

FS56

**Pentium 4/Celeron, 478-pin Processor
with 400/533/800 MHz FSB
Based DDR MAINBOARD**

User's Manual

Shuttle® FS56

**Pentium 4/Celeron, 478-pin Processor
with 400/533/800 MHz FSB
Based DDR Mainboard
Manual Version 1.0**

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Statement of Shuttle Mainboard via the EMI Test

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

(A) Voltage: AC 110V/60HZ & AC 230V/50HZ

(B) Tested Product Information:

Product Name: PC Mainboard

Status: Sample

Model Name: FS56

S/N: N/A

CPU:

External Frequency: 100 MHz

Intel Pentium4: 1.6/ 1.8/ 2.0/2.2/2.4 GHz

External Frequency: 133 MHz

Intel Pentium4: 2.26/ 2.40/ 2.53/ 2.66/ 2.80/ 3.06 GHz

External Frequency: 200 MHz

Intel Pentium4: 2.8/ 3.0/ 3.2 GHz

Serial Port: two ports with 9 pins

VGA Port: one port with 15 pins

Keyboard Port: one port with 6 pins

Mouse Port: one port with 6 pins

USB 2.0 Port: four ports with 4 pins respectively

1394 Port: two port with 6 pins respectively

LAN Port: one port with 8 pins (10Mbps/100Mbps)

Center/Bass-Out & Line-Out & Line-In Ports: one port for each

Mic-In Ports: two ports

DIMM Memory (optional): DDR 400 256 MB *2

Power Cable: Detachable and Shielded (with a GND pin)

Maximum Resolution: 1280 X 1024 V:60Hz

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

Test Mode	External Frequency	CPU	CPU Open/Close
1	100MHz	P4 2.40 GHz	Close
2	100MHz	P4 2.40 GHz	Open
3	133MHz	P4 3.06 GHz	Close
4	133MHz	P4 3.06 GHz	Open
5	200MHz	P4 3.20 GHz	Close
6	200MHz	P4 3.20 GHz	Open

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

Remedy: N/A

EMI Interference:

Crystal : 14.318MHz(X2)/ 24.576MHz(X6)/ 25.00MHz(X6)/ 32.768KHz(X1)
24.576MHz(X5)/ 12MHz(X4)/ 24.576MHz(X7)

Clock Generator: U4

(D) Supported Host Peripherals:

Host Peripheral	Product Name	Model Name	S/N	FCC ID
#1	Case	FS56	N/A	
#2	Power Supply (300W)	AM630BS20S	0005596	D33047
#3	Maxtor HDD (40 GB)	D740X-6L	N/A	3902B975
#4	Panasonic FDD	JU-257A606P		
#5	Pioneer DVD Player	DVD-116	AAMS027197WL	3892D029

(E) Notices for Assembling Computers:

1. Cases should be made of iron or other metal that has good electric conductivity.
2. Cylinders in a case should be made of metal, and as having a mainboard mounted in a case, make sure screws are all utilized and fastened on a mainboard.
3. An I/O shielding should be contacted with I/O metallic parts of a mainboard.
4. Cables should appropriately be arranged and fixed in a case. Follow instructions:
 - Leave IDE cables not crossed upon CPU and SDRAM;
 - Leave power cables minimum in length, and not crossed upon a mainboard;
 - Leave CPU fan cables minimum in length, and not near CPU;
 - Leave cables on panels and other spare cables tied in a computer case.
5. Make sure an EMI shielding attached to a case has properly been installed.
6. Make sure a 5.25" or 3.5" FDD and screws are fastened to an EMI shielding.
7. Make sure a case is closely in contact with EMI connected points.
8. Make sure there is no cleft in a case which is not deformed.
9. Make sure a PCI or AGP door is bound to a case.
10. Make sure cables of other devices (fans or some others) are fixed in a case.

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1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the 3.1 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle FS56 mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle FS56 mainboard. You will find that installing your new Shuttle FS56 mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated FS56 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.

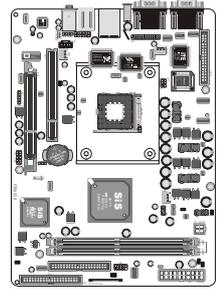
System Integrator

You have wisely chosen Shuttle FS56 to construct your system. Shuttle FS56 incorporates all the state-of-the-art technology of the SiS 661FX chipset from SiS. It integrates the most advanced functions you can find to date in a compact Small Form Factor ATX board.

1.2 Item Checklist

Check all items with you FS56 mainboard to make sure nothing is missing.
The complete package should include:

- ✦ One piece of Shuttle FS56 Mainboard



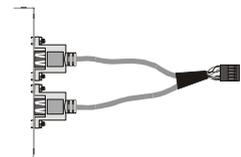
- ✦ One piece of ATA133/100 Ribbon Cable



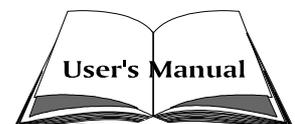
- ✦ One piece of Floppy Ribbon Cable



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



- ✦ FS56 User's Manual



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

- FS56 user's manual saved in PDF format
- SIS AGP Driver
- SIS IDE Driver
- SIS VGA Driver
- SIS USB2.0 Driver
- Realtek LAN Driver
- Realtek Audio Driver
- Award Flashing Utility



2 FEATURES

FS56 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 pentium4/celeron, 478-pin processor with 400/533/800MHz FSB or Prescott processor.

* Chipset

Features SiS 661FX N.B. and SiS 963L S.B..

Onboard Lan

Realtek 8100C, supports 10Mb/s and 100Mb/s operation.

Onboard 1394

VIA VT6306, supports 400Mb/s, 200Mb/s, 100Mb/s data transfer rate.

* Jumperless CPU Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100MHz to 255MHz by 1MHz setp in the Frequency/Voltage Control of BIOS setup program.)

* On Board Graphical Controller

The SiS661FX integrates a Real 256E 128-bit 2D/3D AGP controller.

* On Board 5.1 Channel AC97 Audio

Compliants with AC'97 2.2 specifications.

5.1 channel can share with Line-In by software select.

* Versatile Memory Support

Two 184-pin DIMM slots to support up to 2GB of PC2100, PC2700 or PC3200 compliant DDR SDRAM module.

* AGP Expansion Slot

Provides one 32-bit AGP slot which supports up to 4X / 8X AGP device.

* PCI Expansion Slot

Provides one 32-bit PCI slot.

* 6 USB 2.0/1.1 Interface Onboard

➤ 2 x USB 2.0 connectors on back-panel and two sets of dual USB ports headers on mid-board.

* I/O Interface

Provides a variety of I/O interfaces:

- 1 x 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 x DB15 VGA connector.
- 2 x DB9 Serial connectors 16550 UART compatible.
- 2 x 1394 connectors.
- 1 x RJ45 LAN connector.
- 1 x PS/2 mouse connector.
- 1 x PS/2 Keyboard connector.
- 1 x 5.1-Channel Front-Out port.
- 1 x 5.1-Channel Rear-Out port.
- 1 x 5.1-Channel Center/Bass-Out port.

* PCI Bus Master IDE Controller Onboard

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

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

* ATX Power Supply Connector

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

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

* 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 2Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

★ Form Factor

System board conforms to Shuttle small form factor ATX specification.

Board dimension: 254mm x 185mm.

★ Advanced Features

- Low EMI - Built in spread spectrum and automatic clock shut-off of unused PCI/SDRAMS slots to reduce EMI.
- Dual Function Power Button - The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode. When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.
- Modem Ring Power-On - The system can be powered on automatically by the activation of modem ringing.
- CPU Host/DRAM Clock Setting - These items allow users to adjust CPU Host/DRAM Clock in BIOS.
- CPU Multiplier Setting - This item allows users to adjust CPU Multiplier in BIOS.
- CPU/RAM/AGP/Chipset Voltage Setting - These items allow users to adjust CPU/RAM/AGP/Chipset Voltage 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.
- CPU Fan AutoGuardian - This SMART Bios enabled 3 phase Variable Fan Speed and CPU temperature Control feature.

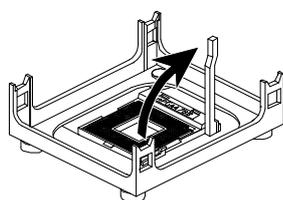
Step 1

CPU Installation:

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

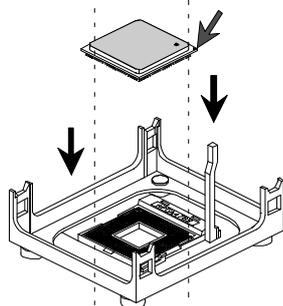
Note the CPU orientation when you plug it into CPU socket.

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



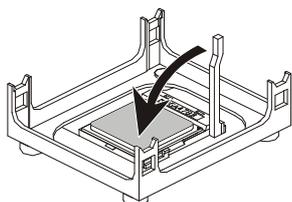
CPU socket lever up to 90-degree angle

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



CPU Pin 1 and cut edge

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



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

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

Step 2

Set Jumpers

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:

Clear CMOS

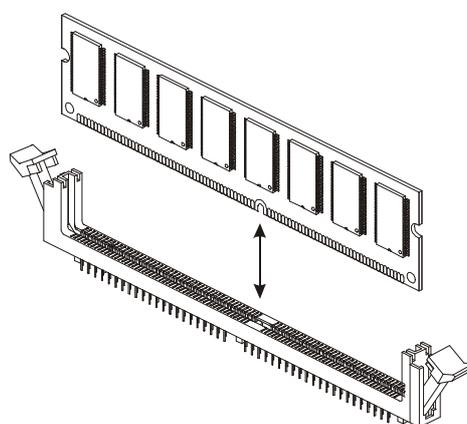
For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their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

Step 3

Install DDR SDRAM System Memory

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

DDR SDRAM



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.

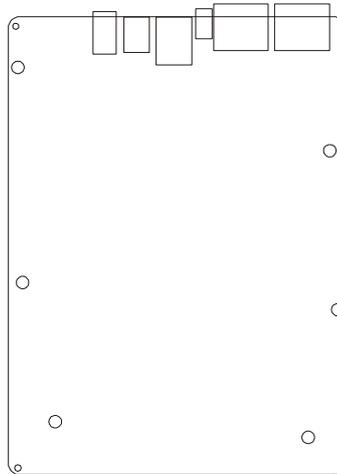
To install IDE & FDD drives, follow this procedure:

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.

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.



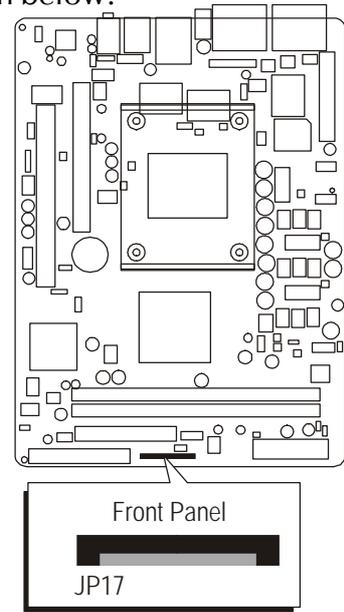
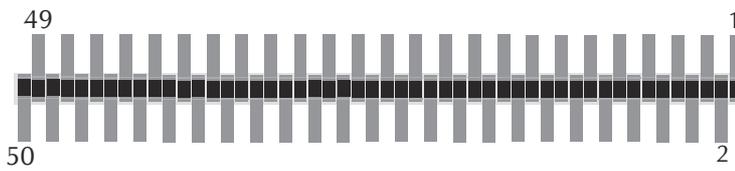
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system's chassis and the mainboard, in order to avoid any electrical shorts between the board and the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

Connect Front Panel MIC/Line-out/Line-in/1394

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDLED, GLED, MIC Line-in or Line-out devices etc.) These cables serve to connect the HDLED, GLED, MIC, Line-in, Line-out or 1394 connectors to the mainboard's front-panel connectors group, as shown below.

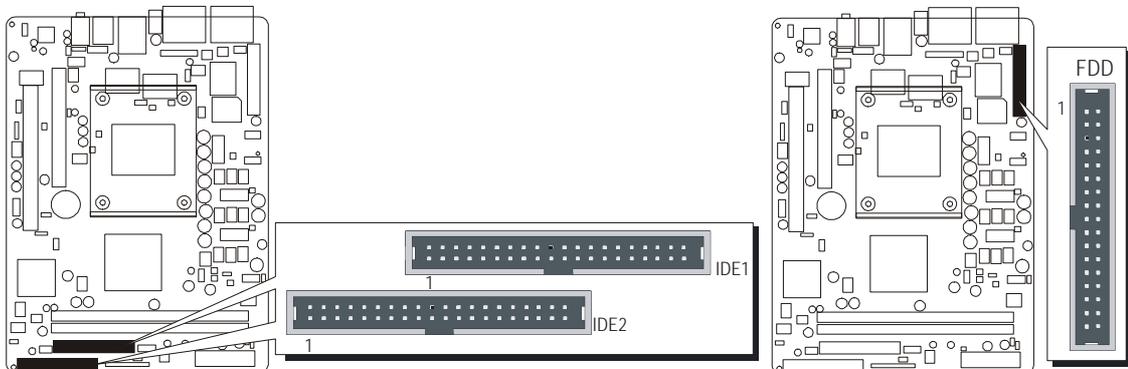
6 Front Panel-JP17



Step 7

Connect IDE and Floppy Disk Drives

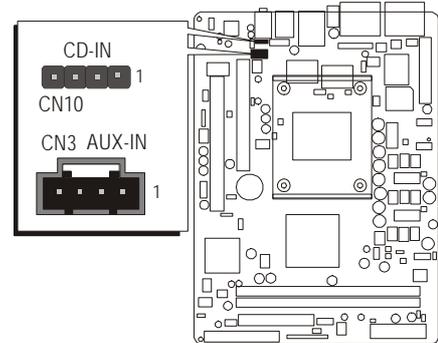
1. IDE1/IDE2 cable connectors
2. Floppy cable connector



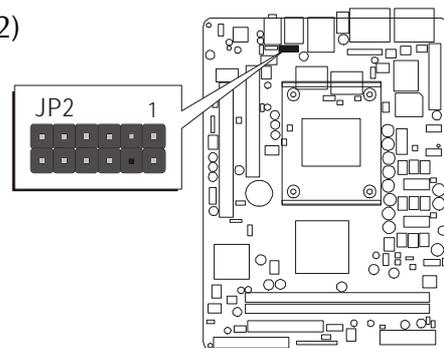
Step 8

Connect Other Internal Peripherals

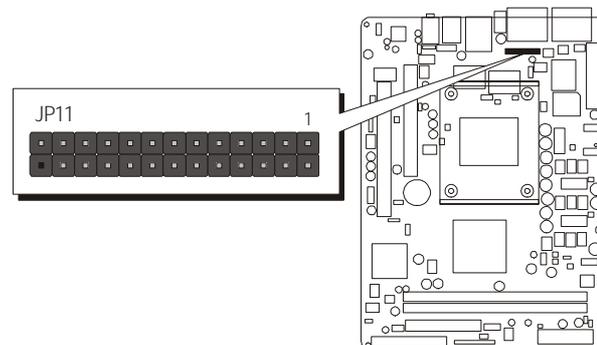
1. AUX-IN (CN3);
CD-IN (CN10) connector;



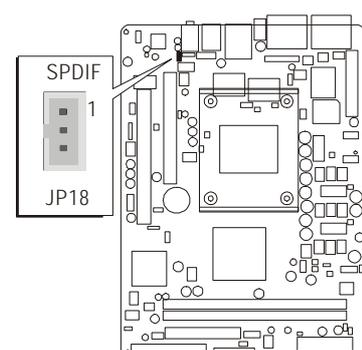
2. Wireless keyboard and mouse header (JP2)



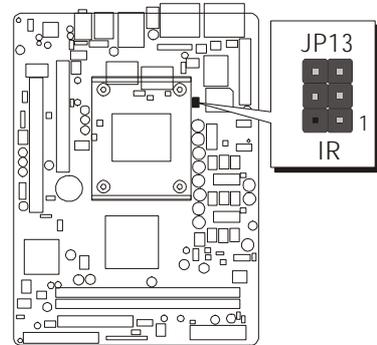
3. Extended print port (JP11)



4. SPDIF Out connector (JP18)



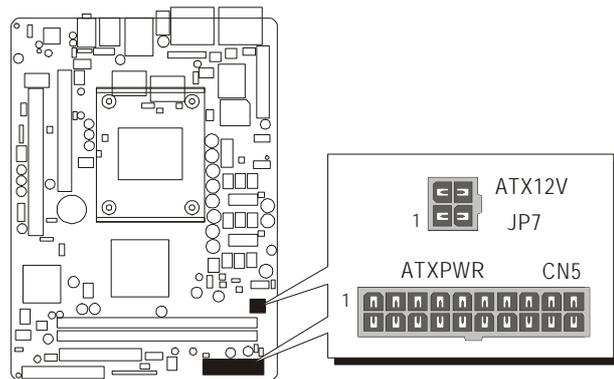
5. IR header (JP13)



Step 9

Connect the Power Supply

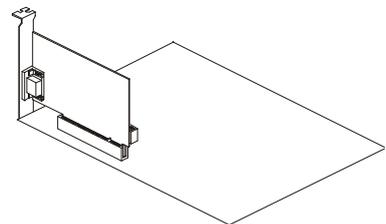
1. System power connectors



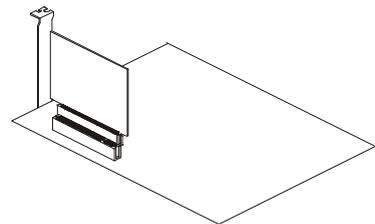
Step 10

Install Add-on Cards in Expansion Slots

1. Accelerated Graphics Port (AGP) Card



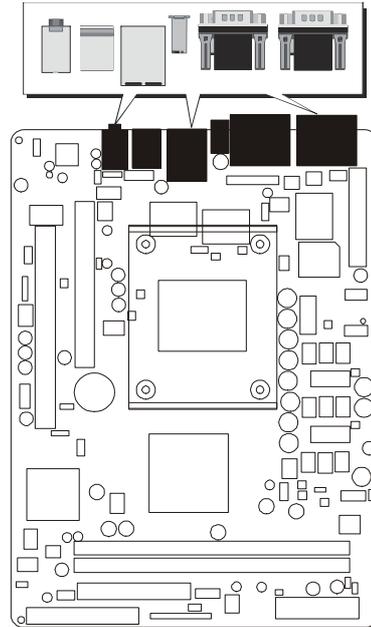
2. PCI Card



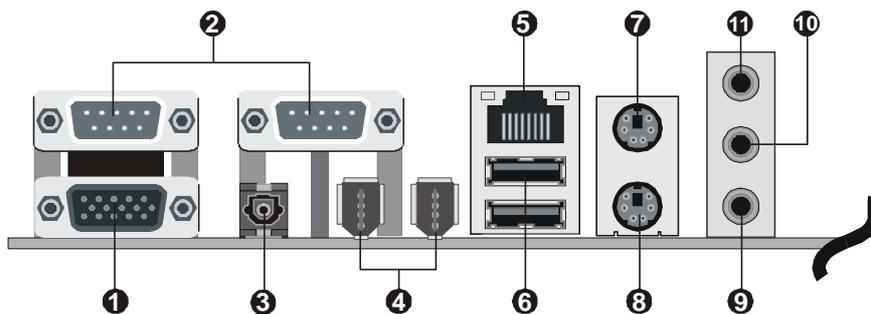
Step 11

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. VGA Port
2. COM1,2 Ports
3. 1394 0/1 Port
4. SPDIF In Connector
5. 10/100 Mbps LAN Port
6. USB1.1/2.0 0/1 Ports
7. PS/2 Mouse Port
8. PS/2 Keyboard Port
9. 5.1-Channel Front-Out (Line-Out) Port
10. 5.1-Channel Rear-Out Port
11. 5.1-Channel Center/Bass Port



Step 12

First Time System Boot Up

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

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

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

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

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

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

Step 13

Install Drivers & Software Components

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

1. Insert the FS56 bundled CD-ROM into your CD-ROM drive. The autorun program will display the drivers main installation window on screen.
 2. Choose "Install SIS AGP Driver" and complete it.
 3. Choose "Install SIS IDE Driver" and complete it.
 4. Choose "Install SIS VGA Driver" and complete it.
 5. Choose "Install SIS USB2.0 Driver" and complete it.
 6. Choose "Install Realtek LAN Driver" and complete it.
 7. Choose "Install Realtek Audio Driver" and complete it.
 8. 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:



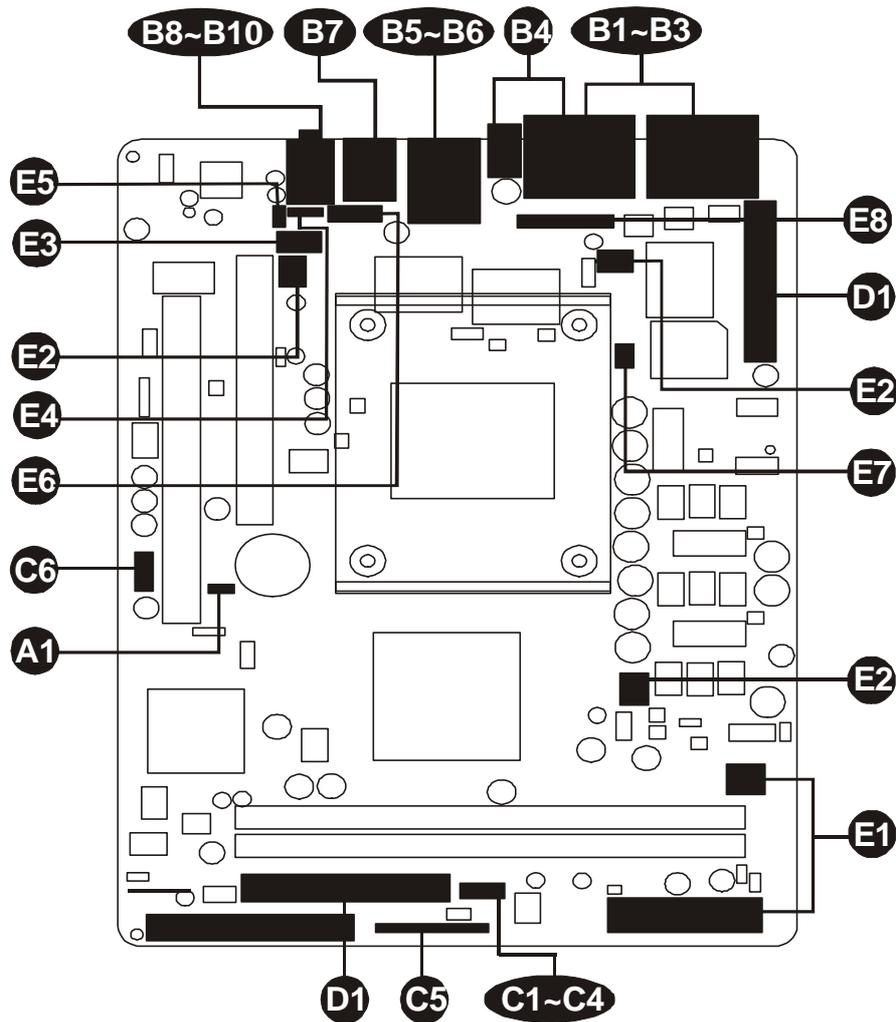
Jumpers with two pins are shown as  for Close [On] or  for Open [Off]. To Short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

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

- | | |
|------------|---|
| Socket 478 | : CPU Socket for Pentium 4/Celeron processor |
| DIMM 1/2 | : Two 184-pin DIMM Slots for 64, 128, 256, 512 MB, and 1 GB of 2.5V DDR SDRAM
(The total installed memory does not exceed 2GB) |
| AGP | : One AGP 4X/8X Slot |
| PCI | : One 32-bit PCI Expansion Slot |

Jumpers

- A1** JP1 : Clear CMOS setting

Back Panel Connectors

- B1** VGA : VGA Port (DB15 female)
B2 COM1/2 : Serial Port 1/2 (DB9 male)
B3 1394 : 2 x 1394 (0/1) Ports
B4 SPDIF IN : SPDIF IN Connector
B5 LAN : 10/100 Base-T LAN Port
B6 USB : 2 x USB 2.0/1.1 (0/1) (Universal Serial Bus) ports
B7 MS : PS/2 Mouse Port
KB : PS/2 Keyboard Port
B8 LINE-OUT : Front-Out (Line Out) Port
B9 REAR-OUT : Rear-Out Port
B10 BASS/CENTER : Bass/Center-Out Port

Front Panel Connectors

- C1** PWON : ATX power on/off momentary type switch
C2 HLED : IDE drive active LED
C3 GLED/PLED : Green LED (ON when system stays in power saving mode) / System power LED
C4 RST : Hardware reset switch
C5 JP17 : Front panel header
C6 JP3 : Extended USB header

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** CN5/JP7 : ATX power connectors
E2 FAN1 : System fan connector
E2 FAN2 : Chipset fan connector

E2	FAN3	: CPU fan connector
E3	CN3	: AUX-IN connector
E4	CN10	: CD-IN connector
E5	JP18	: SPDIF Out connector
E6	JP2	: Wireless Keyboard and Mouse connectors
E7	JP13	: IR Header
E8	JP11	: EXT. Print Port (2.0 mm Small Pitch)

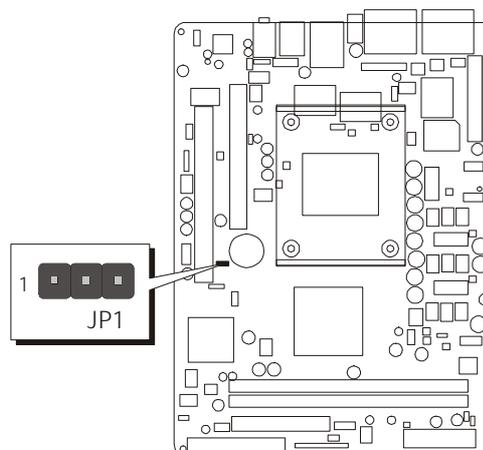
 **Jumpers**

A1 Clear CMOS Setting (JP1)

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

1  Pin 1-2 (Default)

1  Pin 2-3 (Clear CMOS)

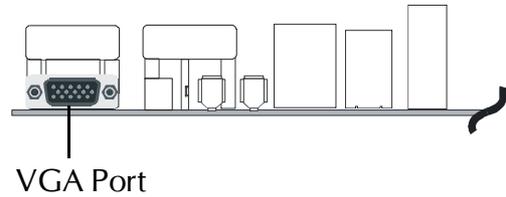


- Step 1. Turn off the system power (PC-> Off).
 - Step 2. Remove ATX Power cable from ATX Power connector.
 - Step 3. Remove jumper cap from JP1 pins 1-2.
 - Step 4. Place the jumper cap on JP1 pin 2-3 for a few seconds.
 - Step 5. Return the jumper cap to pin 1-2.
 - Step 6. Plug ATX Power cable into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

☞ **Back-Panel Connectors**

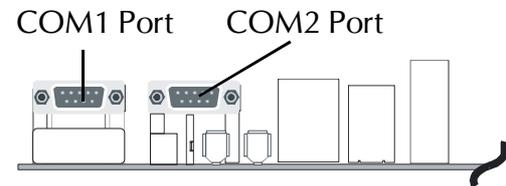
B1 VGA Port Connector

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



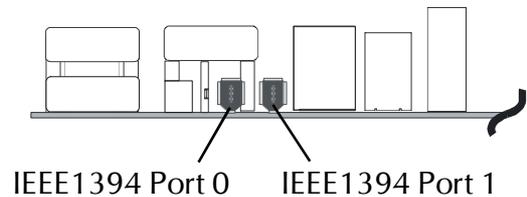
B2 COM1/2 Port Connectors

This mainboard can accommodate one serial device on COM1/2. Attach a serial device cable to the DB9 serial port COM1/2 at the back-panel of your computer.



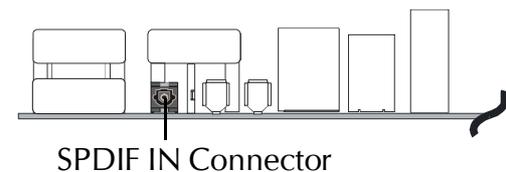
B3 IEEE 1394 Port Connectors

This mainboard offers two 1394 ports on back-panel. Plug each device jack into an available 1394 connector.



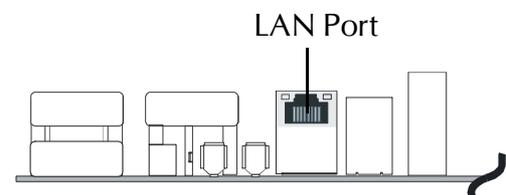
B4 SPDIF-IN Port Connector

SPDIF-IN connector can convey digital audio data to digital decoder.



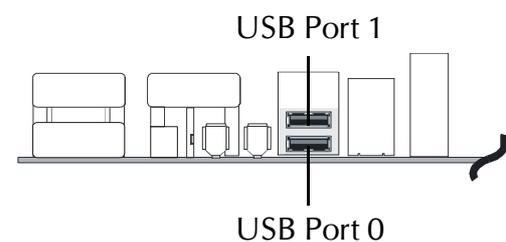
B5 10/100 base-T LAN Port Connector

This mainboard can accommodate one device on LAN. Attach a RJ45 cable to the LAN port at the back-panel of your computer.



B6 USB 0/1 Port Connectors

Two female connectors USB0/USB1 share the same USB (Universal Serial Bus) bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB0/USB1 connector.

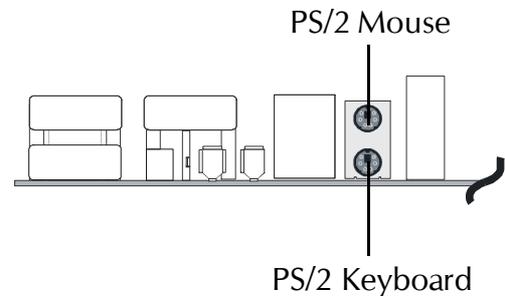


B7 PS/2 Keyboard & PS/2 Mouse Connectors

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard.

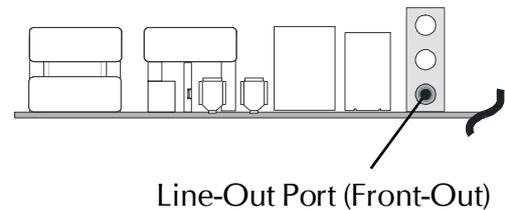
Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a tower where

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.



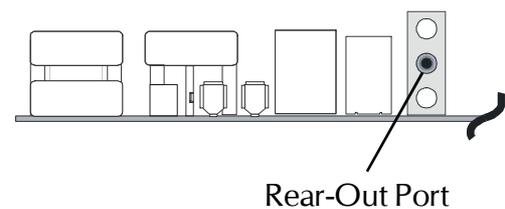
B8 Line-Out (Front-Out) Port Connector

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.



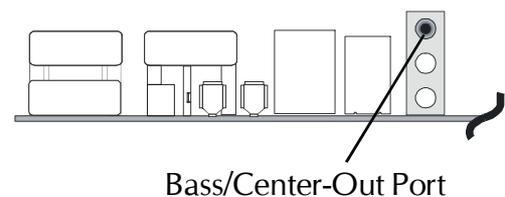
B9 Rear-Out Port Connector

Stereo out of rear (surround) channel.



B10 Bass/Center-Out Port Connector

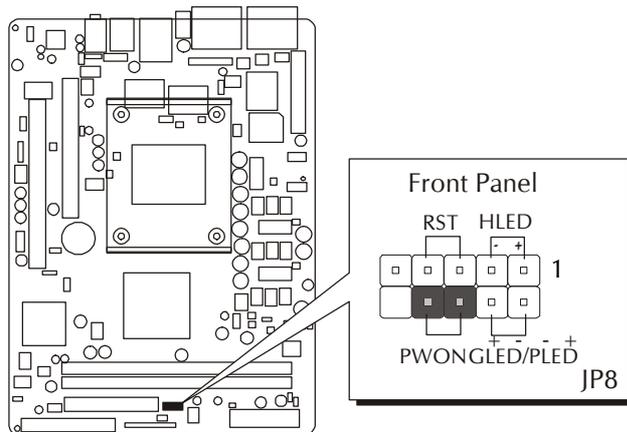
Bass/Center-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to bass/center amplified speakers.



☞ **Front-Panel Connectors**

① **ATX Power On/Off Switch Connector (PWON)**

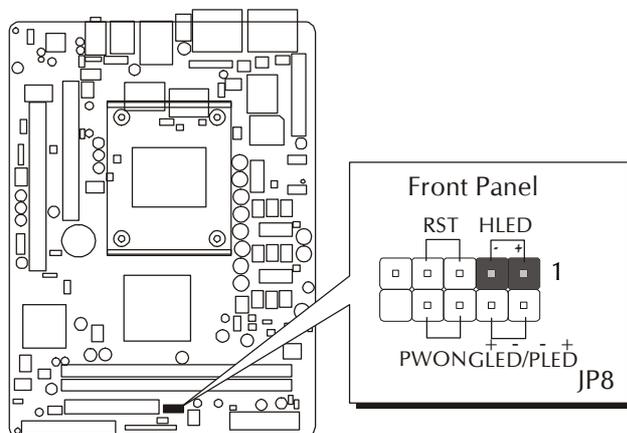
The Power On/Off Switch is a momentary type switch used for turning on or off the system ATX power supply. Attach the connector cable from the Power Switch to the 2-pin (PWON) header on the mainboard.



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.

② **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.



③ Green LED/Power LED Connector (GLED/PLED)

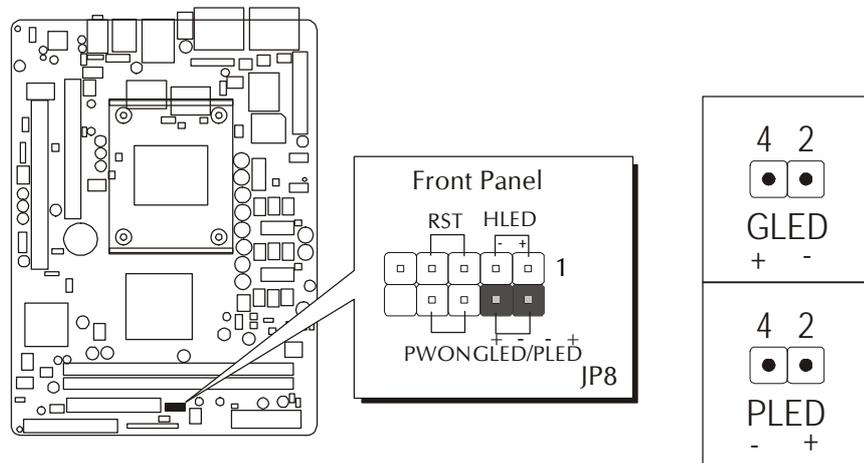
This header is dual color LED function.

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.

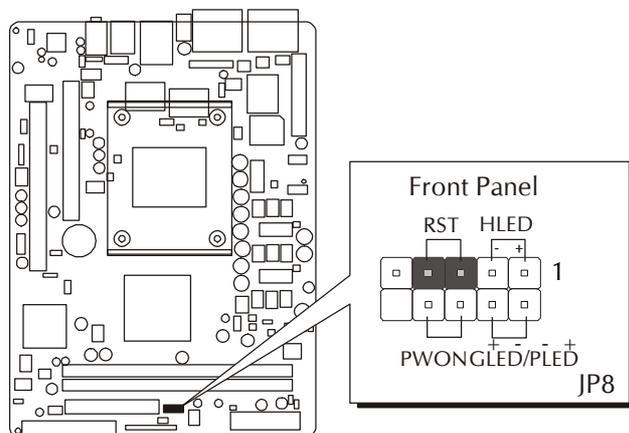
This Power LED will go off during power saving mode.

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



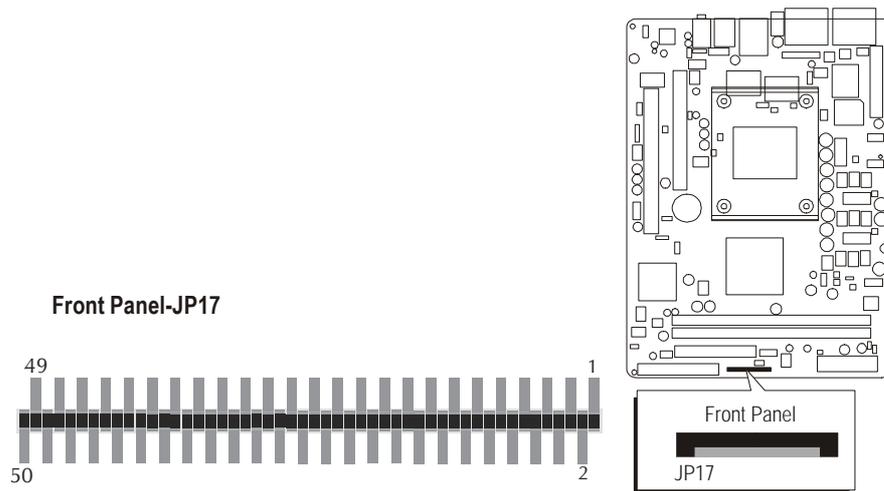
④ Hardware Reset Connector (RST)

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



⑤ Front Panel Connector (JP17)

Port JP17 can be used to connect special device.

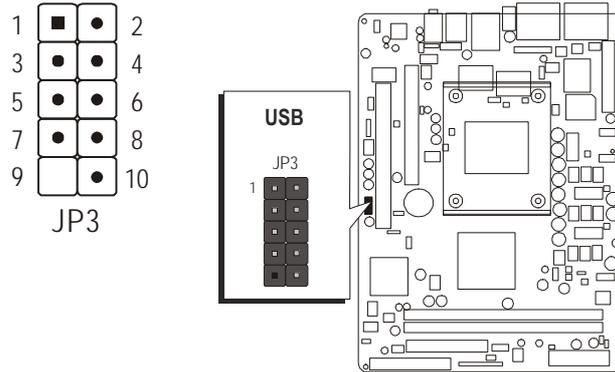


Pin Assignments:

1 = USBVCC	2 = USBVCC	3 = USBVCC
4 = USBVCC	5 = USBVCC	6 = USBVCC
7 = USBVCC	8 = USBVCC	9 = USB4 +
10 = USB4-	11 = GND	12 = GND
13 = USB5 +	14 = USB5-	15 = GND
16 = GND	17 = TPA1 +	18 = TPA1-
19 = GND	20 = GND	21 = TPB1 +
22 = TPB1-	23 = GND_Audio	24 = GND_Audio
25 = Front MIC	26 = FMIC_Power	27 = Sense 0
28 = GND_Audio	29 = LineIn_L	30 = GND_Audio
31 = LineIn_R	32 = Sense 1	33 = GND_Audio
34 = GND_Audio	35 = LineOut_R	36 = FrontOut_R
37 = GND_Audio	38 = GND_Audio	39 = LineOut_L
40 = FrontOut_L	41 = GND_Audio	42 = GND_Audio
43 = HDLED_PU	44 = GLEDA	45 = HDLED
46 = GLEDB	47 = Reset_Sw	48 = Power_Sw
49 = VCC	50 = VCC	

⑥ Extended USB Header (JP3)

Header JP3 is used to connect cables to USB connectors mounted on front-panel or back-panel. The USB cable is optional at the time of purchase.



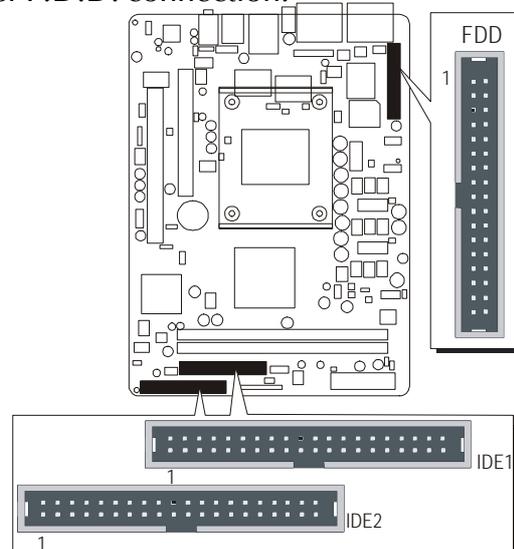
☞ Internal Peripherals Connectors

① Enhanced IDE and Floppy Connectors

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

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

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



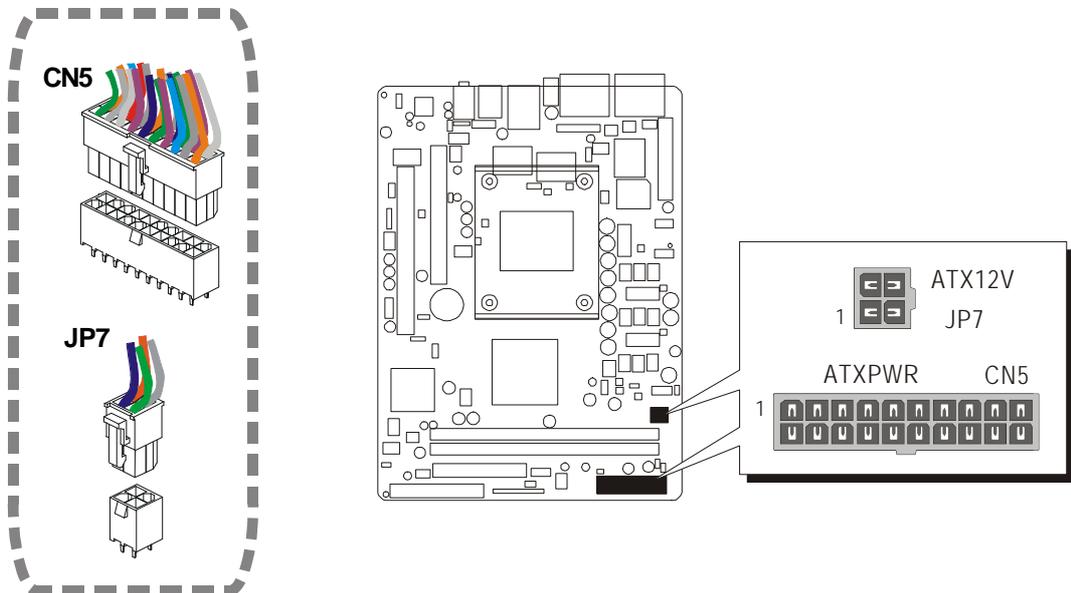
☞ **Other Connectors**

③ ATX Power Supply Connectors (CN5/JP7)

This motherboard uses 20-pin (CN5) Pentium 4 standard ATX power header, and JP7 with 2X2-pin + 12V PC ATX power supply headers.

Please make sure you plug in the right direction.

P4 ATX Power supply



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.

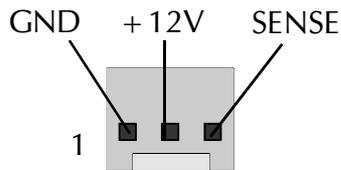
Note 2 : Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.

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.

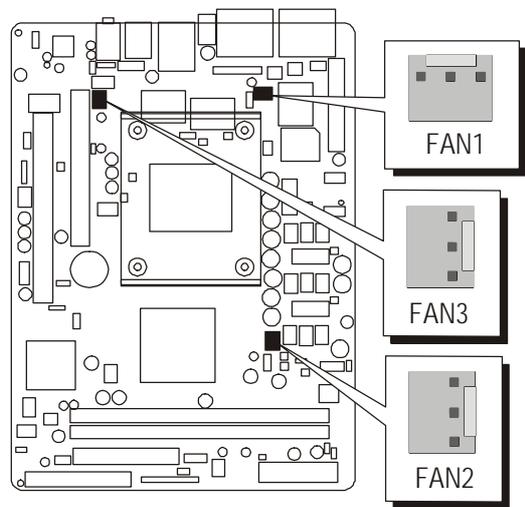
Ⓔ System, Chipset and CPU Fan Connectors - FAN1/2/3

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



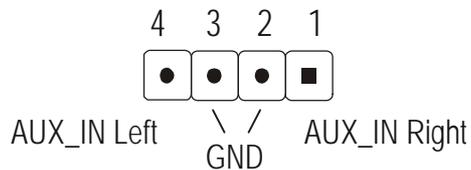
FAN1/2/3 with rotate sense.

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.



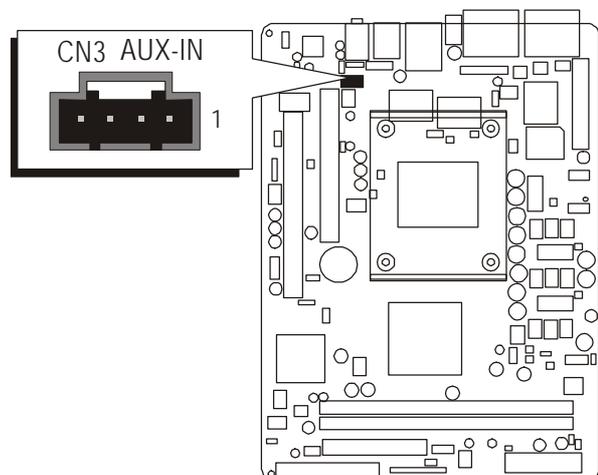
Ⓕ Audio AUXILIARY_IN Connector (CN3) (Black)

Port CN3 (Black) can be used to connect the stereo audio input from CD-ROM, TV-tuner or MPEG card.



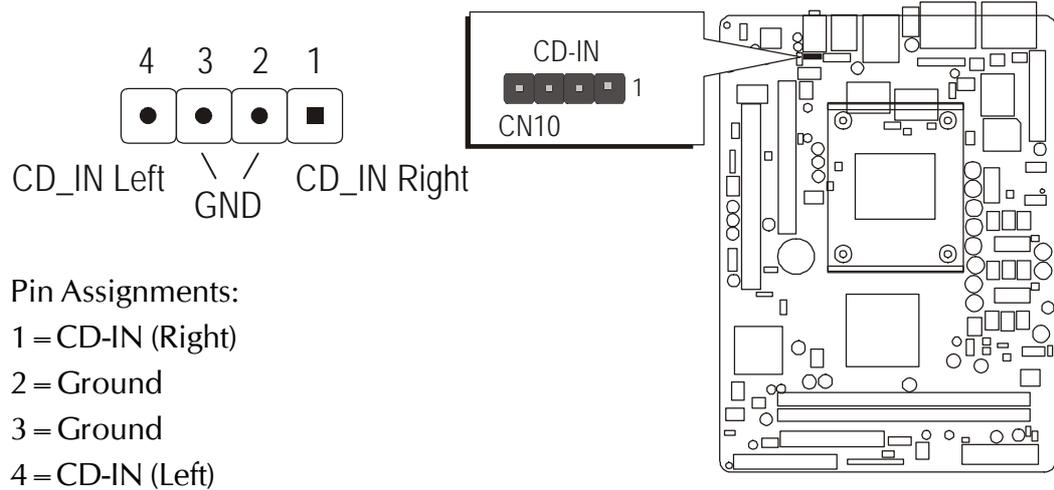
Pin Assignments:

- 1 = AUX-IN (Right)
- 2 = Ground
- 3 = Ground
- 4 = AUX-IN (Left)



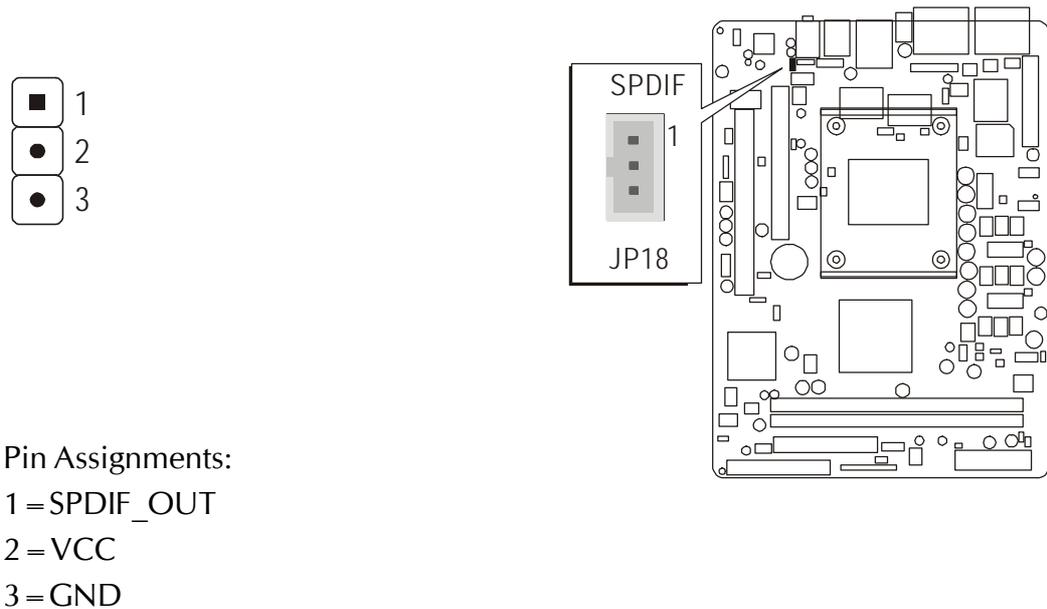
E4 Audio CD_IN Connector (CN10)

Port CN10 can be used to connect a stereo audio input from CD-ROM, TV-tuner or MPEG card.



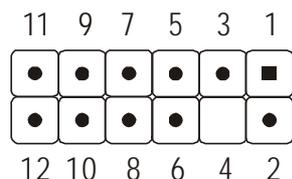
E5 SPDIF Out Connector (JP18)

Port JP18 can be used to connect a special device.



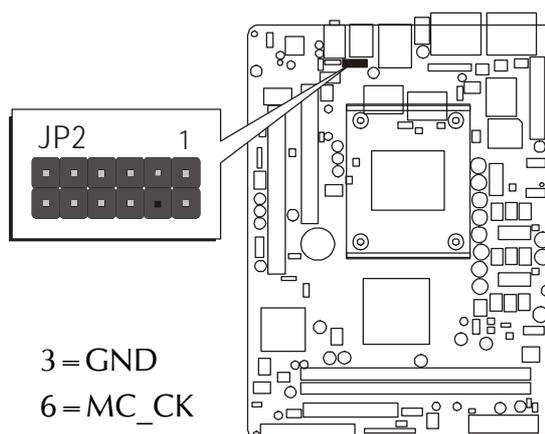
Ⓔ Wireless Keyboard and Mouse Connector (JP2)

Port JP2 can be used to connect wireless keyboard and mouse devices.



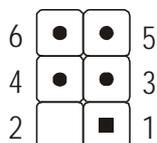
Pin Assignments:

1 = VCC	2 = VCC	3 = GND
4 = KEY	5 = MSCLK	6 = MC_CK
7 = MSDATA	8 = MS_DK	9 = KBCLK
10 = KB_CK	11 = KBDATA	12 = KB DT



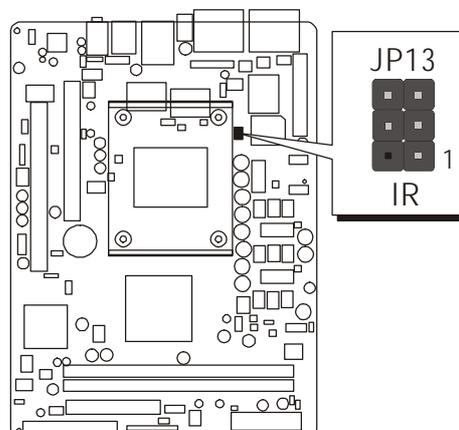
Ⓕ IR Header (JP13)

If you have an Infrared device, this mainboard can implement IR transfer function. This mainboard supports IrDA, ASKIR, or SCR transfer mode. To enable this function, attach a 6-pin infrared device cable to the IR (JP13) header. Please note that every pin is properly allocated. If not, your IR device may be damaged.



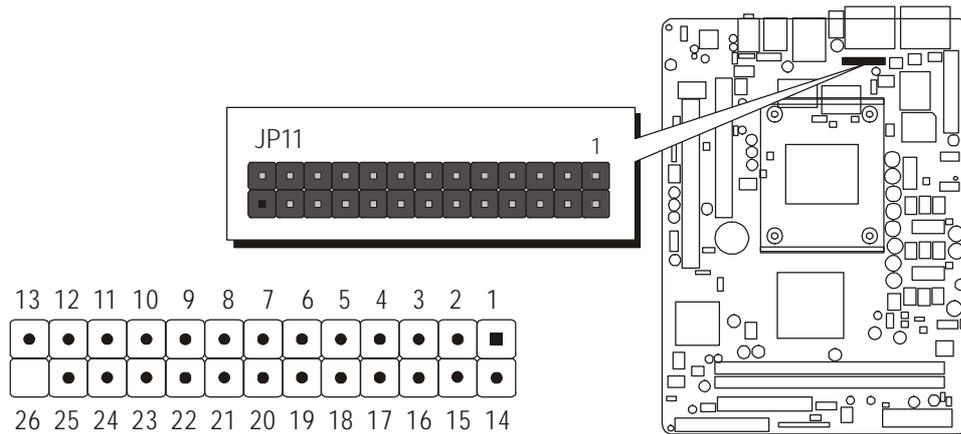
Pin Assignments:

1 = NC	2 = KEY
3 = VCC	4 = Ground
5 = IrTx	6 = IrRx



E8 Ext. PRINT PORT (JP11)

One parallel port header is located at the rear panel of the mainboard. The header is used to connect the cable attached to a parallel connector. But the parallel cable and connector are optional at the time of purchase.



Pins Assignments:

1 = PSTB	8 = PPPD6	15 = P_-ERR	22 = GND
2 = PPPD0	9 = PPPD7	16 = PINIT	23 = GND
3 = PPPD1	10 = P_-ACK	17 = PSLCTIN	24 = GND
4 = PPPD2	11 = P_-BUSY	18 = GND	25 = GND
5 = PPPD3	12 = P_-PE	19 = GND	26 = KEY
6 = PPPD4	13 = P_-SLCT	20 = GND	
7 = PPPD5	14 = PAUTOFD	21 = GND	

3.3 System Memory Configuration

The FS56 mainboard has two 184-pin DIMM slots that allow you to install from 64MB up to 2GB of system memory.

Each 184-pin DIMM (Dual In-line Memory Module) Slot can accommodate 64MB, 128MB, 256MB, 512MB, and 1GB of PC2100/PC2700/PC3200 compliant 2.5V single (1 Bank) or double (2 Bank) side 64-bit wide data path DDR SDRAM modules.

Install Memory:

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

DIMM Socket	Memory Modules	Module Quantity
DIMM 1	16MB, 32MB, 64MB, 128MB, 256MB, 512M ,and 1GB 184-pin 2.5V DDR SDRAM DIMM	x 1
DIMM 2	16MB, 32MB, 64MB, 128MB, 256MB, 512M ,and 1GB 184-pin 2.5V DDR SDRAM DIMM	x 1

Note: Maximum installed memory is 2GB.

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

Upgrade Memory:

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

4 SOFTWARE UTILITY

4.1 Mainboard CD Overview

Note: The CD contents attached in FS56 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 FS56 Software - Installing SIS AGP, SIS IDE, SIS VGA, SIS USB 2.0, Realtek LAN, Realtek Audio Drivers.
- ☞ Manual - FS56 Series mainboard user's manual in PDF format.
- ☞ Link to Shuttle Homepage - Link to shuttle website homepage.
- ☞ Browse this CD - Allows you to see contents of this CD.
- ☞ Quit - Close this CD.

4.2 Install Mainboard Software

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. Select using your pointing device (e.g. mouse) on the "Install Mainboard Software" bar to run into sub-menu.



The FS56 Softwaree include:

- [4.2.A] Install SIS AGP Driver
- [4.2.B] Install SIS IDE Driver
- [4.2.C] Install SIS VGA Driver
- [4.2.D] Install SIS USB2.0 Driver
- [4.2.E] Install Realtek LAN Driver
- [4.2.F] Install Realtek Audio Driver

4.2A Install SIS AGP Driver

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

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

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



4.2.B Install SIS IDE Driver

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

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

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



4.2C Install SIS VGA Driver

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

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

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



4.2.D Install SIS USB2.0 Driver

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

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

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



4.2.E Install Realtek LAN Driver

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



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

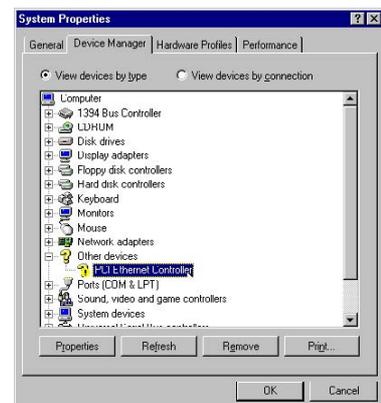
Install WIN98 LAN driver

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

Select tab "Device Manager".

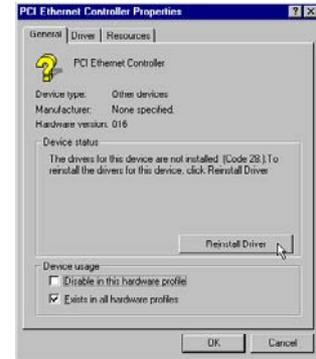
You will find a yellow "?" mark at PCI Ethernet Controller, that means the driver is not recognize.

Double click on the Ethernet Controller.



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

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



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

Click on "Next" bar to continue.



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



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



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



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

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

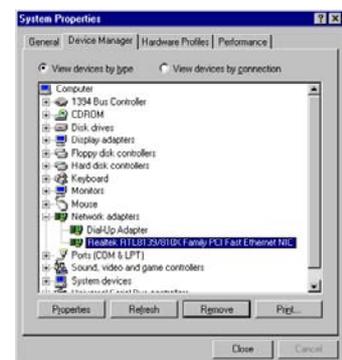
Make sure "Realtek RTL8139/810X Family PCI Fast Ethernet NIC" driver, and click on "Next".

Then the system will do the setup procedure automatically.

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

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

The Network adapters shows correctly.



4.2.F Install Realtek Audio Driver

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

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

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



4.3 View the User's Manual

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 "Manual" bar to view FS56 user's manual.



5 BIOS SETUP

FS56 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

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

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

5.1 Enter the BIOS

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

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

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>, keys.

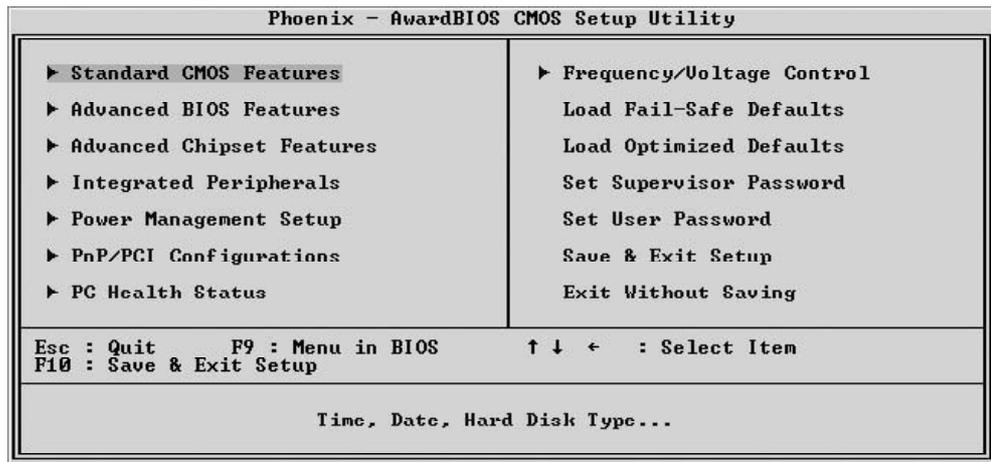
Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:

" Press F1 to Continue, DEL to Enter Setup "

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

5.2 The Main Menu

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



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

Setup Items

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

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configurations

This entry appears if your system supports PnP / PCI.

PC Health Status

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

Frequency/Voltage Control

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

Load Fail-Safe Defaults

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

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation.

While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

Set Supervisor / User 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 several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Standard CMOS Features		
Date (mm:dd:yy)	Tue, Aug 19 2003	
Time (hh:mm:ss)	1 : 51 : 29	
▶ IDE Primary Master	[None]	Menu Level ▶
▶ IDE Primary Slave		Change the day, month, year and century
▶ IDE Secondary Master		
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/UGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	

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

Date

<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 Japan 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.

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

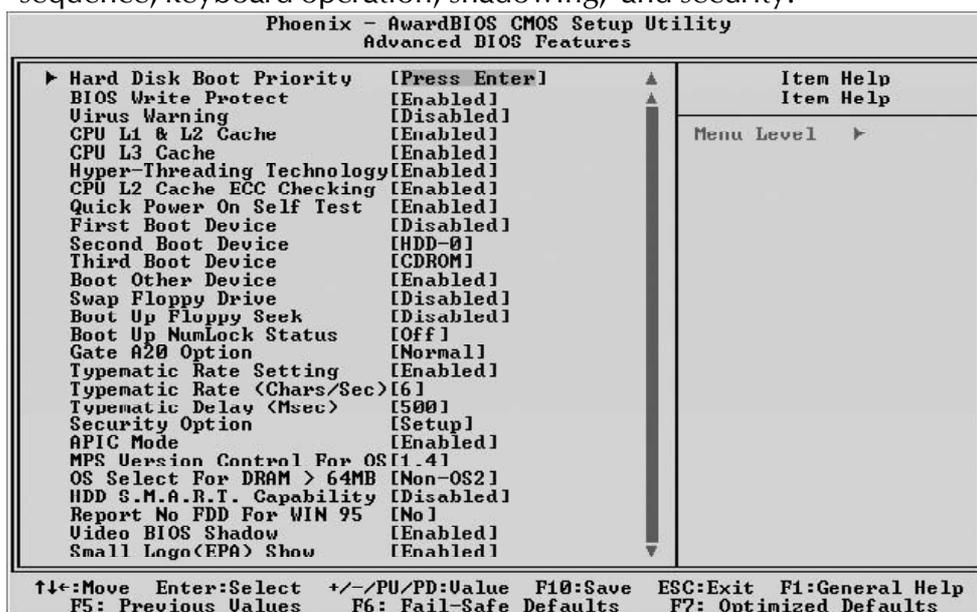
Sector

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.



Hot Disk Boot Priority

This item let you select hot disk boot priority.

- The choice: Pri.Master/Slave, Sec.Master/Slave, USB HDD 0 ~ 2, Bootable Add-in Cards.

BIOS Write Protect

This item allows you to enable/disable BIOS Write Protect.

- The choice: Enabled or Disabled.

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 L2 cache to speed up memory access.

- The choice: Enabled or Disabled.

CPU L3 Cache

This item enables CPU L3 cache to speed up memory access.

- The choice: Enabled or Disabled.

Hyper-Threading Technology

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

- 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, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN or Disabled.

Boot Other Device

Select Your Boot Device Priority.

- The choice: Enabled or Disabled.

Swap Floppy Drive

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

- The choice: Enabled or Disabled.

Boot Up Floppy Seek

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

- The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

- The choice: Off or On.

Gate A20 Option

This item defines how the system handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

- The choice: Normal or Fast.

Typematic Rate Setting

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

- The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

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

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

Typematic Delay (Msec)

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

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

Security Option

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

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

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

- The choice: System or Setup.

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

APIC Mode

Selects enable/disable IO APIC function

- The choice: Enabled or Disabled.

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. Capability

This item enable/disable the HDD system management function.

- The choice: Enabled or Disabled.

Report No FDD For Win 95

Whether report no FDD runs for Win 95 or not.

- The choice: Yes or No.

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.

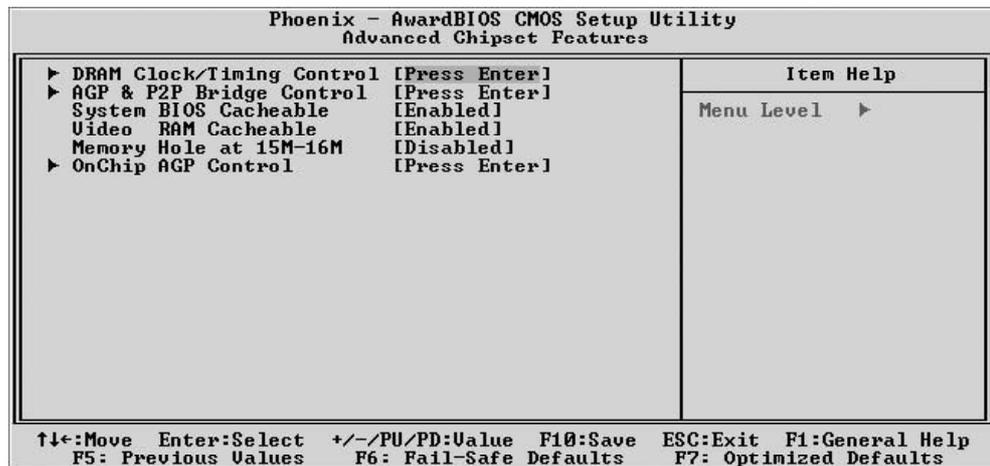
- The choice: Enabled or Disabled.



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.



DRAM Clock/Timing Control

Options are in its sub-menu.

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

Performance Mode

This item allows you to enable/disable the performance mode.

- The Choice: Enabled or Disabled.

DRAM Timing Control

This item allows you to select the value in this field, depending on whether the board using which kind of DDR DRAM.

- The Choice: By SPD or Manual.

DRAM CAS Latency

This item defines the timing delay in clock cycles before DARM starts a read command after receiving it.

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

RAS Active Time(tRAS)

This item defines the RAS active time.

- The Choice: 4T, 5T, 6T, 7T, 8T or 9T.

RAS Precharge Time(tRP)

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be-incompleted, and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field is applied only when synchronous DRAM is installed in the system.

- The Choice: 2T, 3T, 4T or 5T.

RAS to CAS Delay(tRCD)

This field lets you insert a timing delay between the CAS and RAS strobe signals, and you can use it when DRAM is written to, read from, or re-freshed. Faster performance is gained in high speed, more stable performance, in low speed. This field is applied only when synchronous DRAM is installed in the system.

- The Choice: 2T, 3T, 4T or 5T.

Stage Cntl: CPU Data / P4 Bus / ASL Block / Memory Write / Memory Read / AGP Block

- The Choice: Normal or Aggressive.

APG & P2P Bridge Control

Options are in its sub-menu.

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

AGP Aperture Size

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: 32M, 64M, 128M, 256M or 512M.

Graphic Window WR Combin

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

- The Choice: Enabled or Disabled.

AGP Fast Write Support

This item enable/disable the AGP fast write support.

- The Choice: Enabled or Disabled.

AGP Data Rate

This item allows the user to adjust AGP data rate.

- The Choice: Auto, 1X, 2X, 4X or 8X.

System BIOS Cacheable

Selecting Enabled allows caching for the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

Video RAM Cacheable

Selecting Enabled allows caching of the video RAM, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

Memory Hole at 15M-16M

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

- The Choice: Enabled or Disabled.

OnChip AGP Control

Options are in its sub-menu.

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

Dual Display Support

This item enable/disable the dual display support.

- The Choice: Enabled or Disabled.

VGA Share Memory Size

This item allows the user to adjust VGA share memory size.

- The Choice: 16MB, 32MB or 64MB.



Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility		
Integrated Peripherals		
▶ Onboard IDE Device	[Press Enter]	Item Help
▶ Onboard PCI Device	[Press Enter]	
▶ Onboard SuperIO Device	[Press Enter]	Menu Level ▶

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

Onboard 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/133/100, 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.

IDE HDD Block Mode

Select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

- The Choice: Enabled or Disabled.

Onboard PCI Device

Options are in its sub-menu.

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

SIS 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 Ports Number

This item allows you to select the USB Ports Number.

- The Choice: 6 Ports, 5 Ports, 4 Ports or 3 Ports.

USB 2.0 Supports

Select Enabled if your system contains a Universal Serial Bus 2.0 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.

USB Mouse Support

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

- The Choice: Enabled or Disabled.

SIS AC97 AUDIO

This item allows you to control the onboard AC97 Audio.

- The Choice: Enabled or Disabled.

Onboard Lan Boot ROM

Decide whether to invoke the boot ROM of the onboard LAN chip.

- The choice: Enabled or Disabled.

Init Display First

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

- The choice: PCI Slot or AGP/Onboard.

Onboard Super IO Device

Options are in its sub-menu.

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

Onboard FDC Controller

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

➤ The choice: Enabled or Disabled.

Onboard Serial Port1/Port2

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

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

UART Mode Select

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

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

UR2 Duplex Mode

This item allows you to select the IR half or 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 Mod Use DMA

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

➤ The Choice: 1 or 3.

Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility Power Management Setup		
ACPI function	Enabled	Item Help
ACPI Suspend Type	[S1<POS>]	Menu Level ▶
Power Management	[User Define]	
Suspend Mode	[Disabled]	
Video Off Option	[Susp,Stby -> Off]	
Video Off Method	[DPMS Supported]	
Switch Function	[Break/Wake]	
MODEM Use IRQ	[AUTO]	
HDD Off After	[Disabled]	
Power Button Override	[Instant Off]	
Power State Resume Control	[Always Off]	
▶ PM Wake Up Events	[Press Enter]	
Delay Prior to Thermal	[None]	
↑↓: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 Enabled/Disabled the Advanced Configuration and Power Management (ACPI).

- Always "Enabled".

ACPI Suspend Type

This item allows you to select sleep state when suspend.

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

Power Management / Suspend Mode

This item allows you to decide the timing to enter suspend mode.

- The choice: Min Saving / 1 Hour.
Max Saving / 1 Min.
User Define / Disabled, 1Min, 2Min, 4Min, 8Min,
12Min, 20Min, 30Min, 40 Min or 1Hour.

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 Screen This option only writes blanks to the video buffer.
- DPMS Supported 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 or 1 Min ~ 15 Min.

Power Button Override

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

- The choice: Instant Off or Delay 4 Sec.

Power State Resume Control

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

- The choice: Always Off, Always On or Keep Pre-State.

PM Wake Up Events

Options are in its sub-menu.

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

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

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

- The choice: Enabled or 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 or 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 or 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 or Disabled.

USB Port Wake Up Control

This item enable/disable the USB wakeup function.

- The choice: Enabled or Disabled.

PS2KB Wakeup from S3/S4/S5

This item selects the PS2KB wakeup function.

- The choice: Hot key, Password or Any key.

PS2MS Wakeup from S3/S4/S5

This item selects the PS2MS wakeup function.

- The choice: Disabled, Click or Move & Click.

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 or Disabled.

Month Alarm

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

- The choice: NA or 1 ~ 12.

Day of Month Alarm

This item selects the alarm date.

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

** Reload Global Timer Events **

Global Timer (power management) Events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such as a mode. In effect, the system remains alert for anything that occurs to a device that is configured as Enabled, even when the system is in a power-down mode.

Primary/Secondary IDE

When these items are enabled, the system will restart the power-saving timeout counters when any activity is detected on any of the drives or devices on the primary or secondary IDE channels.

- The choice: Disabled or Enabled.

FDD,COM,LPT Port

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

- The choice: Disabled or Enabled.

PCI PIRQ[A-D]#

When this item is disabled, any PCI device set as the Master will not power on the system.

- The choice: Disabled or Enabled.

Delay prior to Thermal

This sets the delay time before the CPU enters auto thermal mode.

- The choice: None, 1, 2, 4, 8, 16, 32 or 64 Min.

 **PnP/PCI Configurations**

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations	
Reset Configuration Data [Disabled]	Item Help
Resources Controlled By [Auto(ESCD)]	Menu Level ▶
▶ IRQ Resources [Press Enter]	Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI/UGA Palette Snoop [Disabled]	
↑↓: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.

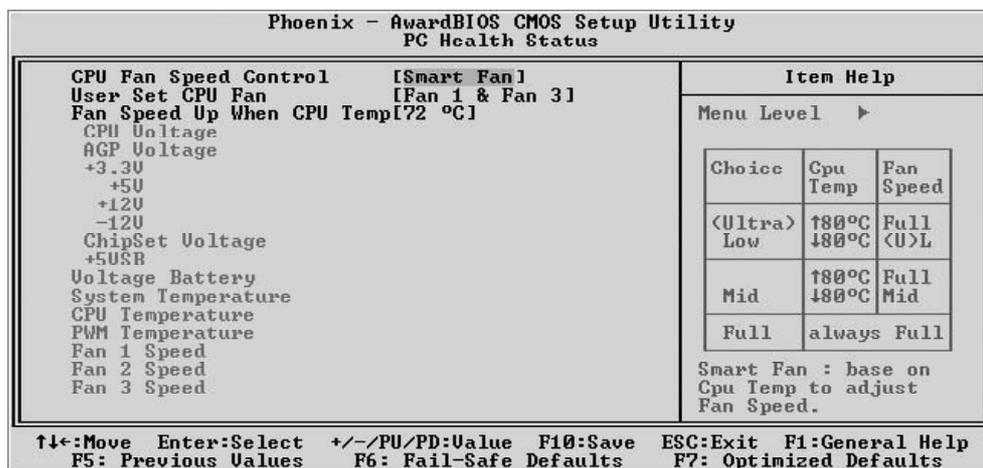
PCI/VGA Palette Snoop

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



CPU Fan Speed Control

This item allows you to set the CPU Fan Speed.

- The choice: Smart Fan, Ultra-Low, Low, Mid or Full.

Note: Before manually modifying the CPU fan setting, please make sure fan connectors are plug into the correct fan connector designations on the mainboard.

User Set CPU Fan

Enabled you to choose one specific fan for further setting.

- The choice: Fan 1, Fan 2, Fan 3 or Fan1 & Fan3.

Fan Speed Up When CPU Temp

Enabled 3 phase smart control to the Selected fan.

This feature ranges from 48 °C to 80 °C, in an increment of 4 °C.

The default temperature is at 72 °C.

- The choice: 48 °C, 52 °C, 56 °C, 60 °C, 64 °C, 68 °C, 72 °C, 76 °C or 80 °C.

Take our default Setting for example, 1st and 2nd phase Variable Fan Speed and CPU temperature Control is as defined by "Fan Speed Up When CPU Temp". If actual CPU temp (reported by BIOS) stays below 72 °C then CPU fan speed will run at a quiet mode (1st phase) of approximately 2000 RPM.

But when the actual CPU temp goes above the pre-selected 72 °C temperature threshold, then CPU fan speed will automatically engage into normal mode (2nd phase) of about 2500 RPM. Automatically by the Smart Bios feature, this increase of fan rotation speed will effectively cool down the CPU temperature. And when the CPU temperature drops back below the 72 °C temperature threshold, CPU fan speed will again automatically shift back to the quiet mode (1st phase) of about 2000 RPM in order to reduce fan noise level.

Fail-safe mode (4rd phase) Variable Fan Speed and CPU temperature Control is as predefined at user setting offset 10°C. Where in the event of system and CPU operating under extreme working conditions, and if CPU temperature is raised above 82 °C then the Smart Bios will engage the CPU fan in Fail-safe mode to rotate at about 3500 RPM. Please note that the higher fan speed, the fan cooler will be become slightly noisier in order to compensate for the increase in CPU temperature.

Warning : It is Strongly recommended to disable CPU Fan Auto Guardian feature, if you wish to use other fan cooler, allowing the fan to run at its default speed.

CPU Voltage

AGP Voltage

+ 3.3V

+ 5V

+ 12V

-12V

ChipSet Voltage

+ 5VSB

Voltage Battery

System Temperature

CPU Temperature

PWM Temperature

Fan1 Speed

Fan2 Speed

Fan3 Speed



Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility	
Frequency/Voltage Control	
CPU Clock Ratio	[0 X]
Auto Detect DIMM/PCI Clk	[Enabled]
Spread Spectrum	[Enable]
***** Voltage Control *****	
CPU Voltage Select	[Auto]
RAM Voltage Select	[Auto]
AGP Voltage Select	[Auto]
ChipSet Voltage Select	[Auto]
***** Clock Control *****	
CPU Clock by SW	[Disabled]
x CPU Clock	166
CPU:DRAM Frequency Ratio	[SPD]
DRAM Frequency	

↑↓←: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: 8X

Max: 50X

- 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.

***** Voltage Control *****

CPU Voltage Select

This item allows you to select CPU Voltage.

- The choice: Auto, 0.8375 V ~ 1.6000V.

Note : CPU VCore above 1.85V item need to be selected, save and quit BIOS, before you adjust CPU Vcore over 1.85V.

RAM Voltage Select

This item allows you to select RAM Voltage.

- The choice: Auto, 2.60V, 2.65V or 2.70V.

AGP Voltage Select

This item allows you to select AGP Voltage.

- The choice: Auto, 1.55V, 1.60V or 1.70V.

Chipset Voltage Select

This item allows you to select Chipset Voltage.

- The choice: Auto or 2.00V.

***** Clock Control *****

CPU Clock by SW

This item allows you to enable/disable CPU Clock by SW.

- The choice: Enabled or Disabled.

CPU Clock

This item allows the user to adjust CPU Host Clock.

Min: 100

Max: 232

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

CPU: DRAM Frequency Ratio

This item allows you to adjust CPU and DRAM Ratio.

- The choice: SPD, 1:1, 3:4, 3:5 or 1:2.

DRAM Frequency

This item show DRAM frequency.

Load Fail-Safe Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to: Load Fail-Safe Defaults (Y/N) ? N

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

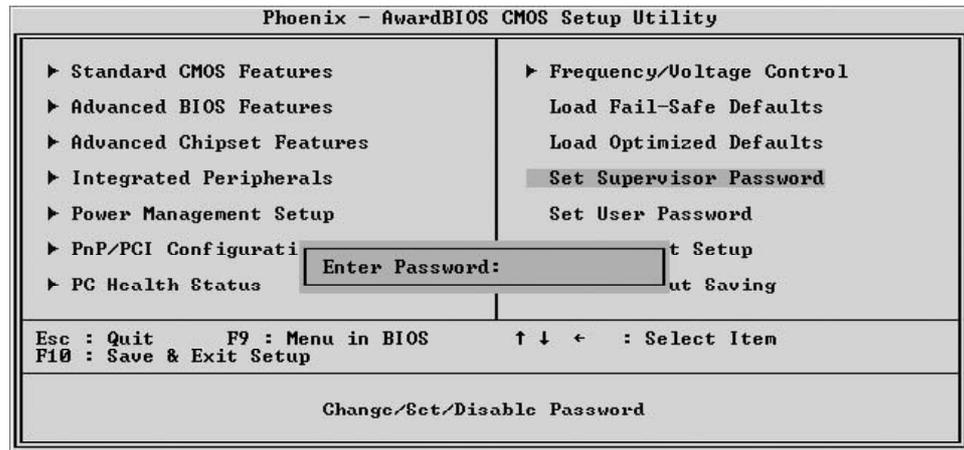
Load Optimized Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to: Load Optimized Defaults (Y/N) ? N

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



Set Password



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

New Password Setting :

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

No Password Setting :

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

If You Forget Password :

6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 26 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.