MS50/MS50N

Pentium 4 Processor

Based AGPset MAIN BOARD

User's Manual

Shuttle® Spacewalker™ MS50/MS50N

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

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Trademarks

M511

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Quick Reference

About This Manual

1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the **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 MS50/MS50N mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle MS50/MS50N mainboard. You will find that installing your new Shuttle MS50/MS50N mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated MS50/MS50N 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 MS50/MS50N to construct your system. Shuttle MS50/MS50N 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 MS50 and MS50N mainboards at the same time.

The difference between MS50 and MS50N is that MS50N equips with onboard LAN Controller. In the manual, if there are some standards, characters, equipment or software only appeared or adopted by MS50N; it will be mentioned **(MS50N only)**

1.2 Item Checklist:

Check all items with you MS50/MS50N mainboard to make sure nothing is missing. The complete package should include:

✵ One piece of Shuttle MS50/MS50N Mainboard
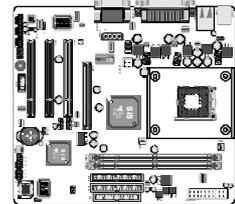
✵ One piece of ATA**100/66/33** Ribbon Cable

✵ One piece of Floppy Ribbon Cable

✵ One piece of 9-pin Ribbon Cable
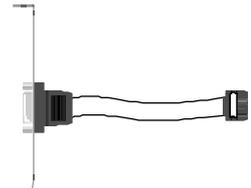
✵ One piece of twin ports USB Cable **(optional)**
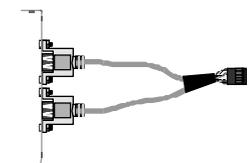
✵ MS50/MS50N User's Manual
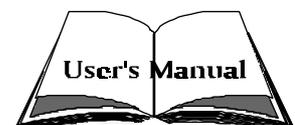
✵ One piece of Bundled CD-ROM with containing:
  ➢ MS50/MS50N user's manual saved in PDF format
  ➢ SiS Chipset driver
  ➢ SiS VGA driver
  ➢ AC'97 Audio driver
  ➢ LAN driver **(MS50N only)**
  ➢ Award Flashing Utility
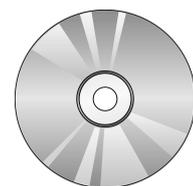
2 FEATURES

MS50/MS50N mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

2.1 Specifications

✳ CPU Support

Intel Pentium 4, 478-pin processors with 100 MHz FSB.

✳ Chipset

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

Onboard Lan (MS50N only)

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

✳ Jumperless CPU Configuration

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

✳ AC'97 Link for Audio and Telephony CODEC

AC'97 2.1 compliant.

Spread independent PCI functions for Audio and Modem.

✳ Versatile Memory Support

Two **168-pin DIMM** slots to support up to 2GB of PC100 or PC133 compliant **SDR** SDRAM module.

✳ PCI Expansion Slots

Provides three 32-bit PCI slots.

✳ AGP Expansion Slots

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

✳ 4 USB Interface Onboard

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

✶ I/O Interface

Provides a variety of I/O interfaces:

➢ 1 × Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, or 2.88MB format or for 5.25-inch FDD with 360K or 1.2MB format.

➢ 1 × PS/2 mouse connector.

➢ 1 × PS/2 Keyboard connector.

➢ 1 × RJ45 LAN connector. (MS50N only)

➢ 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.

✶ 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 two 4-pin +12V ATX power connectors.

✸ 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/SDRAM/PCI Clock Setting** - This item allows users to adjust CPU Host Clock, SDRAM, 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 and failure. (CPU Cooling FAN with RPM sensor is required.)
- ➢ **Temperature Monitoring -** This item allows users to make sure whether the CPU or system runs in a suitable temperature.

3 HARDWARE INSTALLATION

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

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

3.1 Step-by-Step Installation

Accessories Of MS50/MS50N

P4 ATX 12V Power Connector - **JP16**
USB Powe-On Setting - **JP2**
P3 ATX 12V Power Connector - **JP20**
PS/2 Keyboard and PS/2 Mouse Connectors
USB & LAN (MS50N only) Connectors
Serial Port Connector (COM1)
Parallel Connector
VGA Port Connector
Line-Out/Line-In/Mic-In/ Game/MIDI Connectors
Clock Generator
One AGP 4x Slot
Three PCI Slots
RTL8100B LAN Controller **(MS50N only)**
Onboard LAN enable/ disable - **JLP1** **(MS50N only)**
Onboard Audio CODEC
Onboard Audio Connectors - **CN4/CN7/ CN5**
Front-Panel Audio Connector - **JP19**
COM2 Connector - **J3**
Extended USB 1.1 Headers - **JP4**

SiS 650 Chipset
SOCKET 478
FAN1
FAN2
Two DIMM Slots
ATX Power Connector - **CN6**
Floppy Connector
Two E-IDE Connectors
BIOS Write Protection - **JP3**
I/O Controller
SiS 961 Chipset
IR Connector - **JP7**
FAN3
Clear CMOS - **JP1**
Front-Panel Connector - **JP18**
Programmable Flash EEPROM (FWH)

Step 1

CPU Installation:

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

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

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

CPU socket lever up to 90 degree
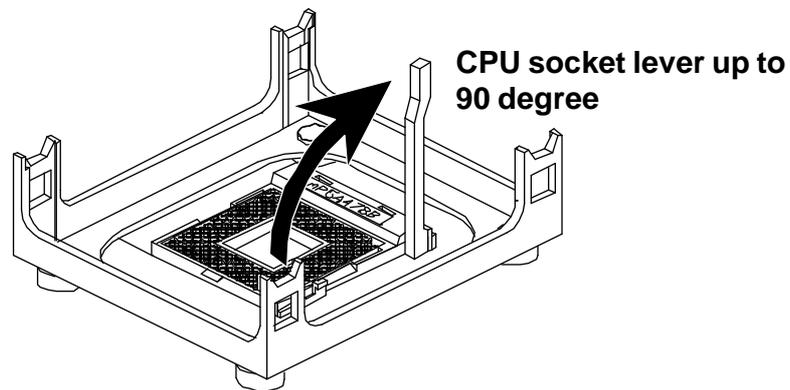
2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, then insert the CPU into the socket.

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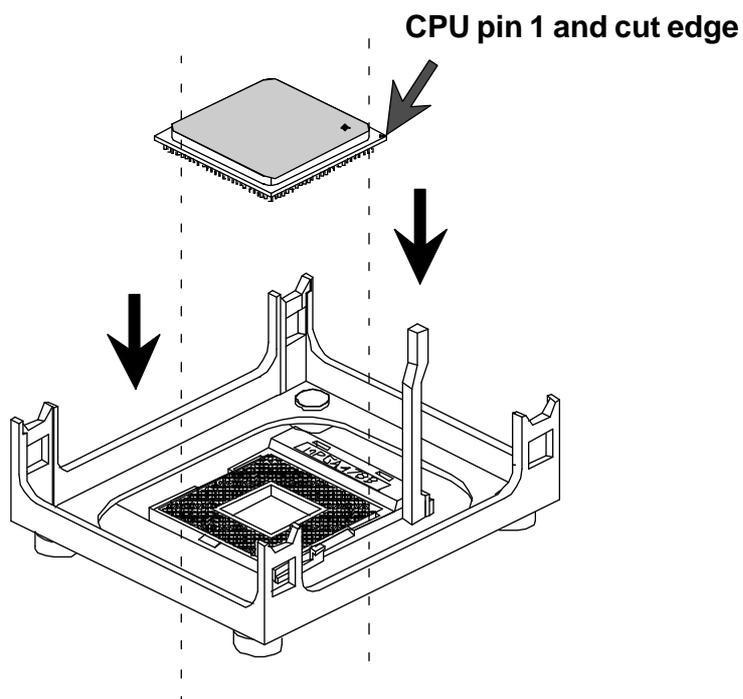
3. Press down the CPU socket lever and finish CPU installation.
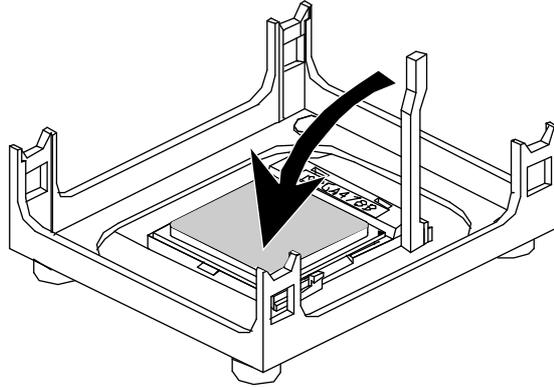
Note: If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU.

Step 2.

Set Jumpers

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

1. Clear CMOS
2. USB Power-On
3. BIOS Write Protection
4. Enable/Disable LAN (MS50N only)

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 SDR SDRAM System Memory

To install memory, insert SDR SDRAM memory module(s) in DIMM slot(s). Note that SDR 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.
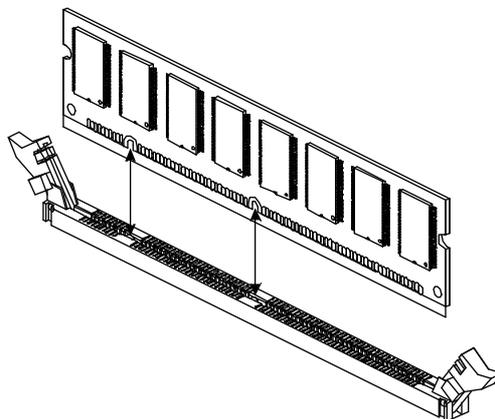
Step 4

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.
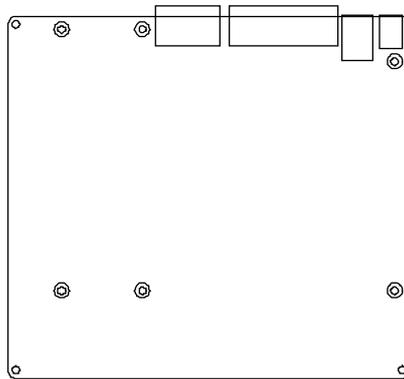
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system   chassis and the mainboard, in order to avoid any electrical shorts between the board and the 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.

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 (JP4 and JP18), as shown below.
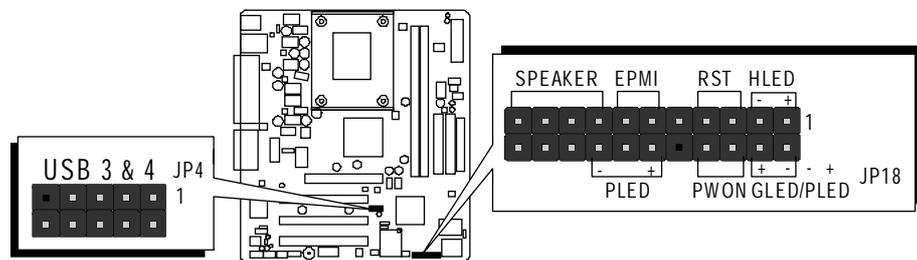
1. ATX Soft Power On/Off (PWON)
2. System Management Interface Button (EPMI)
3. HDD-LED (HLED)
4. Green-LED and Power-LED (GLED/PLED)
5. Power LED (PLED)
6. Hardware Reset Switch Button (RST)
7. PC Speaker (SPEAKER)
8. Extended USB Header
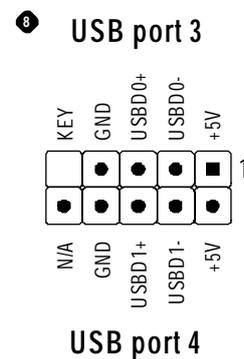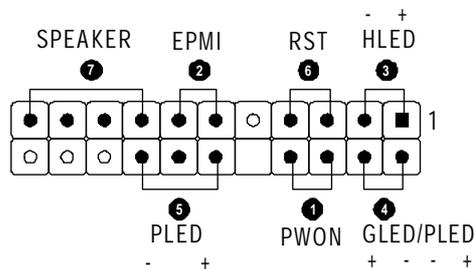
Step 7

Connect IDE and Floppy Disk Drives

1. IDE cable connector

IDE2   IDE1
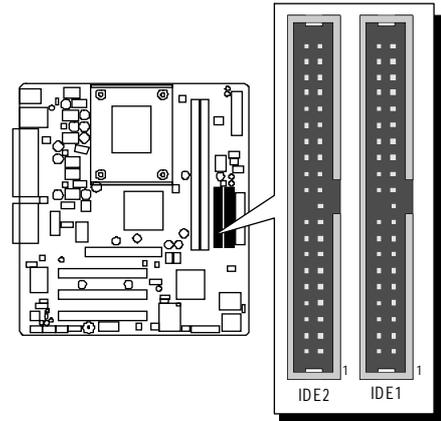
2. Floppy cable connector

FDD
FDC
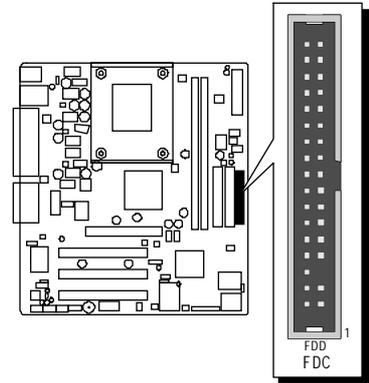
Step 8

Connect Other Internal Peripherals

1. CD-IN , Auxiliary-IN, TAD-IN, and Front Audio connectors

JP19
Front Audio

CN4 AUX_IN CN7 TAD_IO CN5 CD_IN
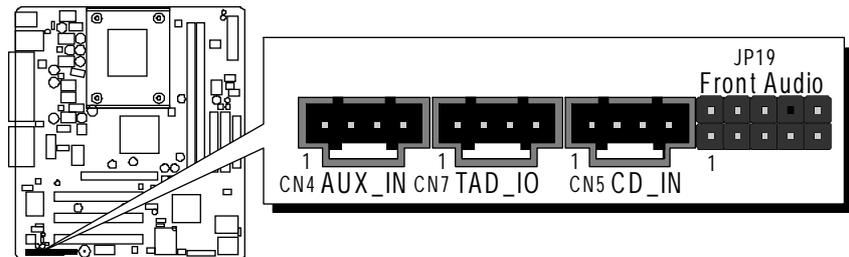
2. IR header

JP7
IR
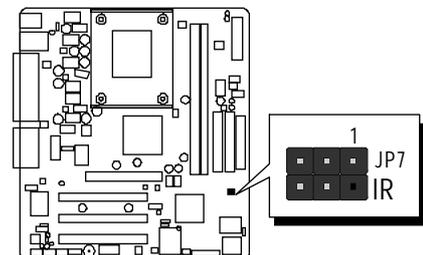
Step 9

Connect the Power Supply

1. System power connector
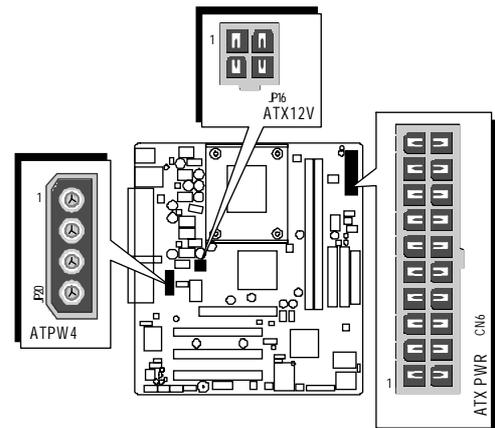
Step 10

Install Add-on Cards in Expansion Slots

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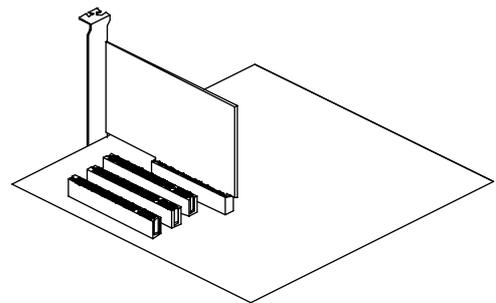
2. PCI Card
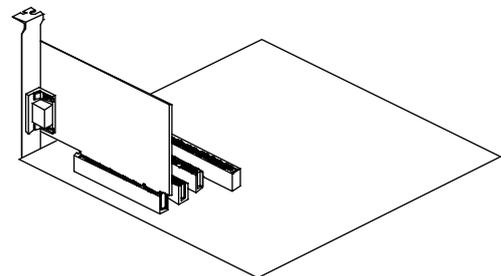
Step 11

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.
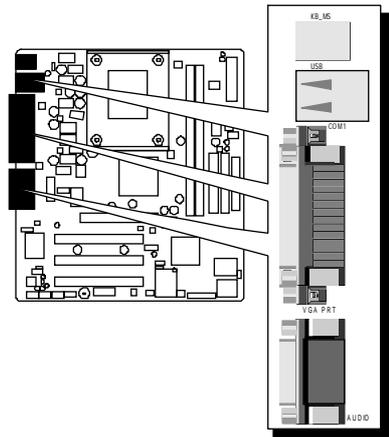
1. PS/2 Mouse and PS/2 Keyboard
2. LAN Port (MS50N only)
3. USB1/2 Ports
4. Parallel Port
5. COM1Port
6. VGA Port
7. MIDI/GAME Port
8. Audio Line-Out /Line-In / Mic-In Ports
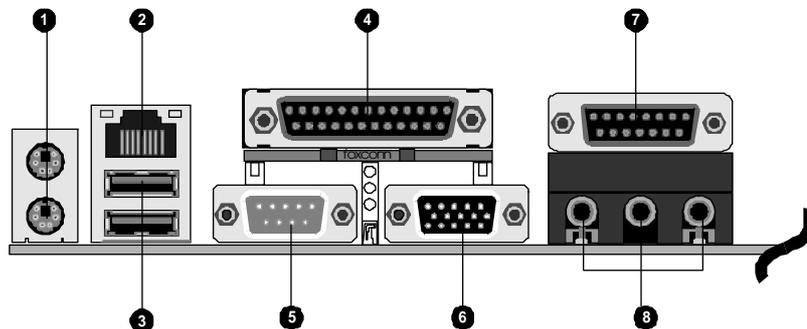
Step 12

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 MS50/MS50N 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. (MS50N 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:
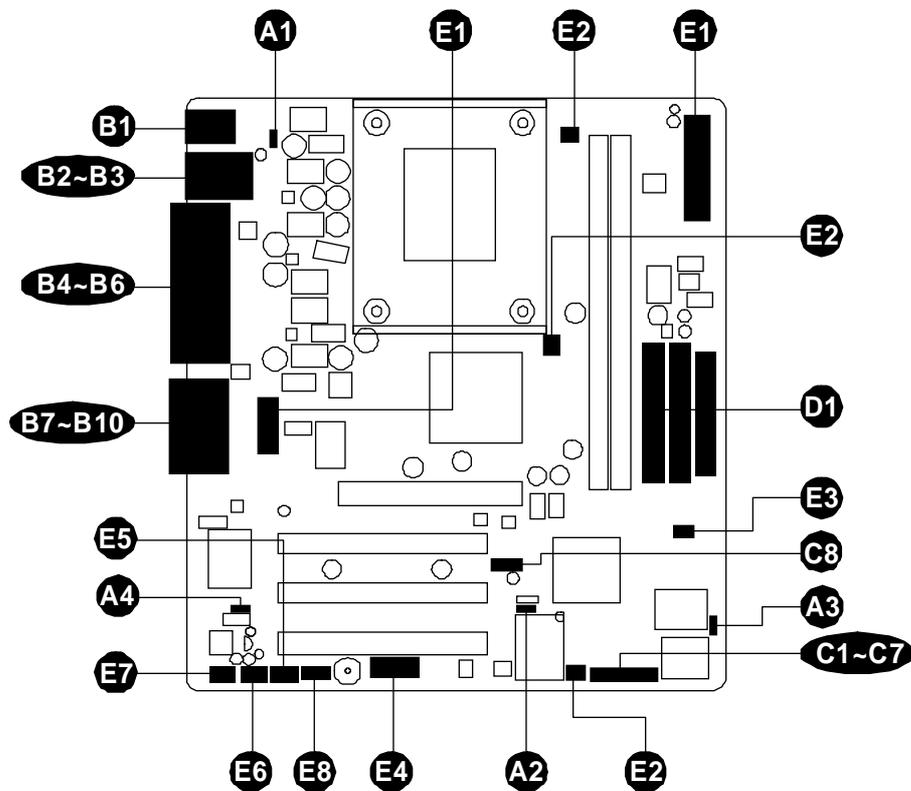
CPU/Memory/Expansion Slots

Socket478	: CPU Socket for Pentium 4 processors
DIMM1/2 and	: Two DIMM Slots for 16, 32, 64, 128, 256, 512 MB, 1GB of 3.3V SDR SDRAM
	(The total installed memory does not exceed 2GB)
AGP	: One AGP (Accelerated Graphics Port) Slot
PCI	: Three 32-bit PCI Expansion Slots

Jumpers

(A1) JP2 : USB1/2 Power-On setting
(A2) JP1 : Clear CMOS setting
(A3) JP3 : BIOS Write Protection setting
(A4) JLP1 : Onboard LAN Enable/Disable setting (MS50N only)

Back Panel Connectors

(B1) KB : PS/2 keyboard port
(B1) MS : PS/2 mouse port
(B2) LAN : RJ45 LAN port (MS50N only)
(B3) USB : 2 USB (Universal Serial Bus) ports
(B4) COM1 : Serial port 1 (DB9 male)
(B5) VGA : VGA port (DB15 female)
(B6) PRINTER : Parallel port (DB25 female)
(B7) LINE_OUT : Line-Out port
(B8) LINE_IN : Line-In port
(B9) MIC_IN : Mic-In port
(B10) GAME/MIDI : GAME/MIDI port

Front Panel Connectors

(C1) PWON : ATX power on/off momentary type switch
(C2) EPMI : System Management Interface
(C3) GLED/PLED : Green LED (ON when system stays in power saving mode)/System power LED
(C4) HLED : IDE drive active LED
(C5) PLED : System power LED
(C6) RST : Hardware reset switch
(C7) SPEAKER : Internal speaker in housing
(C8) JP4 : Extended USB connector header (USB port 3 ~ USB port 4)

Internal Peripherals Connectors

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

Other Connectors

- **E1** CN6/JP16/JP20 : ATX power connector
- **E2** FAN1 : CPU fan connector
- **E2** FAN2 : AGP fan connector
- **E2** FAN3 : System fan connector
- **E3** JP7 : IR header
- **E4** J3 : COM2 connector
- **E5** CN5 : CD_IN connector
- **E6** CN7 : TAD-IN connector
- **E7** CN4 : Auxiliary_IN connector
- **E8** JP19 : Front-Panel Microphone and Line-out Audio connector

☞ *Jumpers*

Ⓐ **USB1/2 Power-On Setting (JP2)**

MS50/MS50N provides one jumper to set USB devices which connect to back-panel to power-on system from Soft off stage.

Place jumper cap on JP2 pin 1-2 for enabling USB device (USB port 1 and USB port 2) power-on function on back-panel.

1   Disabled (Default)
    (USB power-on function)

1   Enabled
    (USB power-on function)
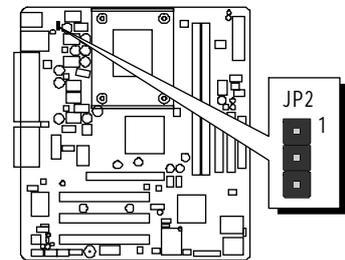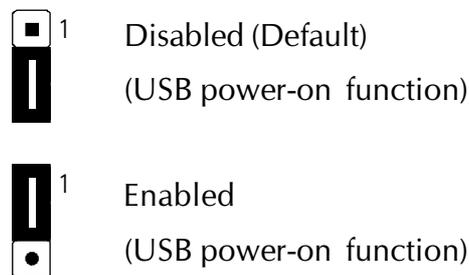
JP2

Ⓐ **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 (Default)

1   Pin 2-3 (Clear CMOS)

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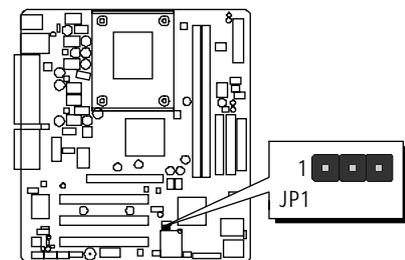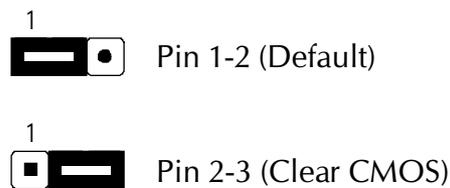
Step 1. Turn off the system power (PC-> Off).
Step 2. Remove ATX Power cable from ATX Power connector.
Step 3. Remove jumper cap from JP1 pins 1-2.
Step 4. Place the jumper cap on JP1 pin 2-3 for a few seconds.
Step 5. Return the jumper cap to pin 1-2.
Step 6. Plug ATX Power cable into ATX Power connector.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

⒜ BIOS Write Protection (JP3)

JP3 is used to protect BIOS from abnormal writing.

You may choose to place jumper cap on pins 1-2 for BIOS write protection; however, please place jumper cap on pins 2-3 if you need to reflash BIOS.

To enable reflashing
the BIOS
Pin 2-3 (Default)

BIOS write protection
Pin 1-2
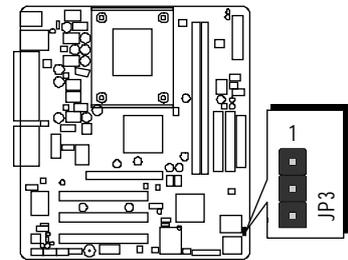
> **Reflash the BIOS, follow these steps:**
>
> **Step 1.** Turn off the system power (PC-> Off).
>
> **Step 2.** Make sure of place jumper cap on JP3 pin 2-3.
>
> **Step 3.** Insert a bootable system floppy disk with MS50/MS50N BIOS and flashutility and then turn on your system to execute flash utility.

⒜ On board LAN Enable/Disable Setting (JLP1) (MS50N only)

JLP1 is used to enable/disable LAN controller.

You may choose to place jumper cap on pins 1-2 for enable LAN controller function; inserting jumper cap on pins 2-3 for disable LAN controller function.

To disable LAN function
Pin 2-3

To enable LAN function
Pin 1-2
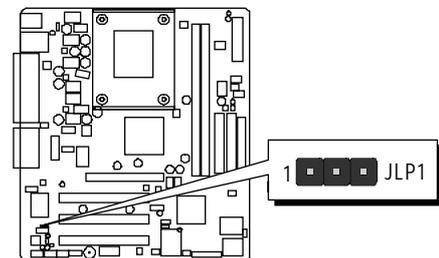
☞ *Back-Panel Connectors*

Ⓑ❶ **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.

PS/2 Mouse

PS/2 keyboard
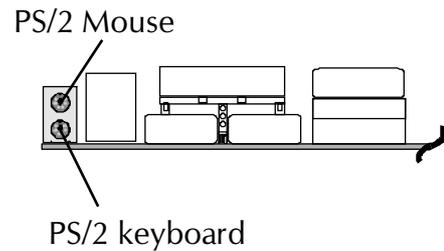
Ⓑ❷ **LAN Port Connectors (MS50N only)**

This mainboard can accommodate one device on LAN.

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

LAN Port
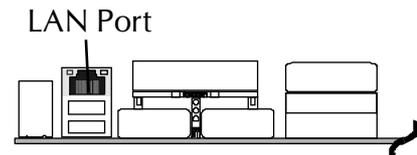
Ⓑ❸ **USB1/USB2 Port Connectors**

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

USB Port 2

USB Port 1
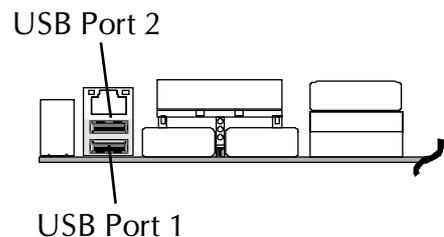
Ⓑ❹ **COM1 Port Connector**

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.

COM1 Port
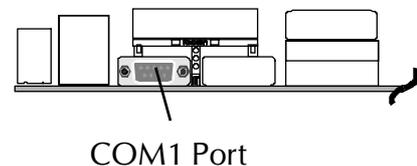
Ⓑ❺ **VGA Connector**

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

VGA Port
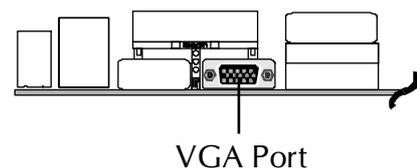
B6 Parallel Port Connector

One DB25 female parallel connector is located at the rear panel of the mainboard.

Plug the connection cable from your parallel device (printer, scanner, etc.) into this connector.

Parallel Port
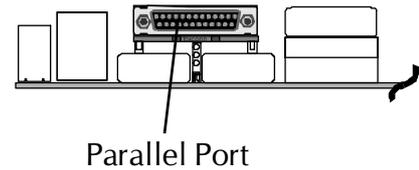
B7 Line-Out Port Connector

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
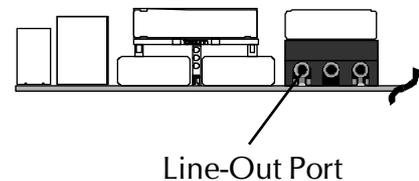
Line-Out Port

B8 Line-In Port Connector

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.

Line-In Port
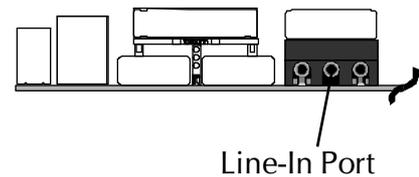
B9 Mic-In Port Connector

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

Mic-In Port
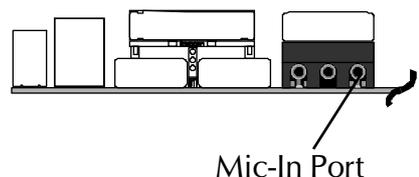
B10 MIDI/GAME Port Connector

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

MIDI/GAME Port
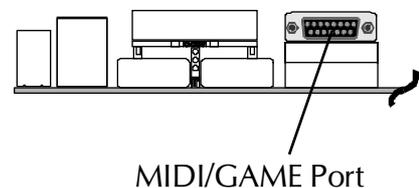
MIDI Instrument Connection

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

☞ *Front-Panel Connectors*

ⓒ ATX Power On/Off Switch Connector (PWON)

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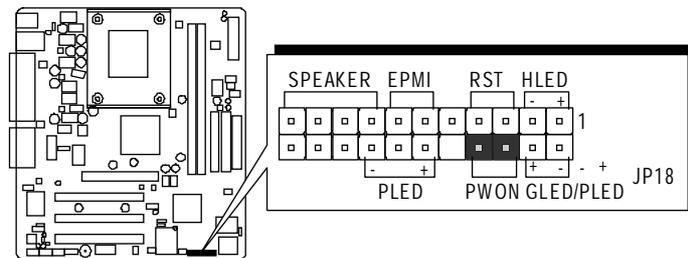
> **Note :** Please notice all the LED connectors are directional. If your chassis's LED does not light up during running, please simply change to the opposite direction.

ⓒ EPMI Connector (EPMI)

Hardware System Management Interface (EPMI) header may attach to 2-pin momentary switch. Press the switch to force system into power saving mode; press it again to resume back the normal operation situation.
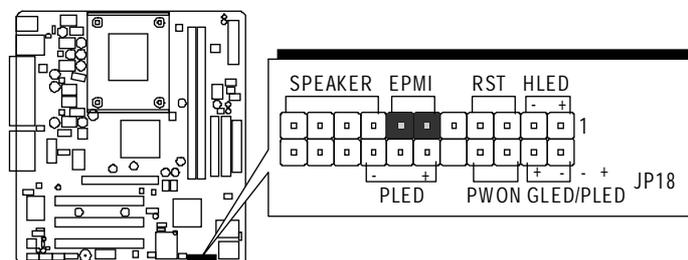
⊗ Green LED / Power LED Connector (GLED/PLED)

This header is dual color LED function.

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

The Green LED indicates that the system is currently in one of the power saving mode (Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off, power LED on.

This Power LED will go off during power saving mode.

Attach a 2-pin Green LED/Power LED cable to (GLED/PLED) header.
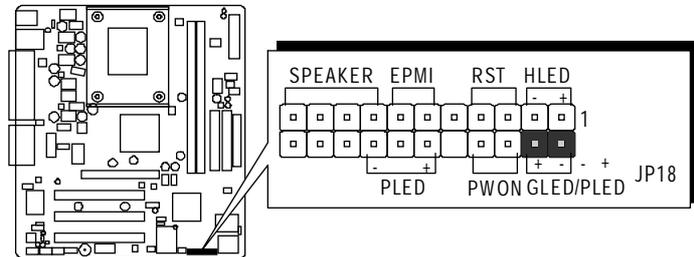
⊗ HDD LED Connector (HLED)

Attach the connector cable from the IDE device LED to the 2-pin (HLED) header. The HDD LED lights up whenever an IDE device is active.
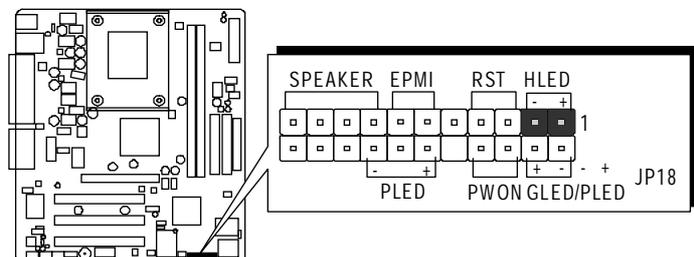
ⓒ5 Power LED Connector (PLED)

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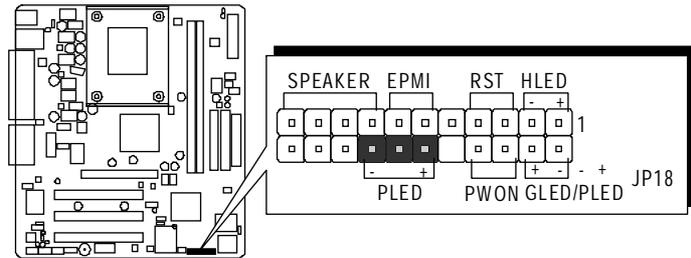
ⓒ6 Hardware Reset Connector (RST)

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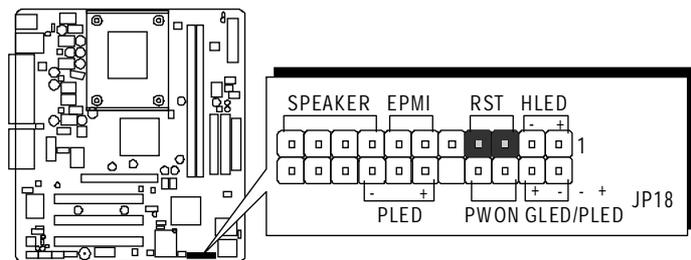
ⓒ7 Speaker Connector (SPEAKER)

Attach the PC speaker cable from the case to the 4-pin speaker connector (SPEAKER).
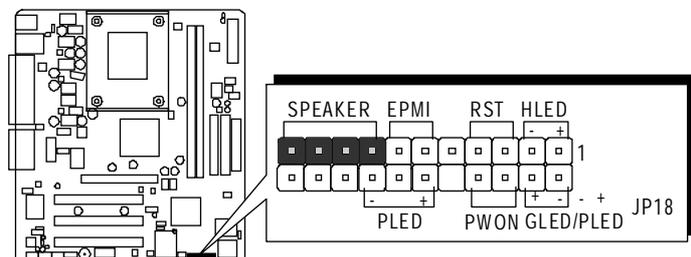
✪ **Extended USB Header (JP4)**

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

USB port 3

```
9   7   5   3   1
┌───┬───┬───┬───┬───┐
│   │ ● │ ● │ ● │ ■ │
├───┼───┼───┼───┼───┤
│ ● │ ● │ ● │ ● │ ● │
└───┴───┴───┴───┴───┘
10  8   6   4   2
```

USB port 4

USB 3 & 4   JP4
1
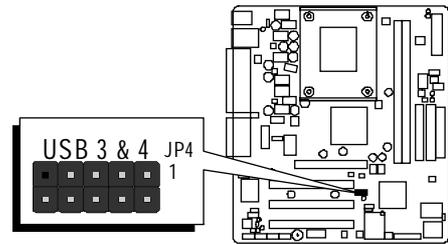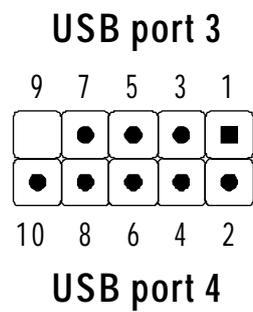
Pins Assignment:

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

☞ *Internal Peripherals Connectors*

❶ Enhanced IDE and Floppy Connectors

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

This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA **100/66/33** ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.
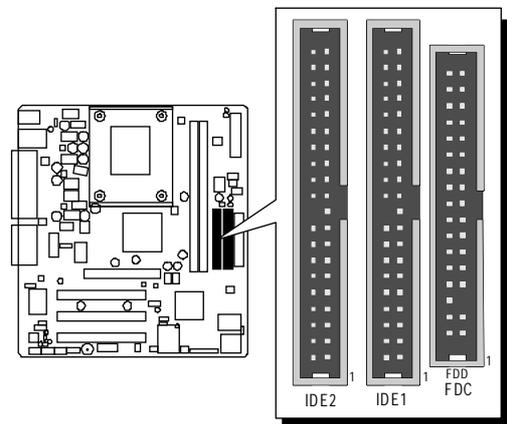
Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.

☞ *Other Connectors*

➌ **ATX Power Supply Connectors (CN6, JP16 and JP20)**

This motherboard uses 20-pin (CN6) Pentium 4 standard ATX power header, and two (JP16 with 2X2-pin, JP20 with 1X4-pin) +12V PC ATX power supply headers.

Please make sure you plug in the right direction.

You can choice JP16 or JP20 power supply header to support CPU power.

P4 ATX Power supply headers
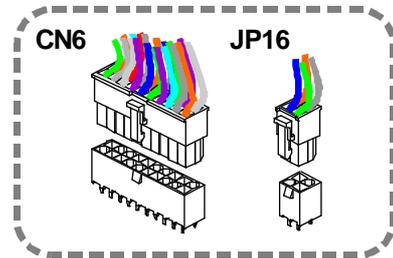
P3/P4 ATX Power supply headers
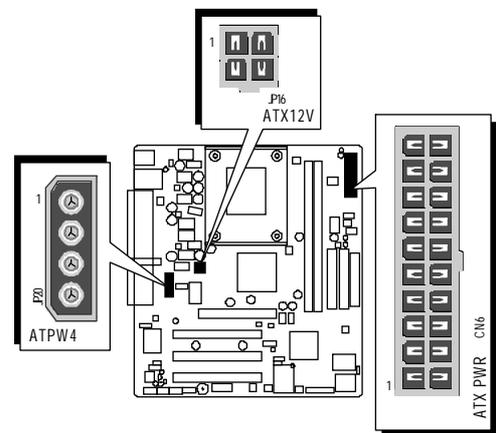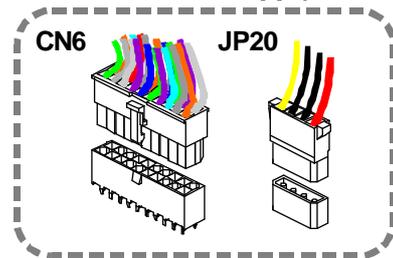
Note **This motherboard can't support AC power resumes from power failure, you must press power button to power-on.**

> **Note 1:** The ATX power connector is directional and will not go in unless the guides match perfectly making sure that pin#1 is properly positioned.
> **Note 2:** Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.
> **Note 3:** Your ATX power supply must be supplied to ACPI +5V standby power and at least 720mA compatible.
> **Note 4:** Make sure your power supply have enough power for higher speed processor installed.

☜ CPU, AGP, and System Fan connectors - FAN1/2/3

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

Note:

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

GND   +12V   SENSE

1
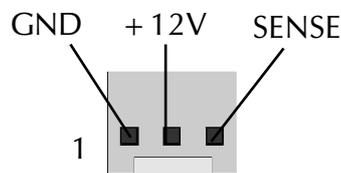
FAN1/2/3 with rotate sense.
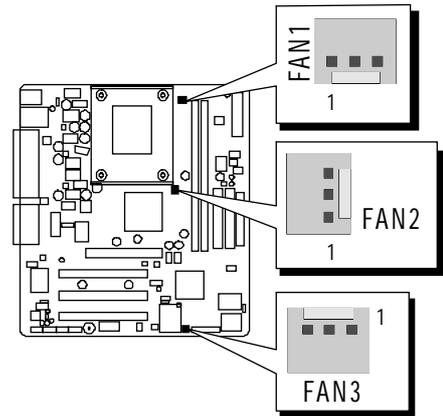
☜ IR Header (JP7)

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

Pins Assignment:

1 = NC

2 = KEY

3 = +5V

4 = GND

5 = IRTX

6 = IRRX

5 3 1

6 4 2
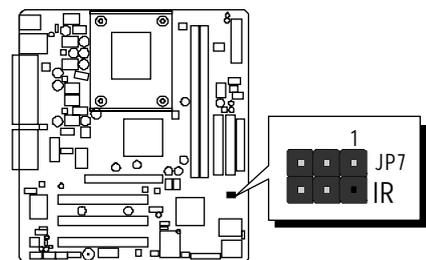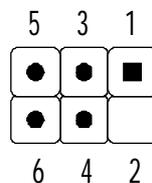
Note: Before connect your IR device, please be sure each IR on board pin allocation is matchable with the pin of the IR device. Otherwise, incorrect IR connection may do damage to your IR device.

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

Step 2. This mainboard supports Normal, IrDA transfer modes.

E4 COM2 Connector (J3)

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

```
 9  7  5  3  1
 ●  ●  ●  ●  ■
    ●  ●  ●  ●
10  8  6  4  2
```
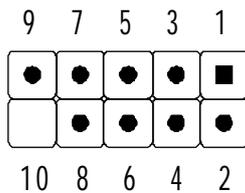
Pins Assignment:

1 = DCD2	2 = RX2
3 = TX2	4 = DTR2
5 = GND	6 = DSR2
7 = RTS2	8 = CTS2
9 = RI2	10 = KEY
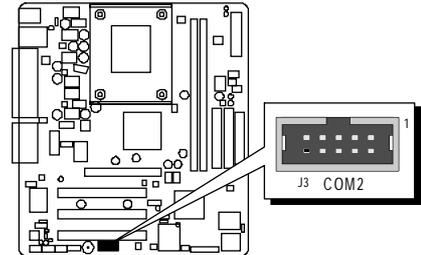
E5 Audio CD_IN Connector (CN5) (Black)

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

```
 1  2  3  4
 ■  ●  ●  ●
```
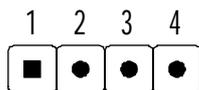
Pin Assignments:

1 = CD-L	2 = CD-GND
3 = CD-GND	4 = CD-R
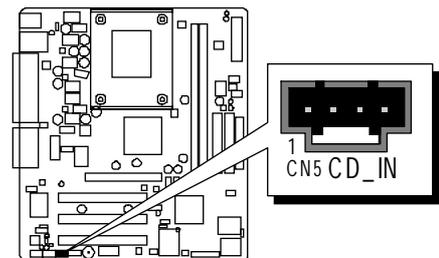
E6 Audio TAD _IN Connector (CN7) (Green)

Port CN7 can be used to connect a modem audio line to MS50/MS50N mainboard. Typically, you would use this connector when running the voice mail software on your system for audio input and output.

```
 1  2  3  4
 ■  ●  ●  ●
```
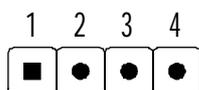
Pins Assignment:

1 = PHONE_IN	2 = AGND
3 = AGND	4 = MONO_OUT
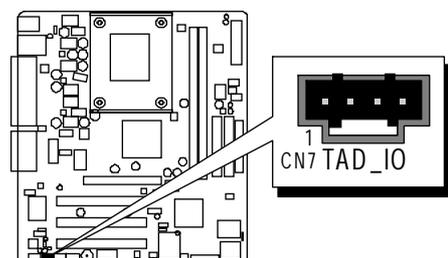
E7 Audio AUXILIARY_IN Connectorr (CN4) (White)

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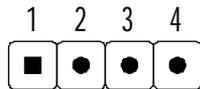
Pin Assignments:

1 = AUXL   2 = AGND
3 = AGND   4 = AUXR
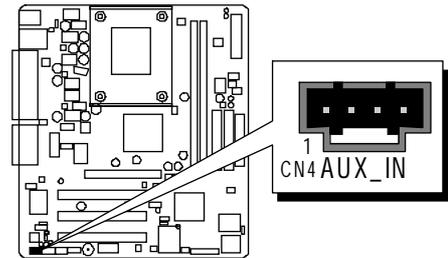
E8 Front-Panel Microphone and Line_out Header (JP19)

This header allows users to install auxiliary front-oriented microphone and line-out ports for easier access. Either the Mic and Line_out connector on back-panel or JP19 header are available at the same time. If you would like to use this JP19 header on front-panel, please remove all jumpers from JP19 and install your special Extra Mic / Line_out cable instead.
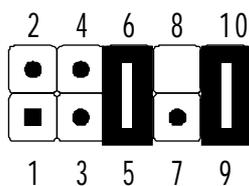
Pins Assignment:

1 = AUD_MIC   2 = AUD_GND
3 = AUD_MIC_VCC   4 = RESERVE
5 = AUD_FRONT_R   6 = AUD_RET_R
7 = HP_ON   8 = KEY
9 = AUD_FRONT_L   10 = AUD_RET_L
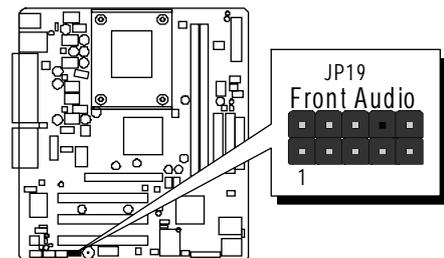
3.3 System Memory Configuration

The MS50/MS50N mainboard has two 168-pin DIMM slots that allow you to install from 16MB up to 2GB of system memory.

Each 168-pin DIMM (Dual In-line Memory Module) Slot can accommodate 16MB, 32MB, 64MB, 128MB, 256MB, and 512MB of PC100/PC133 compliant 3.3V single or double side 64-bit wide data path SDRAM modules.

1. Install Memory:

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

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

2. Upgrade Memory:

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

4 SOFTWARE UTILITY

4.1 Mainboard CD Overview

Note: The CD contents attached in MS50/MS50N 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 MS50 Software** - Installing SIS chipset, Audio, VGA drivers.

☞ **Install Mainboard MS50N Software** - Installing SIS chipset, Audio, VGA , and LAN drivers.

☞ **Manual** - MS50/MS50N 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 VGA Device Driver and Win 9x/NT LAN Device Driver must be installed manually.
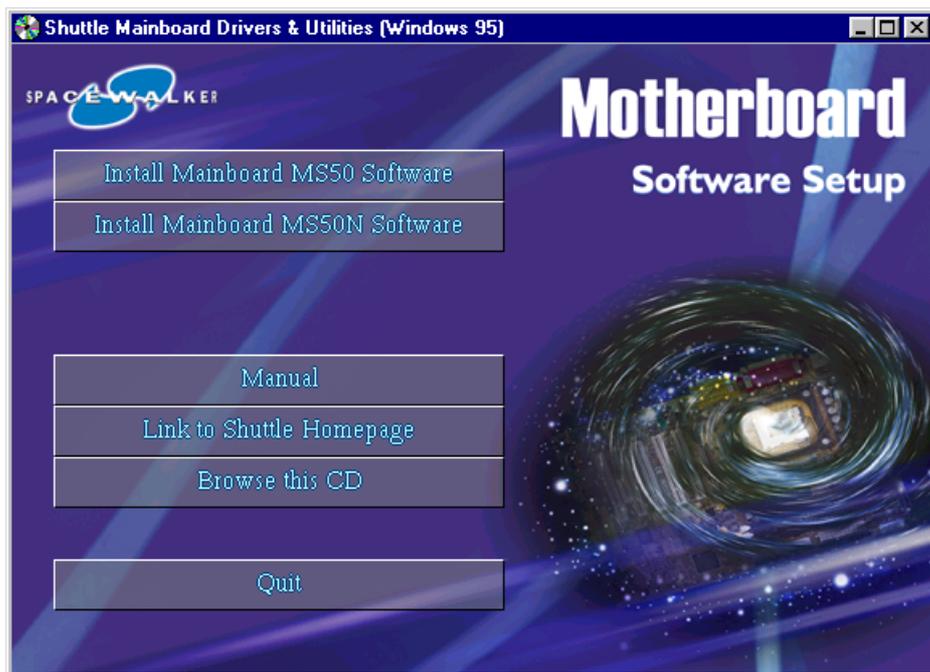
4.2 Install Mainboard Software

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 MS50 Software"** or **"Install Mainboard MS50N Software"** bar to run into sub-menu.

The **Mainboard MS50 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 MS50N 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.

MS50

MS50N

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

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

4.2.B Install Audio Driver

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

MS50

MS50N

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

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

4.2.C Install SIS VGA Driver

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

MS50

MS50N

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 Pnael** -> **Display** icon to bring up **Display Properties** screen.

Select tab "**Settings**" and **"Display Type"** bar to continue.
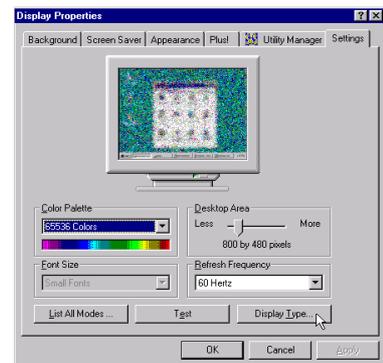
The **Display Type** windows will appear on your screen. Click on **"Change"** bar to install driver.

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"**.

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

Make sure **"SiS Compatible VGA"** driver, and click on **"Yes"**.
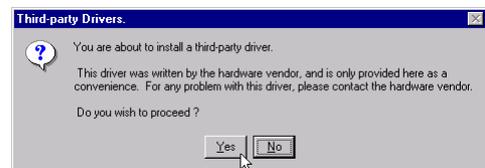
Completing the upgrade device driver, and click on **"OK"** to restart the system to take all the changes effect.
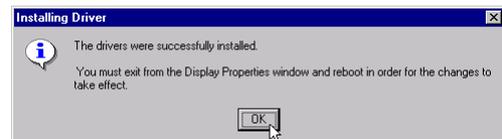
After restart, you may check Display under the location mentioned at right figure. The Display Properties shows correctly.
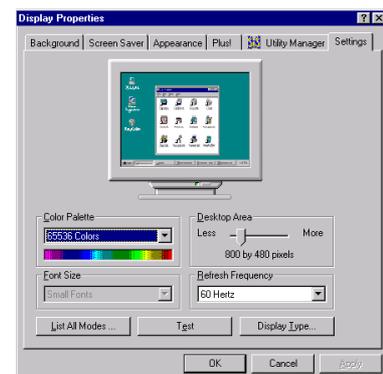
4.2.D Install LAN Driver (MS50N only)

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

MS50N

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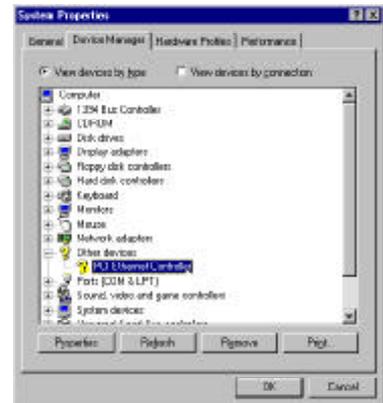
Then **PCI Ethernet Controller Properties** windows will appear on your screen.

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

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

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

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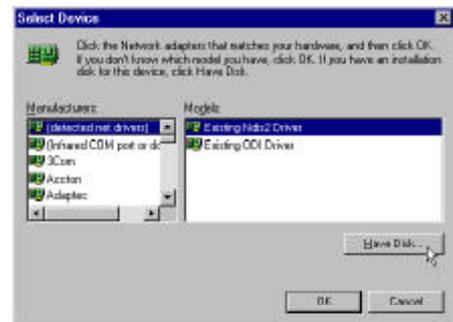
Indicate the driver's location as **"D:\lan\WIN98\NETRTS5.INF"** (In this location CD disk drive is supposed to be **"D"** letter.)

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 procddure automatically.

Completing the upgrade device driver, and click on **"Finish"** to restart the system to take all the changes effect.
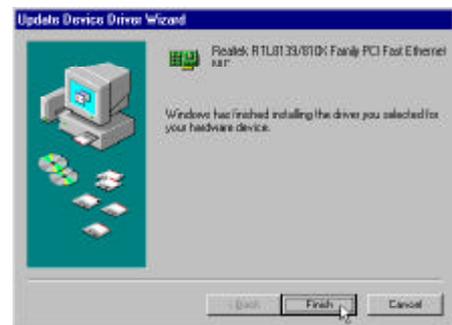
After restart, you may check Network adapters under the location mentioned at right figure.

The Network adapters shows correctly.
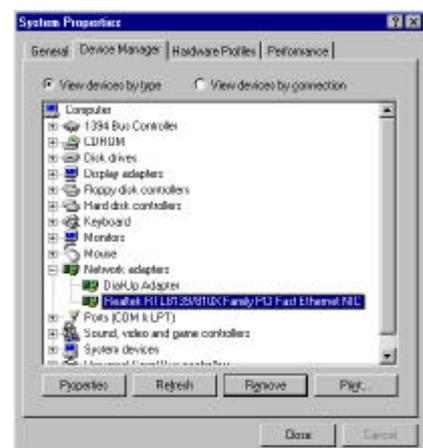
Install WINNT LAN driver

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

Select tab "**Adapters"** and **"Add"** bar to install driver.
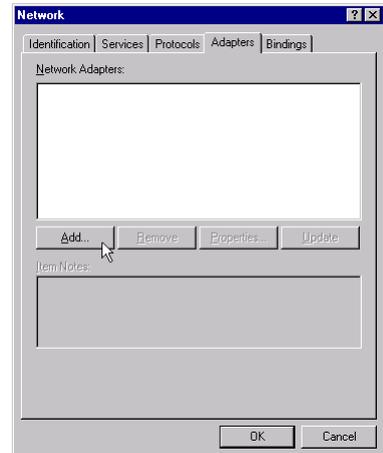
Insert the support CD by the mainboard manufacturer and choose "**Have Disk"** bar to continue next step.
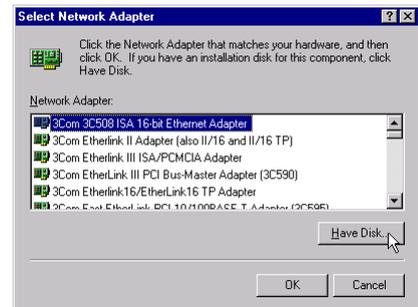
Key in the driver's location as **"D:\lan\WINNT4\"** (In this location CD disk drive is supposed to be **"D"** letter.) and click on **"OK"**.
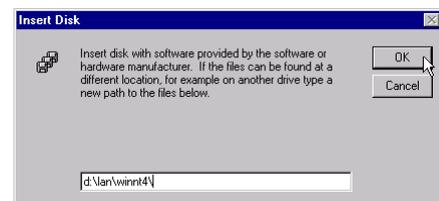
Select **"Realtek RTL8139/810X Family PCI Fast Ethernet Adapter"** to install then click on **"OK"**.
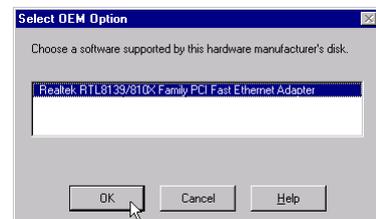
Chocse the proper Duplex Mode, and click on **"OK"**.

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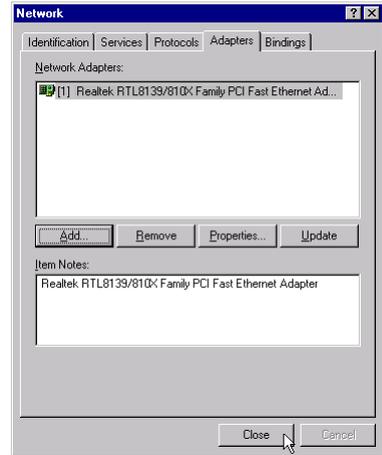
Setting yourself network.

Then the system will do the setup procddure automatically.
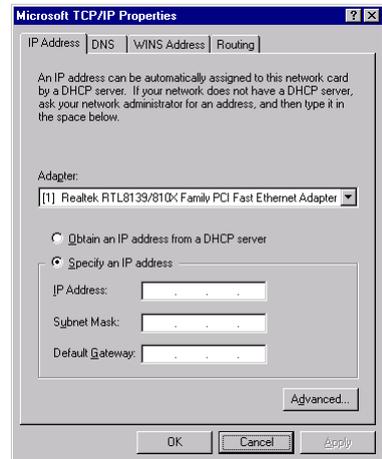
Completing the upgrade device driver, and click on **"Yes"** to restart the system to take all the changes effect.
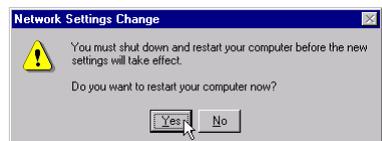
After restart, you may check Network adapters under the location mentioned at right figure. The Network adapters shows correctly.
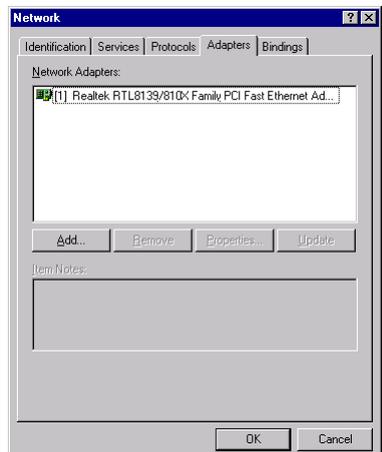
4.3 View the User's Manual

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 **"MS50/MS50N Manual"** bar to view user's manual.

5 BIOS SETUP

MS50/MS50N 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.

```
                 Award Software, Inc. CMOS Setup Utility
 ┌───────────────────────────────────────────────────────────────────────┐
 │ ▶ Standard CMOS Features          ▶ Frequency/Voltage Control          │
 │                                                                        │
 │ ▶ Advanced BIOS Features             Load Fail-Safe Defaults           │
 │                                                                        │
 │ ▶ Advanced Chipset Features          Load Optimized Defaults           │
 │                                                                        │
 │ ▶ Integrated Peripherals             Set Password                      │
 │                                                                        │
 │ ▶ Power Management Setup             Save & Exit Setup                 │
 │                                                                        │
 │ ▶ PnP/PCI Configurations             Exit Without Saving               │
 │                                                                        │
 │ ▶ PC Health Status                                                     │
 ├───────────────────────────────────────────────────────────────────────┤
 │ Esc : Quit      F9 : Menu in BIOS     ↑ ↓ ←  : Select Item             │
 │ F10 : Save & Exit Setup                                                │
 ├───────────────────────────────────────────────────────────────────────┤
 │                    Time, Date, Hard Disk Type...                       │
 └───────────────────────────────────────────────────────────────────────┘
```

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

Setup Items

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

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI 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.

```
                    Award Software, Inc. CMOS Setup Utility
                            Standard CMOS Features
 ┌──────────────────────────────────────────────────┬──────────────────────┐
 │  Date (mm:dd:yy)          Wed, Dec 26 2001        │      Item Help       │
 │  Time (hh:mm:ss)           18 : 23 : 35           ├──────────────────────┤
 │                                                   │  Menu Level    ▶     │
 │ ▶ IDE Primary Master                              │                      │
 │ ▶ IDE Primary Slave                               │  Change the day, month,│
 │ ▶ IDE Secondary Master                            │  year and century    │
 │ ▶ IDE Secondary Slave                             │                      │
 │                                                   │                      │
 │   Drive A                 [1.44M, 3.5 in.]        │                      │
 │   Drive B                 [None]                  │                      │
 │   Floppy 3 Mode Support   [Disabled]              │                      │
 │                                                   │                      │
 │   Video                   [EGA/VGA]               │                      │
 │   Halt On                 [All Errors]            │                      │
 │                                                   │                      │
 │   Base Memory                 640K                │                      │
 │   Extended Memory           65472K                │                      │
 │   Total Memory               1024K                │                      │
 ├──────────────────────────────────────────────────┴──────────────────────┤
 │ ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
 │     F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
 └──────────────────────────────────────────────────────────────────────────┘
```

Date

<Month>   <DD>   <YYYY>

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

Time

<HH : MM : SS>

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

IDE Primary Master

Options are in its sub-menu.

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

IDE Primary Slave

Options are in its sub-menu.

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

IDE Secondary Master

Options are in its sub-menu.

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

IDE Secondary Slave

Options are in its sub menu.

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

Drive A/Drive B

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

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

Floppy 3 Mode Support

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

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

Video

Select the default video device.

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

Halt On

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

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

Base Memory

Displays the amount of conventional memory detected during boot up.

➢ The choice: N/A.

Extended Memory

Displays the amount of extended memory detected during boot up.

➢ The choice: N/A.

Total Memory

Displays the total memory available in the system.

➢ The choice: N/A.

* *

IDE Adapters

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

IDE HDD Auto-Detection

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

➢ Press Enter

IDE Primary Master

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

➢ The choice: None, Auto, or Manual.

Access Mode

Choose the access mode for this hard disk.

➢ The choice: 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.

```
              Award Software, Inc. CMOS Setup Utility
                       Advanced BIOS Features
 ┌─────────────────────────────────────────────┬──────────────────────┐
 │ Virus Warning           [Disabled]          │      Item Help       │
 │ CPU L1 & L2 Cache       [Enabled]           ├──────────────────────┤
 │ CPU L2 Cache ECC Checking [Enabled]         │ Menu Level    ▶      │
 │ Quick Power On Self Test [Enabled]          │                      │
 │ First Boot Device       [Floppy]            │ Allows you to choose │
 │ Second Boot Device      [HDD-0]             │ the VIRUS warning    │
 │ Third Boot Device       [LS120]             │ feature for IDE Hard │
 │ Boot Other Device       [Enabled]           │ Disk boot sector     │
 │ Swap Floppy Drive       [Disabled]          │ protection. If this  │
 │ Boot Up Floppy Seek     [Disabled]          │ function is enabled  │
 │ Boot Up NumLock Status  [On]                │ and someone attempt to│
 │ Typematic Rate Setting  [Enabled]           │ write data into this │
 │ Typematic Rate (Chars/Sec)[6]               │ area ,  BIOS will show│
 │ Typematic Delay (Msec)  [250]               │ a warning message on │
 │ Security Option         [Setup]             │ screen and alarm beep│
 │ APIC Mode               [Enabled]           │                      │
 │ MPS Version Control For OS[1.4]             │                      │
 │ OS Select For DRAM > 64MB [Non-OS2]         │                      │
 │ HDD S.M.A.R.T. Capability [Disabled]        │                      │
 │ Report No FDD For WIN 95 [No]               │                      │
 │ Video BIOS Shadow       [Enabled]           │                      │
 │ Small Logo(EPA) Show    [Enabled]           │                      │
 ├─────────────────────────────────────────────┴──────────────────────┤
 │ ↑↓→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
 │   F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults    │
 └─────────────────────────────────────────────────────────────────────┘
```

Virus Warning

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

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

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

➢ The choice: Enabled or Disabled.

CPU L1 & L2 Cache

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

➢ The choice: Enabled or Disabled.

CPU L2 Cache ECC Checking

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

➢ The choice: Enabled or Disabled.

Quick Power On Self Test

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

➢ The choice: Enabled, or Disabled.

First/Second/Third Boot Device

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

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

Boot Other Device

Select Your Boot Device Priority.

➢ The choice: Enabled or Disabled.

Swap Floppy Drive

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

➢ The choice: Enabled or Disabled.

Boot Up Floppy Seek

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

➢ The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

➢ The choice: Off or On.

Typematic Rate Setting

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

➢ The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

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

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

Typematic Delay (Msec)

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

➢ The choice: 250, 500, 750, or 1000.

Security Option

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

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

➢ The choice: System or Setup.

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

APIC Mode

Selects enable/disable IO APIC function

➢ The choice: Enabled or Disabled.

MPS Version Control For OS

Selects the operating system multiprocessor support version.

➢ The choice: 1.1 or 1.4

OS Select For DRAM > 64MB

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

➢ The choice: Non-OS2 or OS2.

HDD S.M.A.R.T. Capabiliry

This item enable/disable the HDD system management function.

➢ The choice: Enabled or Disabled.

Report No FDD For Win 95

Whether report no FDD runs for Win 95 or not.

➢ The choice: Yes or No.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

➢ The choice: Enabled or Disabled.

Small Logo(EPA) Show

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

➢ The choice: Enabled or Disabled.

✎ *Advanced Chipset Features*

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

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

```
                     Award Software, Inc. CMOS Setup Utility
                              Advanced Chipset Features
┌─────────────────────────────────────────────────┬──────────────────────┐
│ ► Advanced DRAM Control 1    [Press Enter]        │      Item Help       │
│   Prefetch Caching           [Disabled]           │                      │
│   Memory Hole at 15M-16M      [Disabled]          │  Menu Level    ►     │
│   AGP Aperture Size          [128MB]              │                      │
│   Graphic Window WR Combin   [Enabled]            │                      │
│   AGP Fast Write             [Disabled]           │                      │
│   AGP sideband address       [Disabled]           │                      │
│   AGP Capability             [Auto]               │                      │
│                                                   │                      │
│                                                   │                      │
│                                                   │                      │
│                                                   │                      │
│                                                   │                      │
├─────────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
└─────────────────────────────────────────────────────────────────────────┘
```

Advanced DRAM Control 1
Options are in its sub-menu.

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

System Performance

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

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

CAS Latency Setting

This item select the CAS latency for DDR SDRAM

➢ The Choice: 2T 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 ususlly discusses their memory requirements.

➢ The Choice: Enabled or Disabled.

AGP Aperture Size (MB)

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

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

Graphic Window WR Combin

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

➢ The Choice: Enabled or Disabled.

AGP Fast Write

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

➢ The Choice: Enabled or Disabled.

AGP sideband address

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

➢ The Choice: Enabled or Disabled.

AGP Capability

This item select the AGP supported mode

➢ The Choice: Auto, 2X, or 4X.

✍ *Integrated Peripherals*

```
                Award Software, Inc. CMOS Setup Utility
                        Integrated Peripherals
 ┌────────────────────────────────────────────┬──────────────────────┐
 │ ▶ SIS OnChip IDE Device    [Press Enter]    │     Item Help        │
 │ ▶ SIS OnChip PCI Device    [Press Enter]    ├──────────────────────┤
 │ ▶ Onboard SuperIO Device   [Press Enter]    │ Menu Level    ▶      │
 │   USB Controller           [Enabled]        │                      │
 │   USB Keyboard Support     [Disabled]       │                      │
 │   IDE HDD Block Mode       [Enabled]        │                      │
 │   Init Display First       [PCI Slot]       │                      │
 │   AGP Auto Calibration     [Enabled]        │                      │
 │   IDE  Access Interface    [Embedded Bus]   │                      │
 │   USB1 Access Interface    [Embedded Bus]   │                      │
 │   USB0 Access Interface    [Embedded Bus]   │                      │
 │   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 and internal PCI IDE interface with support for two IDE channels.

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

IDE Primary/Secondary Master/Slave PIO

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

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

Primary/Secondary Master/Slave UltraDMA

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

➢ The choice: Auto or Disabled.

IDE Burst Mode

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

➢ The choice: Enabled or Disabled.

SIS OnChip PCI Device

Options are in its sub-menu.

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

SIS-7012 AC97 AUDIO

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

➢ 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) in-stalled on the system board and you want to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field.

➢ The choice: Enabled or Disabled.

Onboard Serial Port1/Port2

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

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

UART Mode Select

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

➢ The choice: IrDA or Normal.

UR2 Duplex Mode

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

➢ The choice: Full or Half.

Onboard Parallel Port

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

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

Parallel Port Mode

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

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

ECP Mode Use DMA

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

➢ The choice: 1 or 3.

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.

IDE HDD Block Mode

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

➢ The choice: Enabled or Disabled.

Init Display First

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

➢ The choice: AGP or PCI Slot.

AGP Auto Calibration

This item enable/disable the AGP driving functions.

➢ The choice: Enabled or Disabled.

IDE Access Interface

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

➢ The choice: Embedded Bus or PCI Bus.

USB1 Access Interface

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

➢ The choice: Embedded Bus, or PCI Bus.

USB0 Access Interface

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

➢ The choice: Embedded Bus, or PCI Bus.

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*

```
           Award Software, Inc. CMOS Setup Utility
                    Power Management Setup
  ┌──────────────────────────────────────┬──────────────────────┐
  │ ACPI function          [Enabled]     │      Item Help       │
  │ ACPI Suspend Type      [S1(POS)]     │                      │
  │ Video Off Option       [Susp,Stby -> Off]  Menu Level    ►  │
  │ Video Off Method       [DPMS Supported]                     │
  │ Switch Function        [Break/Wake]  │                      │
  │ MODEM Use IRQ          [AUTO]        │                      │
  │ HDD Off After          [Disable]     │                      │
  │ Power Button Override  [Instant Off] │                      │
  │ ► PM Wake Up Events     [Press Enter] │                      │
  │                                       │                      │
  │                                       │                      │
  │                                       │                      │
  │                                       │                      │
  │                                       │                      │
  │                                       │                      │
  ├──────────────────────────────────────┴──────────────────────┤
  │ ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
  │    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults    │
  └─────────────────────────────────────────────────────────────┘
```

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

ACPI Function

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

➢ The choice: Enabled or Disabled.

ACPI Suspend Type

This item allows you to select sleep state when suspend.

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

Video Off Option

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

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

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

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screened	This option only writes blanks to the video buffer.
DPMS Support	Initial display power management signaling.

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

Switch Function

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

➢ The choice: Disabled or Break / wake.

MODEM Use IRQ

This determines the IRQ which the MODEM can use.

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

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.

PM Wake Up Events

Options are in its sub-menu.

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

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

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

➢ The choice: Enabled, Disabled.

IRQ 8 Break Suspend

This field allows you to enable or disable monitoring of IRQ8 so that it

does not awaken the system from a suspend mode.

➢ The choice: Enabled, Disabled.

RING Power Up Control

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

➢ The choice: Enabled, Disabled.

PCIPME Power Up Control

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

➢ The choice: Enabled, Disabled.

USB Port Wake Up Control

This item enable/disable the USB wakeup function.

➢ The choice: Enabled, Disabled.

Power Up by Alarm

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

➢ The choice: Enabled, Disabled.

Month Alarm

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

➢ The choice: NA, 1 ~ 12.

Data of Month Alarm

This item selects the alarm date.

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

Time (hh : mm : ss) Alarm

This item selects the alarm Time.
[hh]
➢ Key in a DEC number:Min = 0, Max = 23.
[mm/ss]
➢ Key in a DEC number:Min = 0, Max = 59.

❧ *PnP/PCI Configurations*

```
                 Award Software, Inc. CMOS Setup Utility
                        PnP/PCI Configurations
┌─────────────────────────────────────────────┬──────────────────────────┐
│ Reset Configuration Data   [Disabled]        │        Item Help         │
│                                              ├──────────────────────────┤
│   Resources Controlled By  [Manual]          │ Menu Level    ▶          │
│ ▶ IRQ Resources            [Press Enter]     │                          │
│                                              │ Default is Disabled.     │
│   PCI/VGA Palette Snoop     [Disabled]       │ Select Enabled to        │
│                                              │ reset Extended System    │
│                                              │ Configuration Data       │
│                                              │ ESCD) when you exit      │
│                                              │ Setup if you have        │
│                                              │ installed a new add-on   │
│                                              │ and the system           │
│                                              │ reconfiguration has      │
│                                              │ caused such a serious    │
│                                              │ conflict that the OS     │
│                                              │ cannot boot              │
│                                              │                          │
├──────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults │
└──────────────────────────────────────────────────────────────────────────┘
```

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.
This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

Reset Configuration Data

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

➢ The choice: Enabled or Disabled .

Resource controlled By

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

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

➢ The choice: Auto(ESCD) or Manual.

IRQ Resources

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

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

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

➢ The choice: PCI Device or Reserved.

PCI/VGA Palette Snoop

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

➢ The choice: Enabled or Disabled.

❧ *PC Health Status*

```
                Award Software, Inc. CMOS Setup Utility
                            PC Health Status
  ┌────────────────────────────────────────────────┬─────────────────────┐
  │ Shutdown Temperature    [60°C/140°F]            │      Item Help      │
  │ CPU VCore                                        │                     │
  │   VDDQ                                           │ Menu Level    ▶     │
  │ +3.3V                                            │                     │
  │   +5V                                            │                     │
  │  +12V                                            │                     │
  │  -12V                                            │                     │
  │  1.8V                                            │                     │
  │ +5VSB                                            │                     │
  │ Voltage Battery                                  │                     │
  │ System Temperature                               │                     │
  │ CPU Temperature                                  │                     │
  │ PWM Temperature                                  │                     │
  │ Fan 1 Speed                                      │                     │
  │ Fan 2 Speed                                      │                     │
  │ Fan 3 Speed                                      │                     │
  │                                                  │                     │
  ├──────────────────────────────────────────────────────────────────────┤
  │ ↑↓+:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
  │     F5: Previous Values      F6: Fail-Safe Defaults   F7: Optimized Defaults │
  └──────────────────────────────────────────────────────────────────────┘
```

Shutdown Temperature

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 VCore
VDDQ
+3.3V
+5V
+12V
-12V
1.8V
+5VSB
Voltage Battery
System Temperature
CPU Temperature
PWM Temperature
Fan 1 Speed
Fan 2 Speed
Fan 3 Speed

☞ *Frequency/Voltage Control*

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

 CPU Clock Ratio        [ 0 X]              Item Help
 Auto Detect DIMM/PCI Clk [Enabled]
 Spread Spectrum        [Disabled]       Menu Level  ▶
 CPU Host/SDRAM/PCI Clock [Default]
```
```
↑↓←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults
```
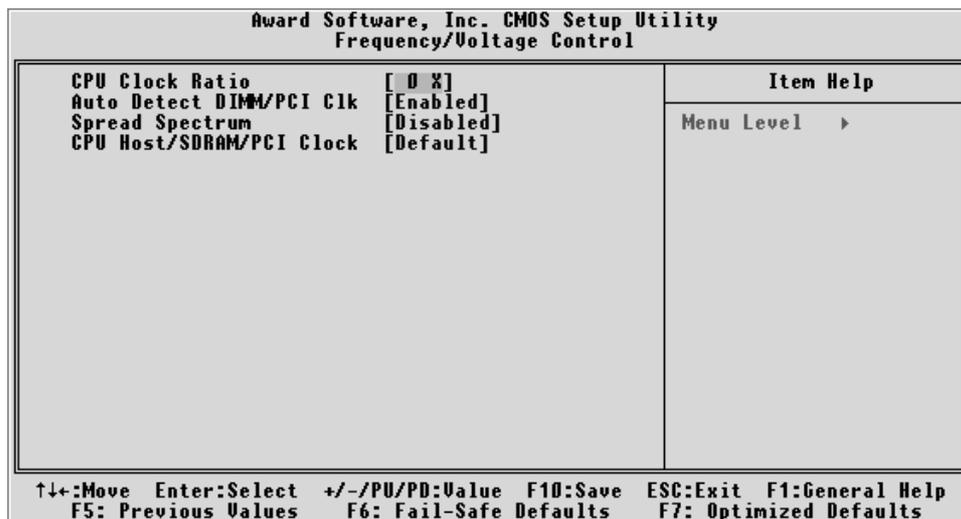
CPU Clock Ratio

This item allows you to adjust CPU Ratio.

Min: 10

Max: 24

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

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/SDRAM/PCI Clock

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

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

❧ *Load Fail-Safe Defaults*

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

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

Pressing 'Y' loads the BIOS default values for the most stable, minimal performance system operations.
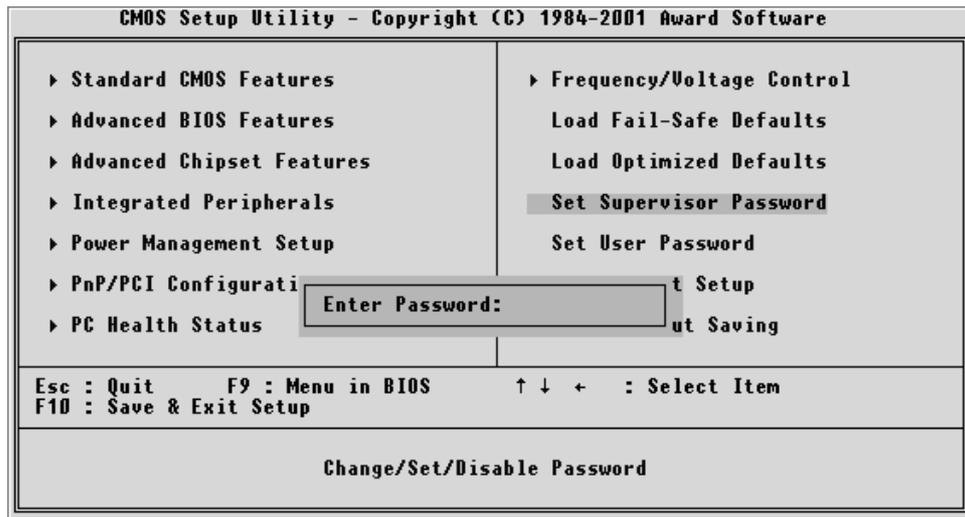
❧ *Load Optimized Defaults*

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

Load Optimized Defaults (Y/N) ? N

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

✍ **Set Password**

```
         CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
   ┌──────────────────────────────────────────────────────────────────┐
   │  ▶ Standard CMOS Features        ▶ Frequency/Voltage Control       │
   │  ▶ Advanced BIOS Features           Load Fail-Safe Defaults        │
   │  ▶ Advanced Chipset Features        Load Optimized Defaults        │
   │  ▶ Integrated Peripherals           Set Supervisor Password        │
   │  ▶ Power Management Setup           Set User Password               │
   │  ▶ PnP/PCI Configurati┌──────────────────────────┐ t Setup         │
   │  ▶ PC Health Status   │  Enter Password:         │ ut Saving       │
   │                       └──────────────────────────┘                 │
   ├──────────────────────────────────────────────────────────────────┤
   │  Esc : Quit      F9 : Menu in BIOS     ↑ ↓ ←  : Select Item        │
   │  F10 : Save & Exit Setup                                           │
   ├──────────────────────────────────────────────────────────────────┤
   │                  Change/Set/Disable Password                       │
   └──────────────────────────────────────────────────────────────────┘
```

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

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

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

If You Forget Password :
6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 27 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.