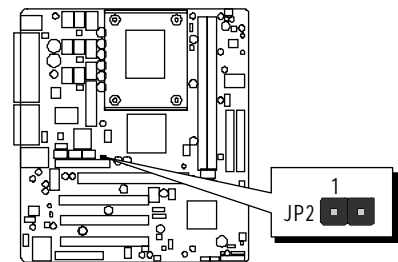
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## **A2 BIOS Write Protection (JP2)**

JP2 is used to protect BIOS from abnormal writing.

You may choose to place jumper cap on JP2 for BIOS write protection; however, please remove jumper cap on JP2 if you need to reflash BIOS.

1  Open  
To enable reflashing  
BIOS



1  Close  
BIOS write protection

### **Reflash the BIOS, follow these steps:**

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

**Step 2.** Make sure of remove jumper cap on JP2.

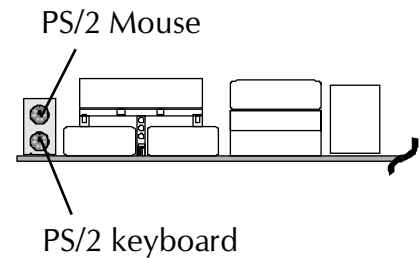
**Step 3.** Insert a bootable system floppy disk with MS51/MS51N BIOS and flash utility and then turn on your system to execute flash utility.

---

## ☞ **Back-Panel Connectors**

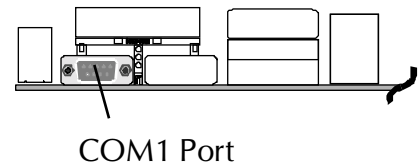
### **B1 PS/2 Keyboard & PS/2 Mouse Connectors**

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of 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 keyboard and mouse jacks into their corresponding connectors.



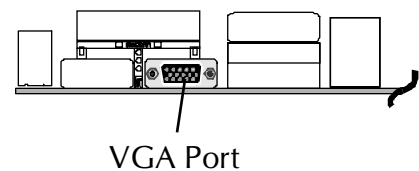
### **B2 COM1 Port Connector**

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



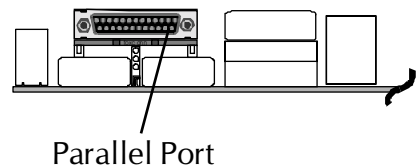
### **B3 VGA Connector**

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



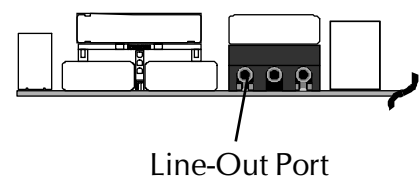
### **B4 Parallel Port Connector**

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 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

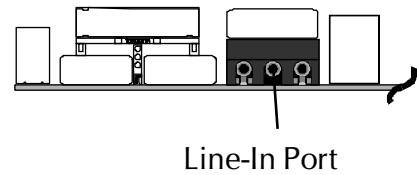




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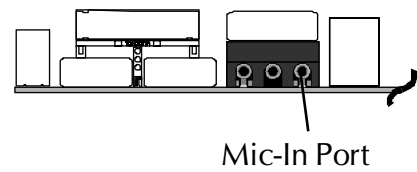
**B6 Line-In Port Connector**

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, a source to be mixed with the output, or both.



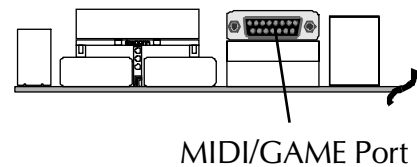
**B7 Mic-In Port Connector**

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



**B8 MIDI/GAME Port Connector**

The MIDI/GAME port is a 15-pin female connector. This port can be connected to any IBM PC compatible game with a 15-pin D-sub connector.



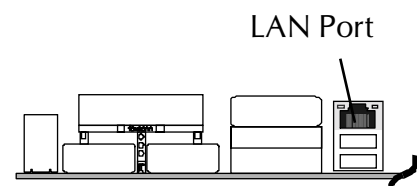
**MIDI Instrument Connection**

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

**B9 LAN Port Connectors (MS51N only)**

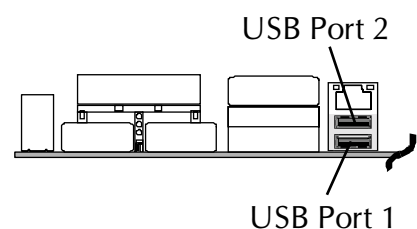
This mainboard can accommodate one device on LAN.

Attach a 10/100 baseT cable to the RJ45 at the back-panel of your computer.



**B10 USB port 1/USB port 2 Connectors**

This mainboard offers 2 USB ports on back panel. Plug each USB device jack into an available USB port 1/USB port 2 connector.

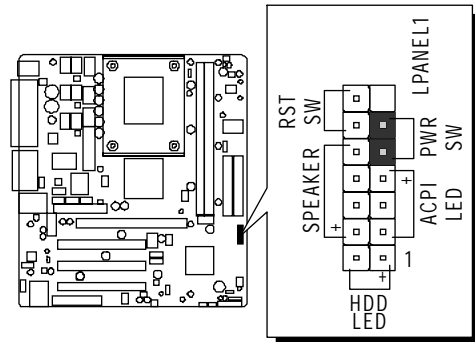


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☞ **Front-Panel Connectors**

**① ATX Power On/Off Switch Connector (PWR SW)**

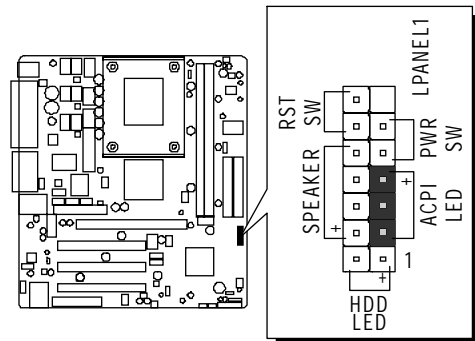
The Power On/Off Switch is a momentary type switch used for turning on or off the system ATX power supply. Attach the connector cable from the Power Switch to the 2-pin (PWR SW) header on the mainboard.



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

**② ACPI LED Connector (ACPI LED)**

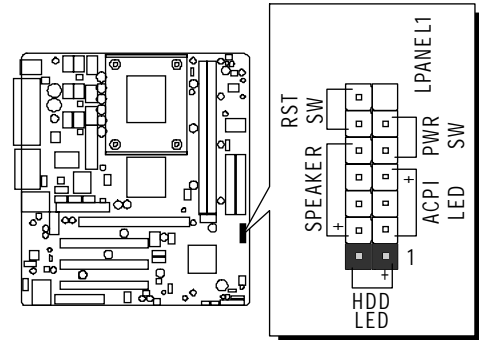
This header is dual color LED function.  
Dual color LED function is defined by either Power LED or Green LED, the header can be in these states.  
The Green LED indicates that the system is currently in one of the power saving mode (Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off, power LED on.  
This Power LED will go off during power saving mode.  
Attach a 3-pin Green LED/Power LED cable to (ACPI LED) header.



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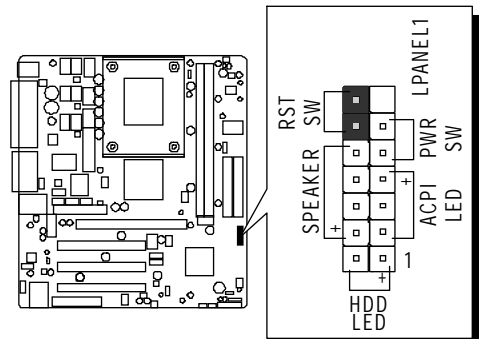
### ③ HDD LED Connector (HDD LED)

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



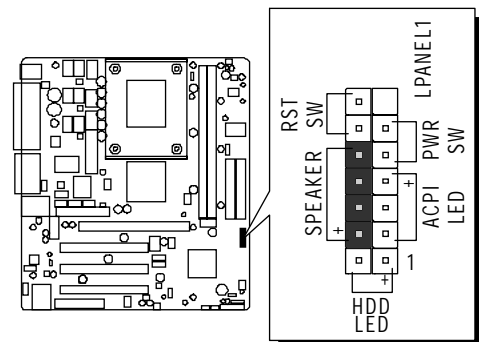
### ④ Hardware Reset Connector (RST SW)

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



### ⑤ Speaker Connector (SPEAKER)

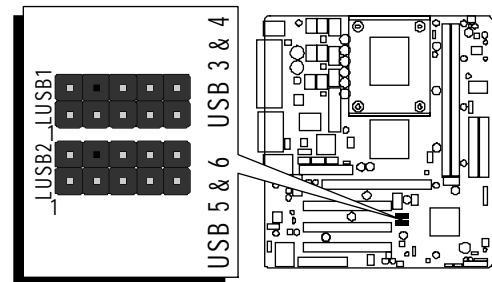
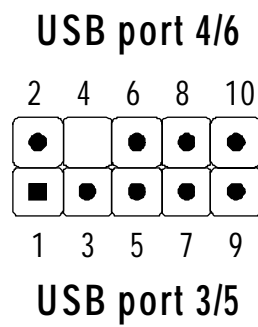
Attach the PC speaker cable from the case to the 4-pin speaker connector (SPEAKER).



---

## ③ Extended USB Headers (LUSB1/LUSB2)

The headers are used to connect the cable attached to USB connectors which are mounted on front panel or back panel. But the USB cable is optional at the time of purchase.



Pins Assignment:

1 = USBPWR0

3 = -DATA0

5 = + DATA0

7 = GROUND

9 = GROUND

2 = GROUND

4 = KEY

6 = + DATA1

8 = -DATA1

10 = USBPWR1

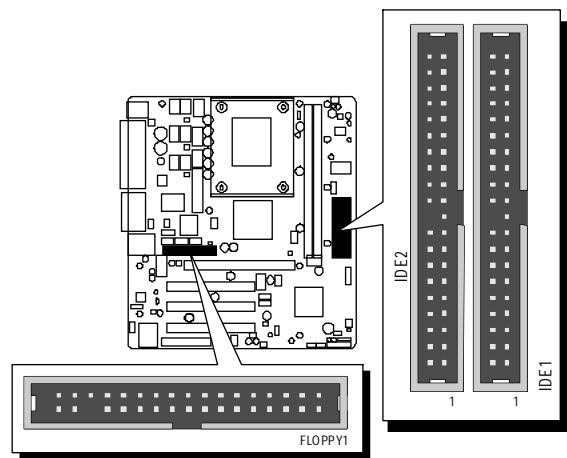
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☞ **Internal Peripherals Connectors**

**01 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 (FLOPPY1) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA **100/66/33** ribbon cable to connect to IDE 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 FLOPPY1 connector on the mainboard.

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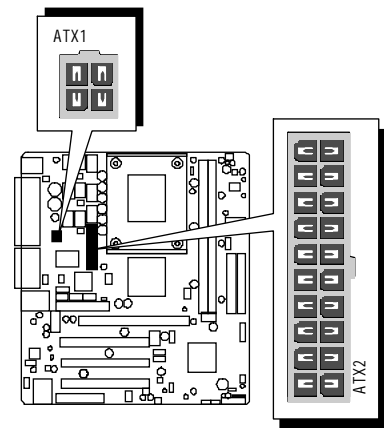
☞ **Other Connectors**

**ⓔ ATX Power Supply Connectors (ATX1 and ATX2)**

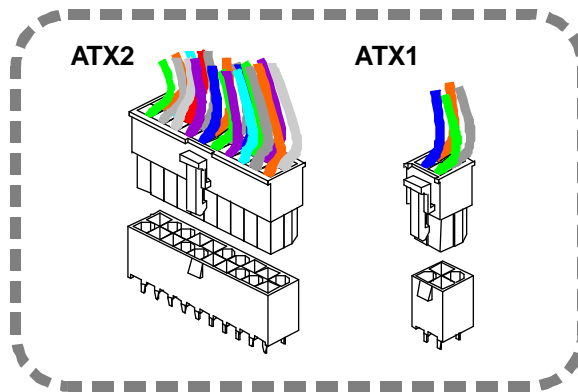
This motherboard uses 20-pin (ATX2) Pentium 4 standard ATX power header, and one (ATX1 with 2X2-pin) + 12V PC ATX power supply header.

Please make sure you plug in the right direction.

You can choice ATX1 power supply header to support CPU power.



**P4 ATX Power supply headers**



**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.

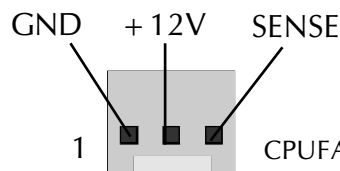
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## E2 CPU, Case Fan connectors - CPUFAN1/CHSFAN1/BAKFAN1

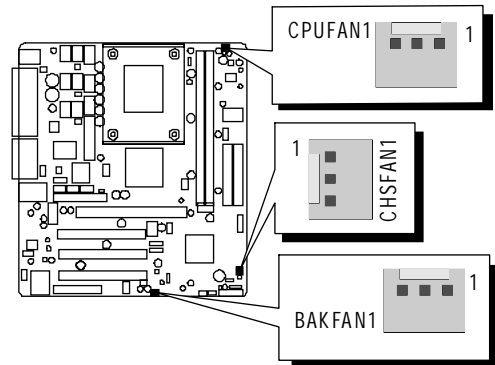
The mainboard provides three onboard 12V cooling fan power connectors to support CPU (CPUFAN1), Case (CHSFAN1/BAKFAN1) cooling fans.

### 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.



CPUFAN1/CHSFAN1/BAKFAN1 with rotate sense.

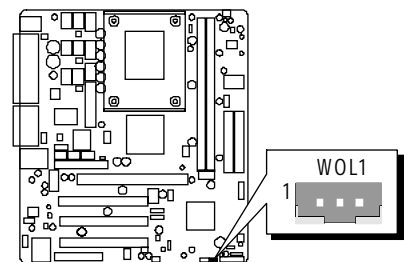
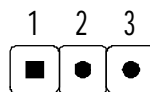


## E3 Wake-On-LAN Connector (WOL1)

Attach a 3-pin connector through the LAN card which supports the Wake-On-LAN (WOL1) function. This function lets users wake up the connected system through the LAN card.

Pins Assignment:

1 = 5VSB    2 = GND  
3 = SENSE

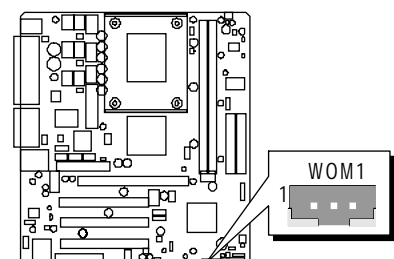
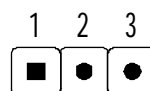


## E4 Wake-On-Modem Connector (WOM1)

Attach a 3-pin connector through the Modem card which supports the Wake-On-Modem (WOM1) function. This function lets users wake up the connected system through the Modem card.

Pins Assignment:

1 = 5VSB    2 = GND  
3 = SENSE



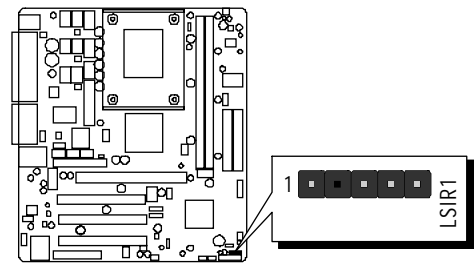
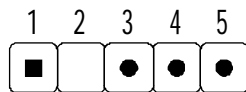
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## E5 IR Header (LSIR1)

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

Pins Assignment:

- 1 = VCC
- 2 = KEY
- 3 = IRRX
- 4 = GND
- 5 = IRTX



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

**Step 1.** Attach the 5-pin infrared device cable to LSIR1.  
(Refer to the above diagram for IR pin assignment.)

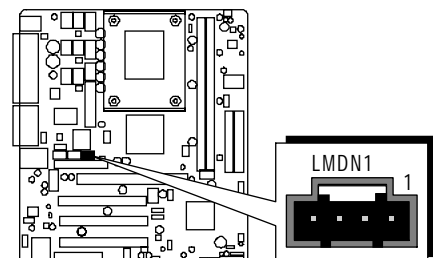
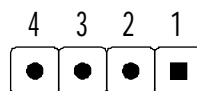
**Step 2.** This mainboard supports Normal, IrDA, ASKIR, or SCR transfer modes.

## E6 Modem\_In Header (LMDN1)

Port LMDN1 can be used to connect a modem audio line to MS51/MS51N mainboard. Typically, you would use this connector when running the voice mail software on your system for audio input and output.

Pins Assignment:

- 1 = MONO\_OUT
- 2 = GROUND
- 3 = GROUND
- 4 = PHONE\_IN





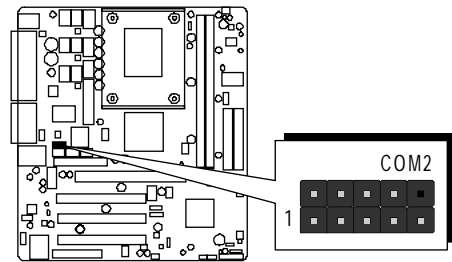
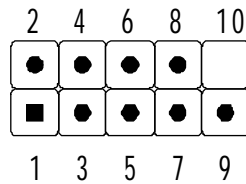
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## **E7** COM2 Connector (COM2)

This mainboard comes with one 10-pin ribbon cable for COM2.

Pins Assignment:

- 1 = DCD
- 2 = RxD
- 3 = TxD
- 4 = DTR
- 5 = GND
- 6 = DSR
- 7 = RTS
- 8 = CTS
- 9 = RI
- 10 = KEY

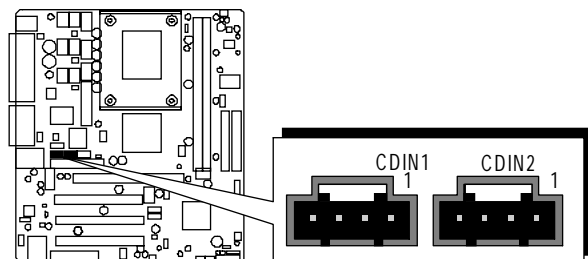
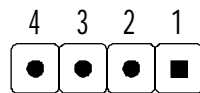


## **E8** Audio CD\_IN Connector (CDIN1/CDIN2)

Use the audio cable provided with the CD-ROM/DVD drive to connect to the mainboard CD-in connector CDIN1 or CDIN2.

Pin Assignments:

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



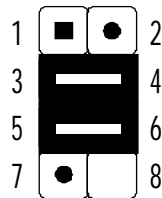
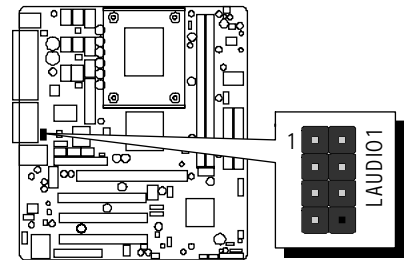
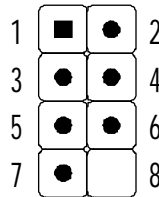
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## **E9** Front-Panel Audio Header (LAUDIO1)

This connector is used to attach to Audio equipment embedded into or attached to the case.

Pins Assignment:

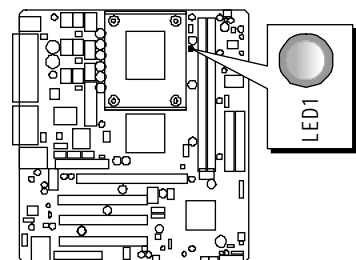
1 = MIC	2 = AGND
3 = FLOR	4 = LNR
5 = FL0L	6 = LNL
7 = AGND	8 = KEY



Two mini jumpers must be set on pin 3-4 and pin 5-6, when this header is not used.

## **E10** Memory module LED (LED1)

The red indicator LED1 turns on if your system is still powered, at which time memory modules cannot be installed or uninstalled.



---

### 3.3 System Memory Configuration

The MS51/MS51N mainboard has two 184-pin DIMM slots that allow you to install from 64MB up to 2GB of system memory.

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

#### Install Memory:

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

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

**Note:** *Maximum installed memory is 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.

#### Upgrade Memory:

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

# 4 SOFTWARE UTILITY

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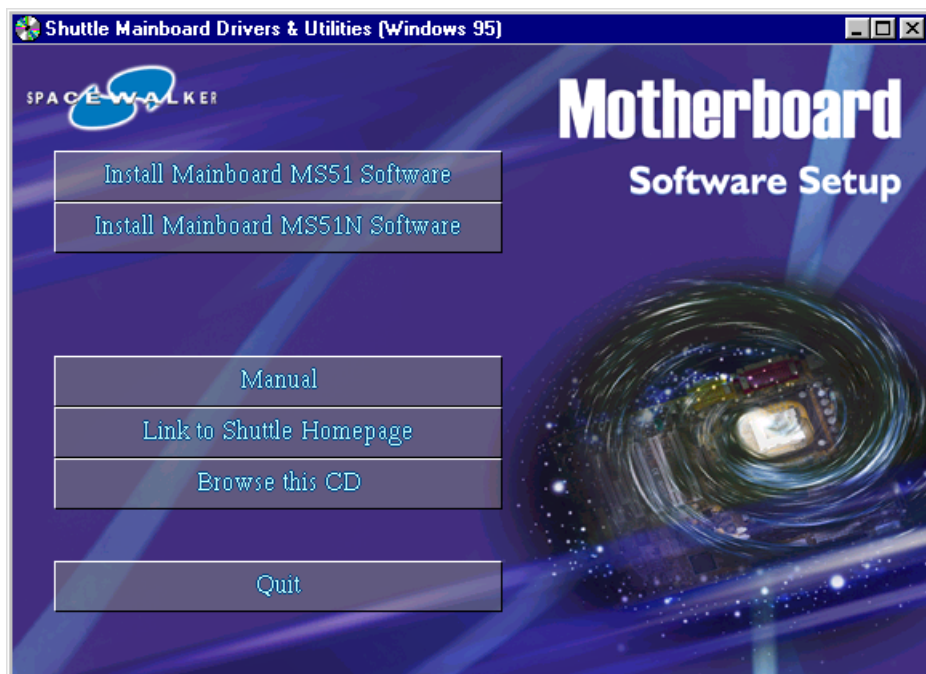
## 4.1 Mainboard CD Overview

**Note:** The CD contents attached in MS51/MS51N 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 MS51 Software** - Installing SIS chipset, Audio, VGA drivers.
  - ☞ **Install Mainboard MS51N Software** - Installing SIS chipset, Audio, VGA , and LAN drivers.
  - ☞ **Manual** - MS51/MS51N Series mainboard user's manual in PDF format.
  - ☞ **Link to Shuttle Homepage** - Link to shuttle website homepage.
  - ☞ **Browse this CD** - Allows you to see contents of this CD.
  - ☞ **Quit** - Close this CD.
- ⚙ The NT Audio/VGA/LAN Device Driver and Win 9x LAN Device Driver must be installed manually.



---

## 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 MS51 Software”** or **“Install Mainboard MS51N Software”** bar to run into sub-menu.

The **Mainboard MS51 Software** include:

- [4.2.A] Install SIS Chipset Driver
- [4.2.B] Install Audio Device Driver
- [4.2.C] Install VGA Deviec Driver



The **Mainboard MS51N Software** include:

- [4.2.A] Install SIS Chipset Driver
- [4.2.B] Install Audio Device Driver
- [4.2.C] Install VGA Deviec Driver
- [4.2.D] Install LAN Driver



---

## 4.2.A Install SIS Chipset Driver

Select using your pointing device (e.g. mouse) on the “Install SIS Chipset Driver” bar to install SIS chipset driver.



MS51



MS51N

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.

**Note:** The win NT don't need install this driver.

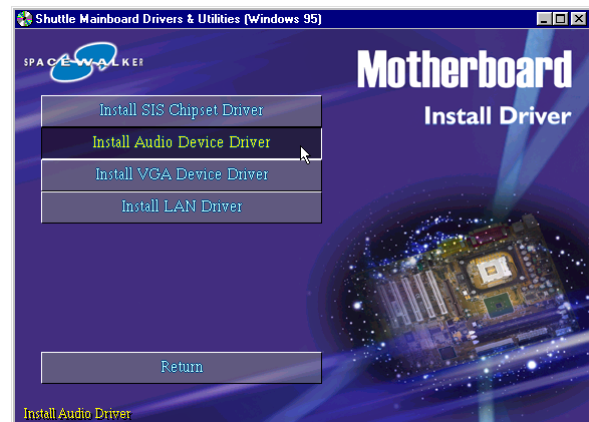
---

## 4.2.B Install Audio Driver

Select using your pointing device (e.g. mouse) on the “Install Audio Device Driver” bar to install AC'97 Audio driver.



MS51



MS51N

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.

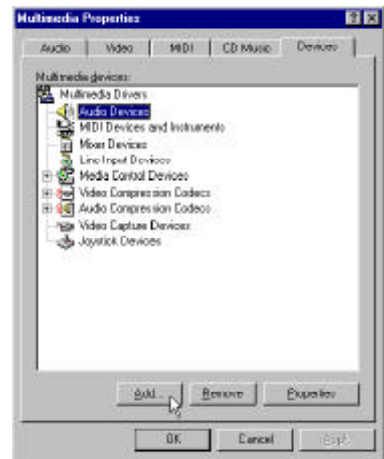
**Note:** When Install Audio driver, please confirm your OS and correctly install driver. If your OS is NT, please take the following next page for reference. The other OS such as win 2000/XP/9x/ME can be automatical installed.

---

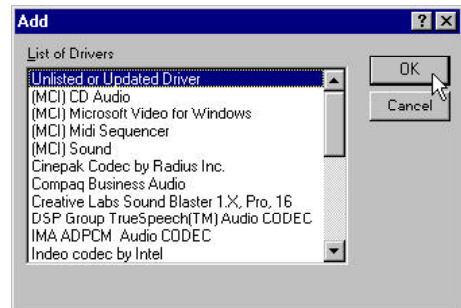
### Install WINNT Audio driver

The Audio Device Driver can't install automatically, you need double click on **My Computer** -> **Control Pnael** -> **Multimedia** icon to bring up **Multimedia Properties** screen.

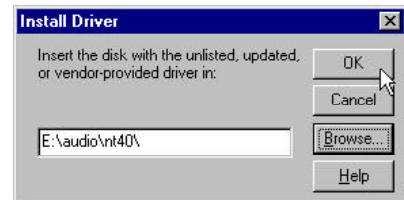
Select tab "**Devices**" and choose **Audio Devices** then select "**Add**" bar to install driver.



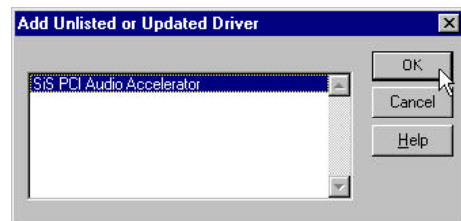
Insert the support CD by the mainboard manufacturer and choose "**OK**" bar to continue next step.



Key in the driver's location as "**D:\audio\NT40\**" (In this location CD disk drive is supposed to be "**D**" letter.) and click on "**OK**".



Select "**SiS PCI Audio Accelerator**" to install then click on "**OK**".



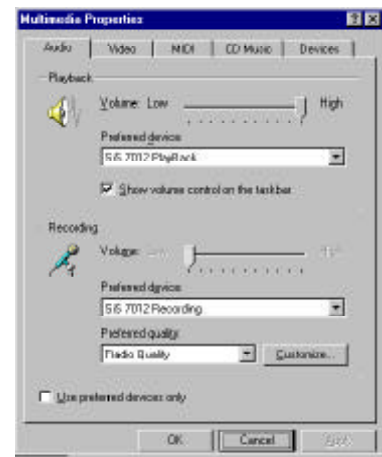


---

Completing the upgrade device driver, and click on "**Restart Now**" to restart the system to take all the changes effect.



After restart, you may check Multimedia Properties under the location mentioned at right figure. The Multimedia Properties shows correctly.



---

## 4.2.C Install SIS VGA Driver

Select using your pointing device (e.g. mouse) on the “Install VGA Device Driver” bar to install SIS VGA driver.



MS51



MS51N

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.

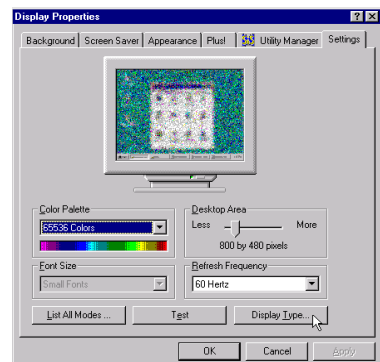
**Note:** When Install VGA driver, please confirm your OS and correctly install driver. If your OS is NT, please take the following next page for reference and make sure install the service pack 3 or above. The other OS such as win 2000/XP/9x/ME can be automatical installed.

---

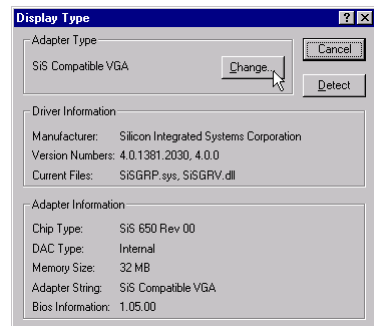
## Install WINNT VGA driver

The VGA Device Driver can't install automatically, you need double click on **My Computer** -> **Control Panel** -> **Display** icon to bring up **Display Properties** screen.

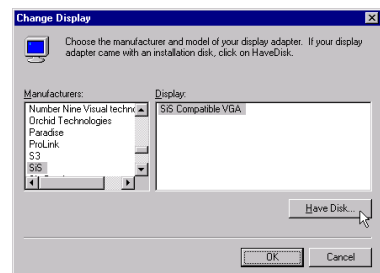
Select tab "**Settings**" and "**Display Type**" bar to continue.



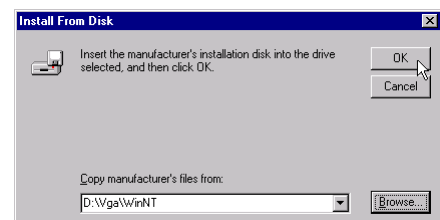
The **Display Type** windows will appear on your screen. Click on "**Change**" bar to install driver.



Insert the support CD by the mainboard manufacturer and choose "**Have Disk**" bar to continue next step.

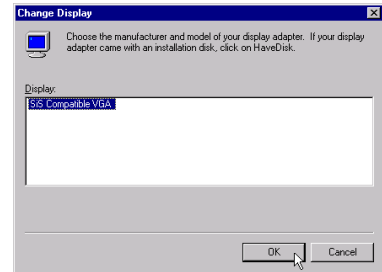


Key in the driver's location as "**D:\VGA\WINNT\SISGR.INF**" (In this location CD disk drive is supposed to be "**D**" letter.) and click on "**OK**".

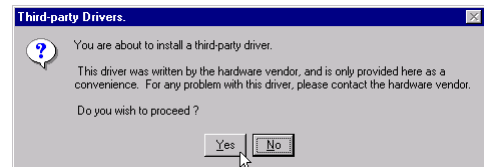


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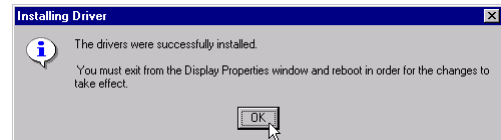
Select **"SiS Compatible VGA"** to install, and then click on **"OK"**.



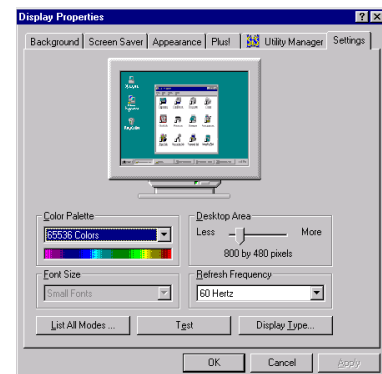
Make sure **"SiS Compatible VGA"** driver, and click on **"Yes"**.



Completing the upgrade device driver, and click on **"OK"** to restart the system to take all the changes effect.



After restart, you may check Display under the location mentioned at right figure. The Display Properties shows correctly.



---

#### 4.2.D Install LAN Driver (MS51N only)

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



MS51N

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.

**Note:** When Install LAN driver, please confirm your OS and correctly install driver. If your OS is win 9X/NT, please take the following next page for reference. The other OS such as win 2000/XP/ME can be automatical installed

---

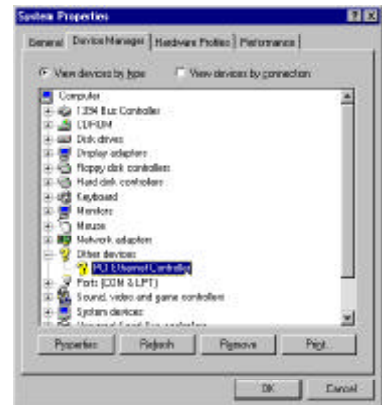
### Install WIN98 LAN driver

The LAN Device Driver can't install automatically, you need double click on **My Computer -> Control Pnael -> System** icon to bring up **System Properties** screen.

Select tab "**Device Manager**".

You will find a yellow "?" mark at **PCI Ethernet Controller**, that means the driver is not recognize.

Double click on the **Ethernet Controller**.



Then **PCI Ethernet Controller Properties** windows will appear on your screen.

Click on the "**Reinstall Driver**" bar to install driver.



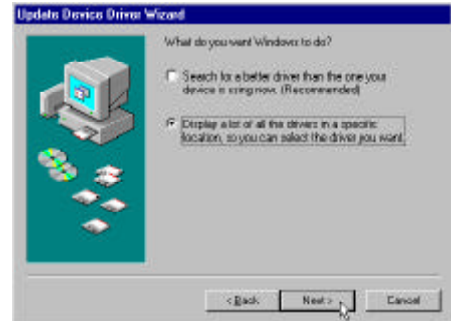
The **Update Device Driver Wizard** windows will appear on your screen.

Click on "**Next**" bar to continue.

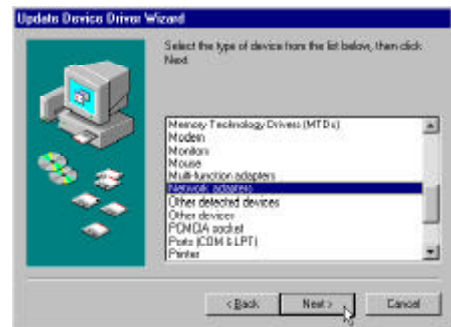


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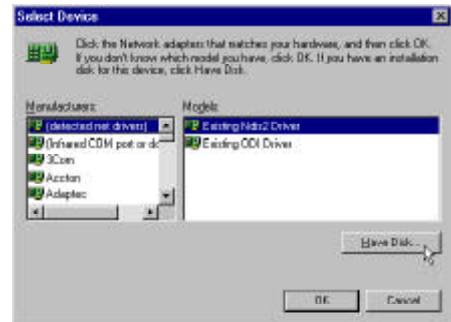
Please choose **"Display a list of the drivers in a specific location, so you can select the driver you want"** to the manual install driver, and click on **"Next"** bar to continue.



Select **"Network adapters"** bar for LAN device and click on **"Next"** bar to continue.



Insert the support CD by the mainboard manufacturer and choose **"Have Disk"** bar to continue next step.



Indicate the driver's location as **"D:\lan\WIN98\NETRTS5.INF"** (In this location CD disk drive is supposed to be **"D"** letter.)



Select "**Realtek RTL8139/810X Family PCI Fast Ethernet NIC**" to install, and then click on "**OK**".

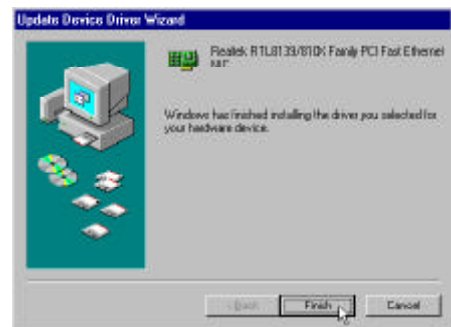


Make sure "**Realtek RTL8139/810X Family PCI Fast Ethernet NIC**" driver, and click on "**Next**".

Then the system will do the setup procedure automatically.

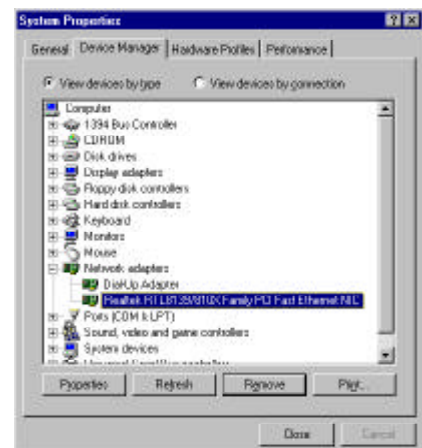


Completing the upgrade device driver, and click on "**Finish**" to restart the system to take all the changes effect.



After restart, you may check Network adapters under the location mentioned at right figure.

The Network adapters shows correctly.



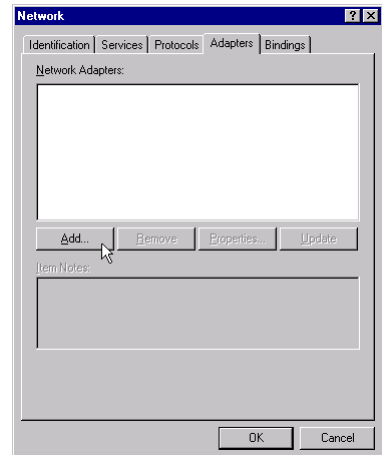


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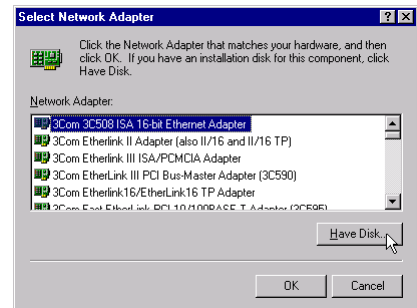
## Install WINNT LAN driver

The LAN Device Driver can't install automatically, you need double click on **My Computer -> Control Panel -> Network** icon to bring up **Network** screen.

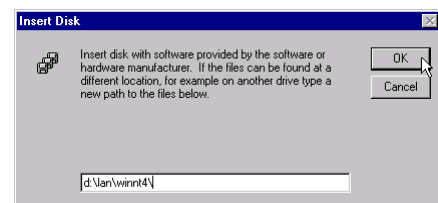
Select tab "**Adapters**" and "**Add**" bar to install driver.



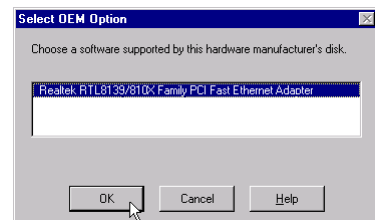
Insert the support CD by the mainboard manufacturer and choose "**Have Disk**" bar to continue next step.



Key in the driver's location as "**D:\lan\WINNT4\**" (In this location CD disk drive is supposed to be "**D**" letter.) and click on "**OK**".



Select "**Realtek RTL8139/810X Family PCI Fast Ethernet Adapter**" to install then click on "**OK**".

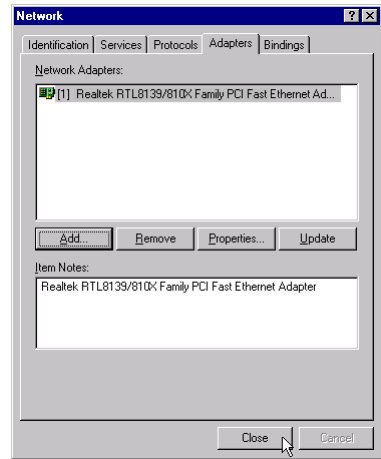


Chocse the proper Duplex Mode, and click on "**OK**".

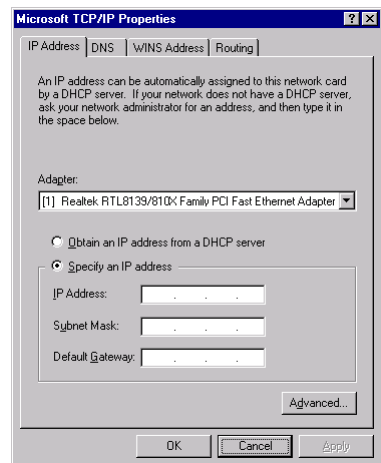


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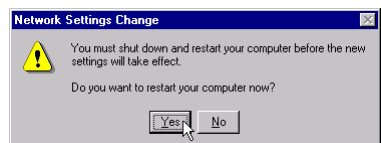
Make sure "**Realtek RTL8139/810X Family PCI Fast Ethernet Adapter**" driver, and click on "**Close**".



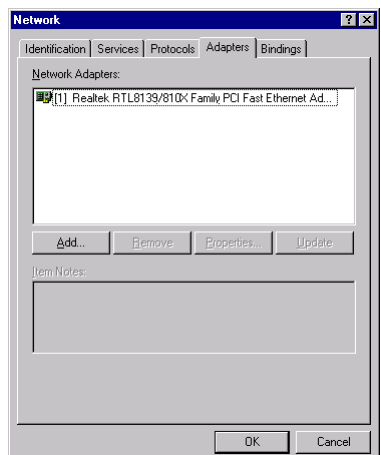
Setting yourself network.  
Then the system will do the setup procedure automatically.



Completing the upgrade device driver, and click on "**Yes**" to restart the system to take all the changes effect.



After restart, you may check Network adapters under the location mentioned at right figure. The Network adapters shows correctly.



---

### 4.3 View the User's Manual

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

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



Then **Online Information** windows will appear on your screen. Click on the **“Install Acrobat Reader ”** bar if you need to install acrobat reader.



Then click on **"MS51/MS51N Manual"** bar to view user's manual.

# 5 BIOS SETUP

---

MS51/MS51N BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

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

- System date and time
- Hardware execution sequence
- Power management functions
- Allocation of system resources

## 5.1 Enter the BIOS

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

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

**Note 1.** If you miss trains of words meationed in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the <RESET> switch located at the computer’s front-panel. You may also reboot by simultaneously pressing the <Ctrl>, <Alt>, <Del> keys.

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

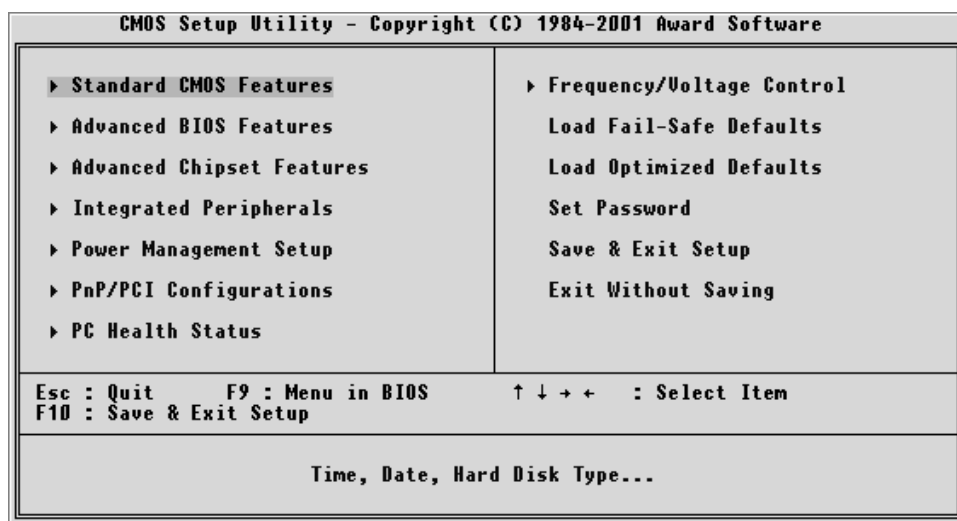
**“Press F1 to Continue, DEL to Enter Setup”**

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

---

## 5.2 The Main Menu

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



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.

### ***Set Password***

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

### ***Save & Exit Setup***

Save CMOS value changes in CMOS and exit from setup.

### ***Exit Without Saving***

Abandon all CMOS value changes and exit from setup.



## Standard CMOS Features

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

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		Item Help
Standard CMOS Features		Menu Level ▶
Date (mm:dd:yy)	Fri, Jan 25 2002	Change the day, month, year and century
Time (hh:mm:ss)	13 : 34 : 11	
▶ IDE Primary Master		
▶ IDE Primary Slave		
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/UGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

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

### Date

<Month> <DD> <YYYY>

Set the system date. Note that the 'Day' automatically changes when you set the date.

### Time

<HH : MM : SS>

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

### IDE Primary Master

Options are in its sub-menu.

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

### IDE Primary Slave

Options are in its sub-menu.

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

---

### **IDE Secondary Master**

Options are in its sub-menu.

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

### **IDE Secondary Slave**

Options are in its sub menu.

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

### **Drive A/Drive B**

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

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

### **Floppy 3 Mode Support**

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

- The choice: Disabled, Drive A, Drive B, or Both.

### **Video**

Select the default video device.

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

### **Halt On**

Select the situation in which you want the BIOS to stop the POST process and notify you.

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

### **Base Memory**

Displays the amount of conventional memory detected during boot up.

- The choice: N/A.

### **Extended Memory**

Displays the amount of extended memory detected during boot up.

- The choice: N/A.

### **Total Memory**

Displays the total memory available in the system.

- The choice: N/A.

\*\*\*\*\*

### **IDE Adapters**

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



---

### **IDE HDD Auto-Detection**

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

- Press Enter

### **IDE Primary Master**

Selecting 'manual' lets you set the remaining fields on this screen and select the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc., Note: PRECOMP = 65535 means NONE!

- The choice: None, Auto, or Manual.

### **Access Mode**

Choose the access mode for this hard disk.

- The choice: 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.

- Auto-Display your disk drive size.

*The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'*

### **Cylinder**

Set the number of cylinders for this hard disk.

- Min = 0, Max = 65535

### **Head**

Set the number of read/write heads.

- Min = 0, Max = 255

### **Precomp**

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

- Min = 0, Max = 65535

### **Landing zone**

Set the Landing zone size.

- Min = 0, Max = 65535

### **Sector**

Number of sector per track.

- Min = 0, Max = 255

\*\*\*\*\*



## Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		
Advanced BIOS Features		
Anti-Virus Protection	[Disabled]	Item Help
CPU L1 & L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	Menu Level ▶
First Boot Device	[Floppy]	Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
Second Boot Device	[HDD-0]	
Third Boot Device	[CDROM]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[Off]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Enabled]	
Typematic Rate (Chars/Sec)	[6]	
Typematic Delay (Msec)	[250]	
Security Option	[Setup]	
APIC Mode	[Enabled]	
OS Select For DRAM > 64MB	[Non-OS2]	
HDD S.M.A.R.T. Capability	[Disabled]	
Report No FDD For WIN 95	[Yes]	
Small Logo(EPA) Show	[Enabled]	
↑↓+:-:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

### Anti-Virus Protection

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

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

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

- The choice: Enabled or Disabled.

### CPU L1 & L2 Cache

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

- The choice: Enabled or Disabled.

---

### **Quick Power On Self Test**

This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.

- The choice: Enabled, or Disabled.

### **First/Second/Third Boot Device**

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

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

### **Boot Other Device**

Select Your Boot Device Priority.

- The choice: Enabled or Disabled.

### **Swap Floppy Drive**

If the system has two floppy drives, you can swap the logical drive name assignment.

- The choice: Enabled or Disabled.

### **Boot Up Floppy Seek**

Seeks disk drives during boot-Up. Disabling speed boots up.

- The choice: Enabled or Disabled.

### **Boot Up NumLock Status**

Selects power-on state for NumLock.

- The choice: Off or On.

### **Gate A20 Option**

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

- The choice: Normal, or Fast.

### **Typematic Rate Setting**

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

- The choice: Enabled or Disabled.

---

### **Typematic Rate (Chars/Sec)**

This item sets how many times the keystroke will be repeated in a second when you hold the key down.

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

### **Typematic Delay (Msec)**

Sets the delay time after the key is held down before it begins to repeat the keystroke.

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

### **Security Option**

Select whether the password is required every time the system boots or only when you enter setup.

**System** The system will not boot and access to Setup will be denied if the correct password is not entered promptly.

**Setup** The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

- The choice: System or Setup.

Note: To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Do not type anything and just press <Enter>; it will disable security.  
Once the security is disabled, the system will boot, and you can enter Setup freely.

### **APIC Mode**

Selects enable/disable IO APIC function

- The choice: Enabled or Disabled.

### **OS Select For DRAM > 64MB**

Selects the operating system that is running with greater than 64MB of RAM in the system.

- The choice: Non-OS2 or OS2.

### **HDD S.M.A.R.T. Capability**

This item enable/disable the HDD system management function.

- The choice: Enabled or Disabled.

### **Report No FDD For Win 95**

Whether report no FDD runs for Win 95 or not.

- The choice: Yes or No.

### **Small Logo(EPA) Show**

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

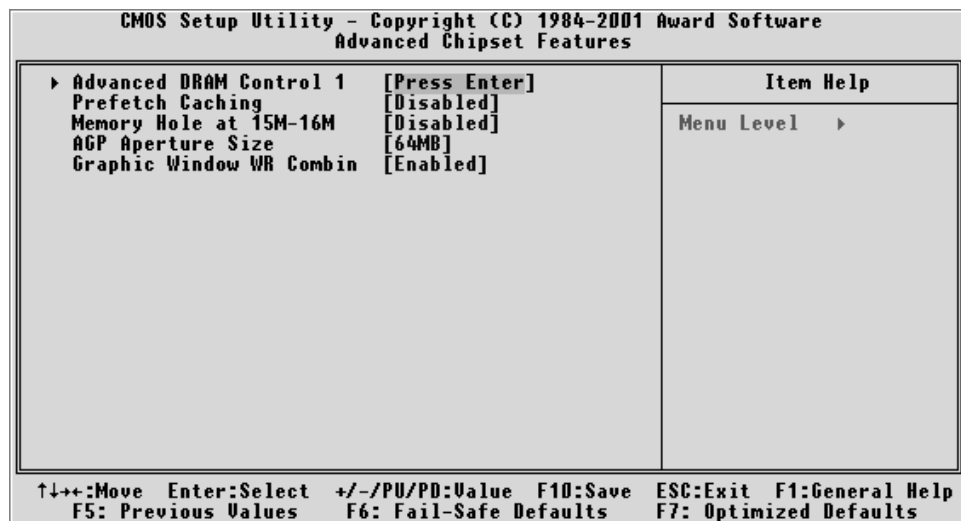
- The choice: Enabled or Disabled.



## Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.



### Advanced DRAM Control 1

Options are in its sub-menu.

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

#### **System Performance**

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

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

#### **CAS Latency Setting**

This item select the CAS latency for DDR SDRAM

- The Choice: 2T, 2.5T, or 3T.

---

### **DRAM Addr/Cmd Rate**

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

- The Choice: Auto Mode, 1T, or 2T.

### **Prefetch Caching**

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

- The Choice: Enabled or Disabled.

### **Memory Hole at 15M-16M**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- The Choice: Enabled or Disabled.

### **AGP Aperture Size (MB)**

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

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

### **Graphic Window WR Combin**

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

- The Choice: Enabled or Disabled.



## Integrated Peripherals

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software		
Integrated Peripherals		
▶ SIS OnChip IDE Device	[Press Enter]	Item Help
▶ SIS OnChip PCI Device	[Press Enter]	
▶ Onboard SuperIO Device	[Press Enter]	Menu Level ▶
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
Onboard LAN	[Enabled]	
Onboard Lan Boot ROM	[Disabled]	
IDE HDD Block Mode	[Enabled]	
SC Port Address	[700H]	
SC Port IRQ	[11]	
MS Port Address	[Disabled]	
MS Port IRQ	[5]	
SD Port Address	[Disabled]	
SD Port IRQ	[5]	
Init Display First	[PCI Slot]	
AGP Auto Calibration	[Enabled]	
IDE Access Interface	[Embedded Bus]	
USB1 Access Interface	[Embedded Bus]	
USB0 Access Interface	[Embedded Bus]	
Audio Access Interface	[Embedded Bus]	

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

### SIS OnChip IDE Device

Options are in its sub-menu.

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

#### **Internal PCI/IDE**

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

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

#### **IDE Primary/Secondary Master/Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

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

#### **Primary/Secondary Master/Slave UltraDMA**

Ultra DMA/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA/100, select Auto to enable BIOS support.

➤ The choice: Auto or Disabled.

---

### **IDE DMA transfer access**

Internal PCI/IDE field, above, is Disabled.

- The choice: Enabled or Disabled.

### **IDE Burst Mode**

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

- The choice: Enabled or Disabled.

### **SIS OnChip PCI Device**

Options are in its sub-menu.

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

#### **SIS-7012 AC97 AUDIO**

This item allows you to control the onboard AC 97 audio.

- The Choice: Enabled or Disabled.

#### **SIS-7013 S/W Modem**

This item allows you to control the onboard modem.

- The Choice: Enabled or Disabled.

#### **System Share Memory Size**

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

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

### **Onboard Super IO Device**

Options are in its sub-menu.

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

#### **Onboard FDC Controller**

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

- The choice: Enabled or Disabled.

#### **Onboard Serial Port1/Port2**

Select an address and corresponding interrupt for the first and second serial ports.

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



---

### **UART Mode Select**

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

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

### **UR2 Duplex Mode**

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

- The choice: Full or Half.

### **Onboard Parallel Port**

This item allows you to determine onboard parallel port controller I/O address setting.

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

### **Parallel Port Mode**

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

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

### **ECP Mode Use DMA**

Select a DMA channel for the parallel port for use during ECP mode.

- The choice: 1 or 3.

### **Game Port Address**

This item selects Game Port Address.

- The choice: Disabled, 201, or 209.

### **Midi Port Address**

This item selects Midi Port Address.

- The choice: Disabled, 330, or 300.

### **Midi Port IRQ**

This item selects Midi Port IRQ.

- The choice: 5 or 10.

### **USB Controller**

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

- The choice: Enabled or Disabled.

---

### **USB Keyboard Support**

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

- The Choice: Enabled or Disabled.

### **Onboard LAN**

This item is used to enabled/disabled onboard LAN.

- The Choice: Enabled or Disabled.

### **Onboard LAN Boot ROM**

This item is used to enabled/disabled onboard LAN boot ROM.

- The Choice: Enabled or Disabled.

### **IDE HDD Block Mode**

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

- The choice: Enabled or Disabled.

### **SC Port Address**

This item selects SC Port Address.

- The choice: Disabled, 700H, 720H, 740H, or 760H.

### **SC Port IRQ**

This item selects SC Port IRQ.

- The choice: 11, 5, 10, or 9.

### **MS Port Address**

This item selects MS Port Address.

- The choice: Disabled, 800H, 820H, 840H, or 860H.

### **MS Port IRQ**

This item selects MS Port IRQ.

- The choice: 11, 5, 10, or 9.

### **SD Port Address**

This item selects SC Port Address.

- The choice: Disabled, 808H, 828H, 848H, or 868H.

### **SD Port IRQ**

This item selects SC Port IRQ.

- The choice: 11, 5, 10, or 9.

---

### **Init Display First**

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

- The choice: AGP or PCI Slot.

### **AGP Auto Calibration**

This item enable/disable the AGP driving functions.

- The choice: Enabled or Disabled.

### **IDE Access Interface**

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

- The choice: Embedded Bus or PCI Bus.

### **USB1 Access Interface**

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

- The choice: Embedded Bus, or PCI Bus.

### **USB0 Access Interface**

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

- The choice: Embedded Bus, or PCI Bus.

### **Audio Access Interface**

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

- The choice: Embedded Bus or PCI Bus.



## Power Management Setup

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software Power Management Setup		
ACPI function	[Enabled]	Item Help
ACPI Suspend Type	[S1(POS)]	
Video Off Option	[Susp,Stby -> Off]	Menu Level ▶
Video Off Method	[DPMS Supported]	
MODEM Use IRQ	[AUTO]	
Hot Key Function As	[Power Off]	
HotKey Power on function	[Disabled]	
USB S3 WakeUp Function	[Disabled]	
HDD Off After	[Disable]	
Power Button Override	[Instant Off]	
Power State Resume Control	[Always Off]	
▶ PM Wake Up Events	[Press Enter]	
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

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

### ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI)

- The choice: Enabled or Disabled.

### ACPI Suspend Type

This item allows you to select sleep state when suspend.

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

### Video Off Option

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

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

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

---

### **Video Off Method**

This determines the manner in which the monitor is blanked.

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

**Blank Screened** This option only writes blanks to the video buffer.

**DPMS Support** Initial display power management signaling.

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

### **MODEM Use IRQ**

This determines the IRQ which the MODEM can use.

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

### **Hot Key Function As**

This item allows you to set the Hot Key function.

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

### **Hot Key Power on function**

This item allows you to power on the system using hot keys.

- The choice: Enabled, Disabled.

### **USB S3 WakeUp Function**

This item allows you to enabled/disabled USB device activity to wake the system from S3.

- The choice: Enabled, Disabled.

### **HDD Off After**

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

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

### **Power Button Override**

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

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

### **Power State Resme Control**

This sets the power state after a shutdown due to an unexpected interrupt of AC power.

- The choice: Always off, Always on, Keep Pre-state.

---

### **PM Wake Up Events**

Options are in its sub-menu.

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

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

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

➤ The choice: Enabled, Disabled.

#### **IRQ 8 Break Suspend**

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

➤ The choice: Enabled, Disabled.

#### **RING/WOL/WOM Power Up Control**

This item enabled/disabled LAN or modem activity to wakeup the system from a power saving mode.

➤ The choice: Enabled, Disabled.

#### **PCIPME Power Up Control**

This item enabled/disabled PCI activity to wakeup the system from a power saving mode.

➤ The choice: Enabled, Disabled.

#### **Power Up by Alarm**

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

➤ The choice: Enabled, Disabled.

#### **Month Alarm**

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

➤ The choice: NA, 1 ~ 12.

#### **Day of Month Alarm**

This item selects the alarm day.

➤ Key in a DEC number:Min = 1, Max = 31.

#### **Time (hh : mm : ss) Alarm**

This item selects the alarm Time.

[hh]

➤ Key in a DEC number:Min = 0, Max = 23.

[mm/ss]

➤ Key in a DEC number:Min = 0, Max = 59.



## PnP/PCI Configurations

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software PnP/PCI Configurations		Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Manual]	
▶ IRQ Resources	[Press Enter]	Menu Level ▶
PCI/UGA Palette Snoop	[Disabled]	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
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	

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

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.

This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

### Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

- The choice: Enabled or Disabled .

### Resource controlled By

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

If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a ">").

- The choice: Auto(ESCD) or Manual.

---

### **IRQ Resources**

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

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

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

- The choice: PCI Device or Reserved.

### **PCI/VGA Palette Snoop**

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

- The choice: Enabled or Disabled.

### **INT Pin 1-8 Assignment**

Identifies the interrupt request (IRQ) line assigned to a device connected to the PCI interface of your system.

- The choice: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.





## PC Health Status

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software	
PC Health Status	
<b>Shutdown Temperature</b> [Disabled]	<b>Item Help</b>
CPU Core Voltage	Menu Level ▶
Vcc 1.8V	
Vcc 3.3V	
Vcc 5.0V	
+12V	
StandBy 3.3V	
StandBy 5.0V	
Voltage Battery	
CPU Temperature	
System Temperature	
CPU Fan Speed	
CHS Fan1 Speed	
BAK Fan1 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 the system can reach before powering down.

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

### System Component Characteristics

These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

The fields include

#### **CPU Core Voltage**

**Vcc 1.8V**

**Vcc 3.3V**

**Vcc 5.0V**

**+ 12V**

**StandBy 3.3V**

**StandBy 5.0V**

**Voltage Battery**

**CPU Temperature**

**System Temperature**

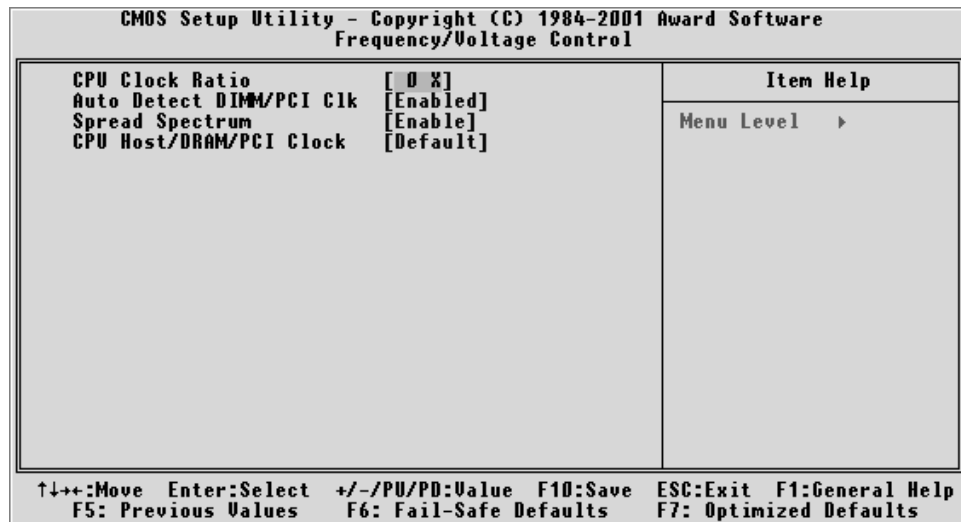
**CPU Fan Speed**

**CHS Fan1 Speed**

**BAK Fan1 Speed**

---

 **Frequency/Voltage Control**



**CPU Clock Ratio**

This item allows you to adjust CPU Ratio.

Min: 8

Max: 50

- Key in a DEC number: (Between Min and Max.) or left it auto detect.

**Auto Detect DIMM/PCI Clk**

This item allows you to enable/disable auto detection DIMM/PCI Clock.

- The choice: Enabled, or Disabled.

**Spread Spectrum**

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

- The choice: Enabled, or Disabled.

**CPU Host/DRAM/PCI Clock**

This item allows the user to adjust CPU Host Clock/DRAM/PCI Clock.

- The choice: Default, 100/100/33 MHz, 100/133/33 MHz, 100/166/33 MHz, 105/140/35 MHz, 108/144/36 MHz, 112/140/31 MHz, 100/200/33 MHz, 133/100/33 MHz, 133/133/33 MHz, 133/166/33 MHz, or 133/160/33 MHz.

---

 **Load Fail-Safe Defaults**

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

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

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

 **Load Optimized Defaults**

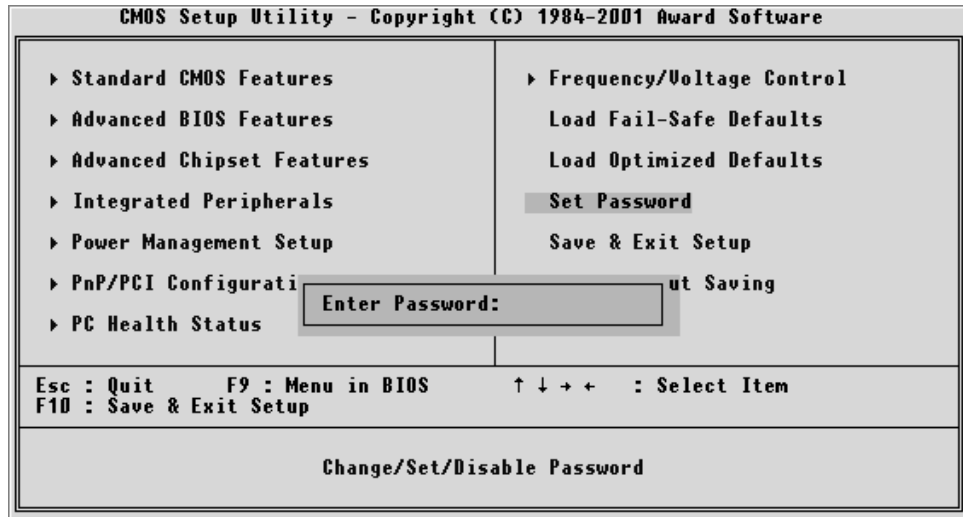
When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

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



## Set Password



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

### New Password Setting :

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

### No Password Setting :

5. If you want to delete password, just press <Enter> key instead of new password while password input is requested. And the other procedures are the same as above password setting.

### If You Forget Password :

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

---

## **Save & Exit Setup**

Pressing <Enter> on this item asks for confirmation:

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

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

## **Exit Without Saving**

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

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