

ZOTAC[®]

AMD SERIES MOTHERBOARD



AMD[®] Phenom™ II X6 CPU Ready

880G-ITX WiFi

880GITX SERIES MOTHERBOARD

USER'S MANUAL



Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE:

Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

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Motherboard Specifications

Chipset

- ❖ AMD® RS880G/SB850

Size

- ❖ Mini ITX form factor of 6.7 inch x 6.7 inch

Microprocessor support

- ❖ AMD® Athlon™ II/Sempron™ with socket AM3

Operating systems:

- ❖ Supports Windows XP 32 bit/64 bit, Windows Vista 32 bit/64 bit and Windows 7 32bit/64bit

System Memory support

- ❖ Supports Dual Channel DDR3 1333/1066/800, maximum memory size: 8 GB

USB 2.0 Ports

- ❖ Supports hot plug and play
- ❖ Eight USB 2.0 ports (four on the back panel, four via the USB brackets connected to the internal USB headers) (optional)
- ❖ Supports wake-up from S1
- ❖ Supports USB 2.0 protocol up to 480 Mbps transmission rate

USB 3.0 Ports (Optional)

- ❖ Supports hot plug and play
- ❖ Two USB 3.0 ports on the back panel

Onboard Serial ATA III

- ❖ Independent DMA operation on four ports (optional)
- ❖ Data transfer rates of 600 Mb/s

Onboard LAN

- ❖ Supports IEEE 802.3
- ❖ Supports 10/100/1000 Mbps Ethernet

Onboard Audio

- ❖ Azalia High-Definition audio
- ❖ Supports 6-channel/8-channel audio (optional)
- ❖ Supports Jack-Sensing function

PCI Express Support

- ❖ Supports PCI Express 2.0

- ❖ Low power consumption and power management features

Green Function

- ❖ Supports ACPI (Advanced Configuration and Power Interface)
- ❖ Suspend to DRAM supported (STR)
- ❖ RTC timer to power-on the system
- ❖ AC power failure recovery

Onboard Graphics Support

- ❖ Integrates HD 4250 graphics chipset
- ❖ Supports DirectX10.1 & Shader Model 4.1
- ❖ HDMI and DVI-I port output support

Expansion Slots

- ❖ One PCI Express x1 slot
- ❖ One Mini PCIE slot

Motherboard Layout

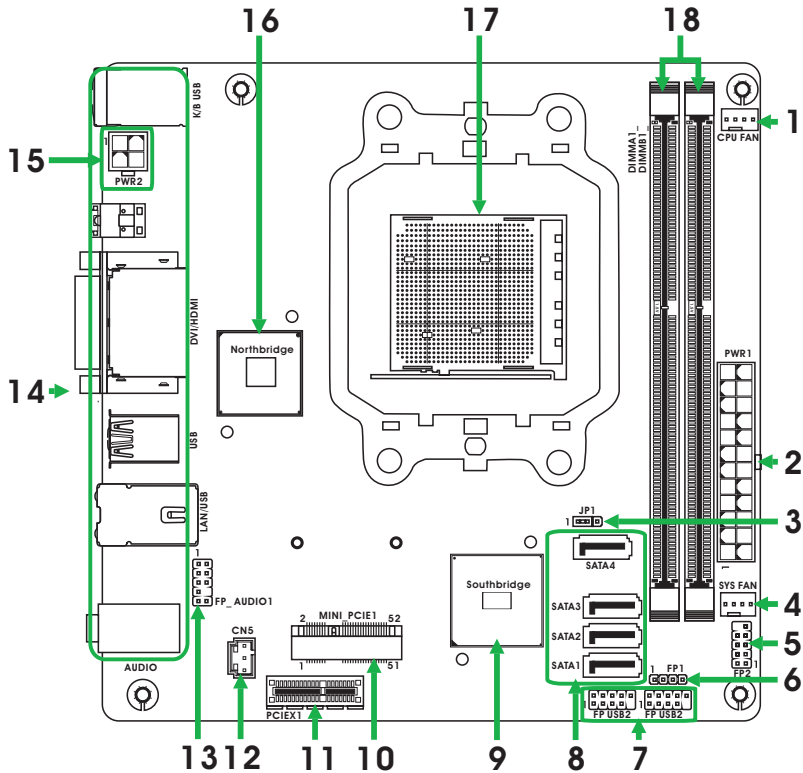
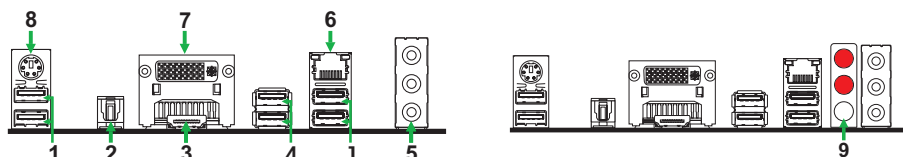


Figure 1. Board Layout

- | | |
|-------------------------------|-----------------------------------|
| 1. CPU fan connector | 10. MINI PCIE slot |
| 2. 24-pin ATX power connector | 11. PCI Express x1 slot |
| 3. Clear CMOS jumper | 12. SPIDF connector |
| 4. SYS fan connector | 13. Front panel audio header |
| 5. Front panel header | 14. Backpanel connectors |
| 6. Speaker header | 15. 4-pin ATX_12V power connector |
| 7. USB headers | 16. Northbridge |
| 8. SATA connectors | 17. CPU socket |
| 9. Southbridge | 18. DDR3 slots |

Figure 2: Backpanel connectors



1. USB 2.0 Ports
2. Optical SPDIF Output
3. HDMI Port
4. USB 3.0 Ports (Optional)

5. <i>Port</i>	<i>2-Channel</i>	<i>4-Channel</i>	<i>6-Channel</i>
Blue	Line-In	Rear Speaker Out	Rear Speaker Out
Green	Line-Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Center/Subwoofer

6. LAN Connector

Lan Port with LEDs to indicate status.

- Yellow/Light Up/Blink = 10 Mbps/link/Activity
- Yellow and Green/Light Up/Blink = 100 Mbps/link/Activity
- Yellow and Orange/Light Up/Blink = 1000 Mbps/link/Activity

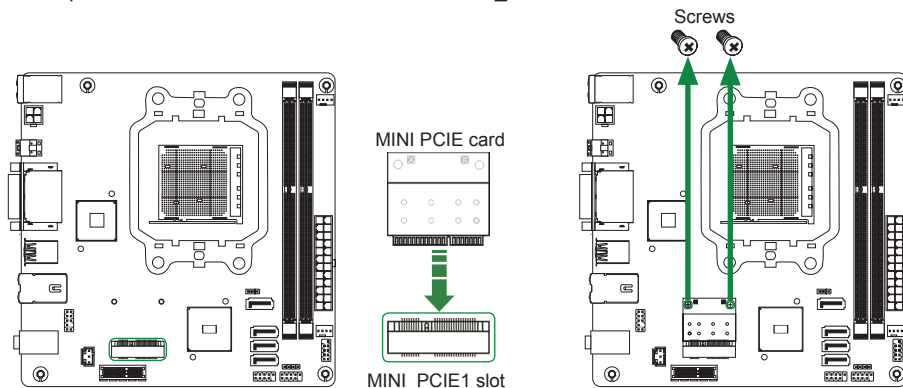
7. DVI-I Port

8. PS/2 Keyboard Port

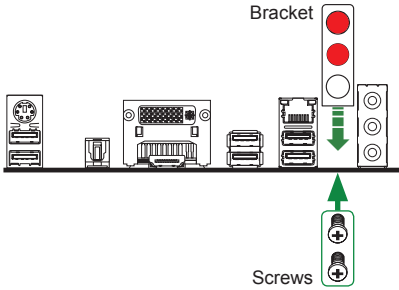
9. WiFi antenna connectors (Optional)

This motherboard can support two WiFi antenna modules. Refer to the following to install the WiFi antenna modules.

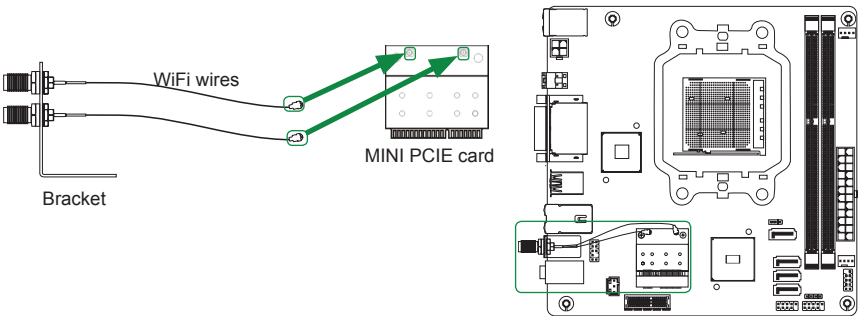
Step 1. Secure the MINI PCIE card into the MINI_PCIE1 slot with screws.



Step 2. Secure the bracket to the motherboard with screws according to the picture below.

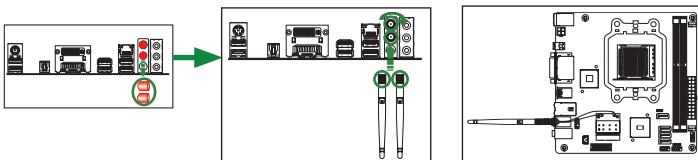


Step 3. Connect the WiFi wires to the MINI PCIE card as the following picture shows.



Step 4. Remove the red caps from the WiFi antenna connectors.

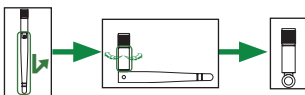
Install the WiFi antennas to the WiFi antenna connectors, and make sure the screws are rotated in clockwise direction.



Note: 1. Users please note that the appearance of your WiFi antenna modules may not be exactly the same as those shown in this manual.

2. Users can install one or two WiFi antennas to the motherboard.

3. Users can bend or rotate the WiFi antennas to the best receiving direction according to the picture below.



Hardware Installation

This section will guide you through the installation of the motherboard. The topics covered in this section are:

- ❑ Preparing the motherboard
 - ❖ Installing the CPU
 - ❖ Installing the CPU fan
 - ❖ Installing Memory Modules

- ❑ Installing the motherboard
 - ❖ Installing the I/O shield
 - ❖ Securing the Motherboard into the Chassis

- ❑ Connecting cables and setting switches

Safety Instructions

To reduce the risk of fire, electric shock, and injury, always follow basic safety precautions.

Remember to remove power from your computer by disconnecting the AC main source before removing or installing any equipment from/to the computer chassis.

Preparing the Motherboard

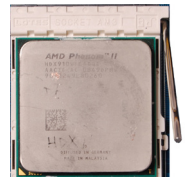
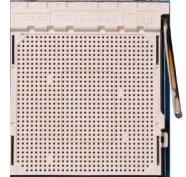
The motherboard shipped in the box does not contain a CPU and memory. You need to purchase these to complete this installation.

Installing the CPU

Be very careful when handling the CPU. Make sure not to bend or break any pins on the back. Hold the processor only by the edges and do not touch the bottom of the processor.

Use the following procedure to install the CPU onto the motherboard.

1. Please turn off the power and unplug the power cord before installing the CPU. Pull the lever up and away from the socket until it is at a 90 degree angle to the motherboard.
2. Look for the gold arrow on the CPU. The gold arrow should point away from the lever pivot. The CPU can only sit properly in the socket in the correct orientation.
3. If the CPU is correctly seated, the pins should be completely embedded in the socket and can not be seen (Please note that any deviation from the correct installation procedures may cause permanent damage to your motherboard).
4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely seated in the socket.
5. When you are installing the CPU, make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating. If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

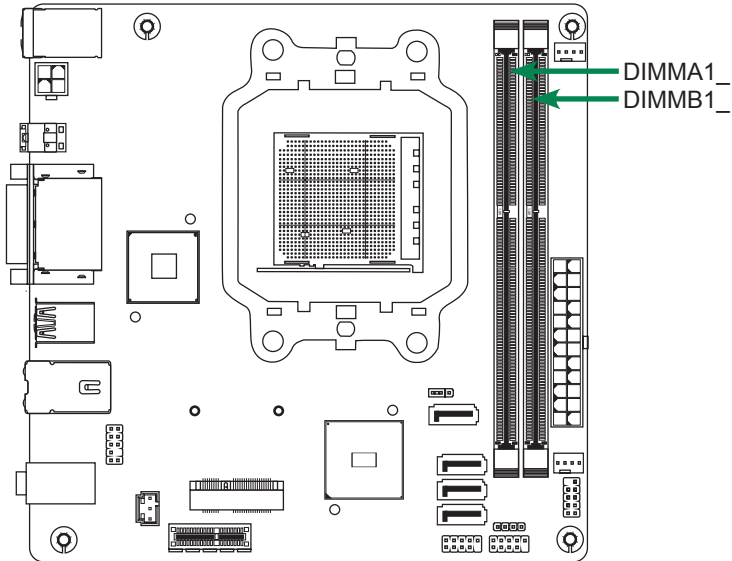


Installing the CPU Fan

There are many different fan types that can be used with this motherboard. Follow the instruction that came with your fan assembly. Be sure that the fan orientation is correct for your chassis type and your fan assembly.

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin DDR3 1333/1066/800. The total memory capacity is 8 GB. You must install at least one module in any of the two slots. Refer to the following recommendations to install the memory modules.



Note that a memory module has a notch, so it can only fit in one direction. Refer to the following procedure to install memory modules into the slots on the motherboard.

1. Unlock a DIMM slot by pressing the module clips outward.
2. Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot. The plastic clips at both sides of the DIMM slot automatically lock the DIMM into the connector.

Installing the Motherboard

The sequence of installing the motherboard into the chassis depends on the chassis you are using and if you are replacing an existing motherboard or working with an empty chassis. Determine if it would be easier to make all the connections prior to this step or to secure the motherboard and then make all the connections. It is normally easier to secure the motherboard first.

Use the following procedure to install the I/O shield and secure the motherboard into the chassis.

Note: *Be sure that the CPU fan assembly has enough clearance for the chassis covers to lock into place and for the expansion cards. Also make sure the CPU Fan assembly is aligned with the vents on the covers.*

Installing the I/O Shield

The motherboard kit comes with an I/O shield that is used to block radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Before installing the motherboard, install the I/O shield from the **inside** of the chassis. Press the I/O shield into place and make sure it fits securely. If the I/O shield does not fit into the chassis, you would need to obtain the proper size from the chassis supplier.

Securing the Motherboard into the Chassis

Most computer chassis have a base with mounting studs or spacers to allow the motherboard to be secured to the chassis and help to prevent short circuits. If there are studs that do not align with a mounting hole on the motherboard, it is recommended that you remove that stud to prevent the possibility of a short circuit. In most cases, it is recommended to secure the motherboard with spacers.

1. Carefully place the motherboard onto the studs/spacers located inside the chassis.
2. Align the mounting holes with the studs/spacers.
3. Align the connectors to the I/O shield.
4. Ensure that the fan assembly is aligned with the chassis vents according to the fan assembly instruction.
5. Secure the motherboard with screws.

Connecting Cables and Setting Switches

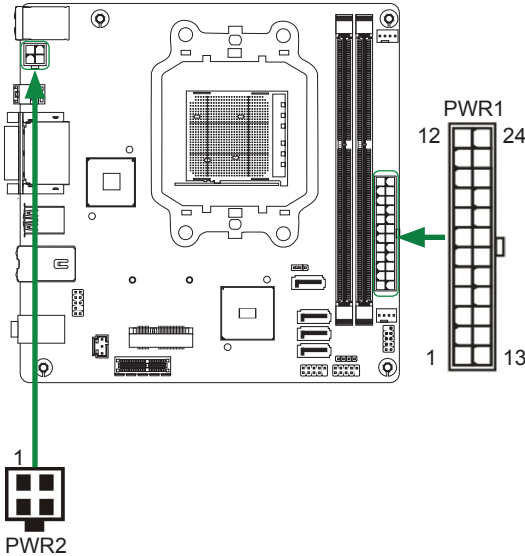
This section takes you through all the connectors and switch settings necessary on the motherboard. This will include:

- Power Connectors
 - ❖ 24-pin ATX Power Connector
 - ❖ 4-pin ATX_12V Power Connector
- Internal Headers/Connectors
 - ❖ USB Headers
 - ❖ Front Panel Audio Header
 - ❖ Front Panel Header
 - ❖ Speaker Header
 - ❖ SPDIF-Out Header
- Serial-ATA (SATA) Connectors
- Fan Connectors
- Expansion Slots
- Jumper Settings

See Figure 1 to locate the connectors and jumpers referenced in the following procedure.

24-pin ATX Power Connector

PWR1 is the main power supply connector. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



PWR1-Pin Definition

Pin	Signal	Pin	Signal
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	-5V
9	+5V_AUX	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

4-pin ATX_12V Power Connector

PW2, the 4-pin ATX 12V power connection, is used to provide power to the CPU. Align the pins to the connector and press firmly until seated.

PWR2-Pin Definition

Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

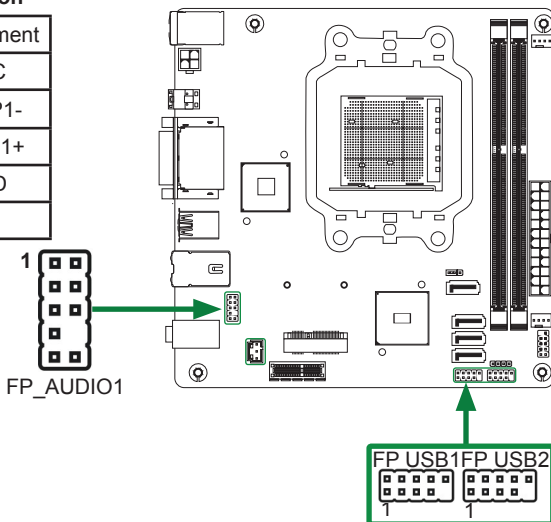
USB Headers

This motherboard contains four USB 2.0 ports and two USB 3.0 ports that are exposed on the rear panel of the chassis (Figure 2). The motherboard also contains two 10-pin internal headers onboard. The onboard headers are optional.

Note. Secure the bracket to either the front or rear panel of your chassis (not all chassis are equipped with the front panel option).

FP USB1/FP USB2-Pin Definition

PIN	Assignment	PIN	Assignment
1	VCC	2	VCC
3	USBP0-	4	USBP1-
5	USBP0+	6	USBP1+
7	GND	8	GND
9	KEY	10	NC



FP Audio Header

The audio connector supports HD audio standard and provides two kinds of audio output choices: the Front Audio, the Rear Audio. The front Audio supports re-tasking function.

FP_AUDIO1-Pin Definition

PIN	Assignment	PIN	Assignment
1	MIC2(L)	2	GND
3	MIC(R)	4	-ACZ-DET
5	Front Audio(R)	6	Reserved
7	FAVDIO-JD	8	Key(No pin)
9	Front Audio(L)	10	Reserved

Note:

In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the mainboard header. To find out if the chassis you are buying supports a front audio connector, please contract your dealer.

Front Panel Header

The front panel header on this motherboard is one connector used to connect the following four cables:

❑ PWR LED

Attach the front panel power LED cable to these two pins of the connector. The Power LED indicates the system's status.

❑ PWR SW

Attach the power button cable from the case to these two pins. Pressing the power button on the front panel turns the system on and off rather than using the power supply button.

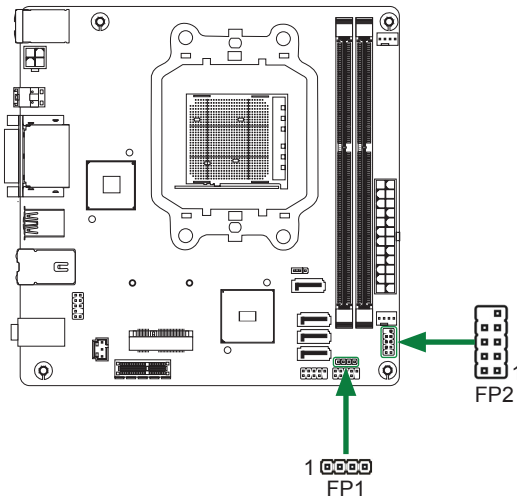
❑ HDD LED

Attach the hard disk drive indicator LED cable to these two pins. The HDD indicator LED indicates the activity status of the hard disks.

❑ RST SW

Attach the Reset switch cable from the front panel of the case to these two pins. The system restarts when the **RESET** switch is pressed.

Note: Some chassis do not have all four cables. Be sure to match the name on the connectors to the corresponding pins.



FP2-Pin Definition

Pin	Signal	Pin	Signal
1	HDD_LED+	2	PW_LED+
3	HDD_LED-	4	PW_LED-
5	GND	6	PWR_SW
7	RESET	8	GND
9	NC	10	KEY

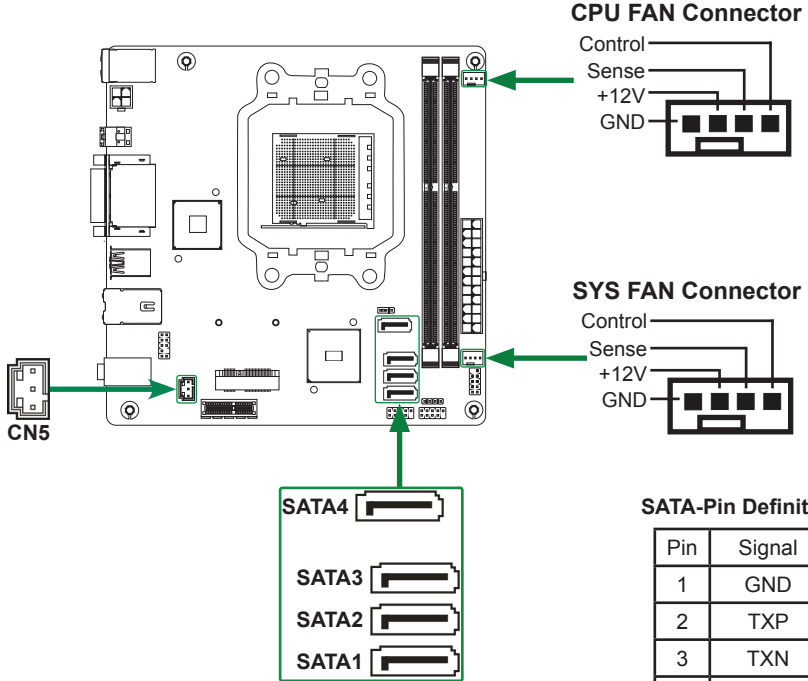
Speaker Header-FP1

FP1-Pin Definition

PIN	Assignment
1	VCC
2	NC
3	NC
4	SPK-

Connecting Serial ATA Cables (optional)

The Serial ATA III connector is used to connect the Serial ATA III device to the motherboard. These connectors support the thin Serial ATA III cables for primary storage devices. The current Serial ATA III interface allows up to 6 Gb/s data transfer rate. There are four serial ATA connectors on the motherboard.



Fan Connectors

There are two fan connectors on the motherboard. The fan speed can be detected and viewed in the PC Health section of the CMOS Setup.

SPDIF-Out Connector

This connector provides a SPDIF (Sony/Philips Digital Interface) output to digital multimedia device through coaxial connector.

SATA-Pin Definition

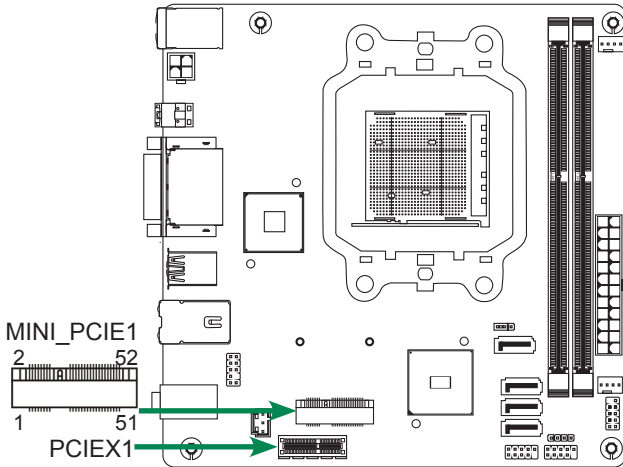
Pin	Signal
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

CN5 - Pin Definition

Pin	Signal
1	GND
2	SPDIF-out
3	VCC

Expansion Slots

The motherboard contains two expansion slots: one PCI Express x1 slot and one Mini PCIE slot.



Mini PCIE Slot-MINI_PCIE1

There is one Mini PCIE slot, reserved for the WiFi Module.





PCIe x1 Slot-PCIEX1


There is one PCI Express x1 slot that is designed to accommodate less bandwidth intensive cards, such as a modem or LAN card.

Jumper Settings

This chapter explains how to configure the motherboard's hardware. Before using your computer, make sure all jumpers and DRAM modules are set correctly. Refer to this chapter whenever in doubt.

JP1-Clear CMOS

JP1	Selection
1   1-2*	Normal*
1   2-3	Clear CMOS

 Close  Open * = Default setting.

If you want to clear the system configuration, use the JP1 (Clear CMOS Jumper) to clear data.

Notice:

1. Be sure to save the CMOS setting when exit the CMOS.
2. If the CPU is frequency multiplier locked, no CPU speed change will be seen even if the frequency multiplier setting in CMOS setup is changed.

Configuring the BIOS

This section discusses how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Enter BIOS Setup

The BIOS is the communication bridge between hardware and software. Correctly setting the BIOS parameters is critical to maintain optimal system performance.

Use the following procedure to verify/change BIOS settings.

1. Power on the computer.,
2. Press the **Del** key when the following message displays at the bottom of the screen during the Power On Self Test (POST).

Pressing **Del** takes you to the BIOS Setup Utility.

Note: 1. We reserve the right to update the BIOS version presented in the manual. The BIOS pictures shown in this section are for reference only.

2. It is strongly recommended that you do not change the default BIOS settings. Changing some settings could damage your system.

Main Menu

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.

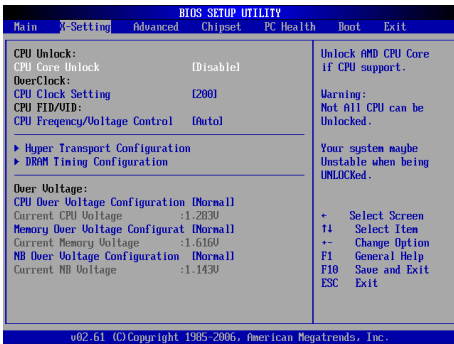


Note: Users please note that the data in gray is non-changeable, and the others are for selection.

- System Overview**
Displays the auto-detected BIOS information.
- Processor**
Display the auto-detected CPU specification.
- System Memory**
Displays the auto-detected system memory.
- System Time/Date**
Allows you to set the system time/date.

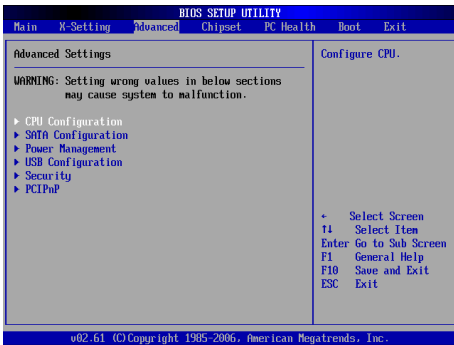
X-Setting Menu

The X-Setting menu items show the settings of CPU, memory and so on.



Advanced Menu

The Advanced menu items allow you to change the settings for the CPU and other system devices. Press <Enter> to display the configuration options:



CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects. Press <enter> to display the configuration options:

GART Error Reporting

Allows you to enable or disable GART (Graphics Address Remapping Table) Error Reporting function.

Microcode Update

Allows you to enable or disable Microcode Update.

Secure Virtual Machine Mode

This item allows you to enable or disable AMD's SVM (Secure Virtual Machine) mode.

PowerNow

This item allows you to enable or disable AMD PowerNow!™ technology.

ACPI SRAT Table

This item allows you to enable or disable ACPI Static Resource Affinity Table (SRAT).

 Probe Filter

This item allows you to set Probe Filter.

SATA Configuration

The items in this menu allow you to set or change the configurations for the SATA devices installed in the system. Press <Enter> to display the configuration options:

 OnChip SATA Type

Use this item to configure the SATA type.

 AHCI BIOS Support

This item allows you to enable or disable AHCI BIOS.

 HD Detect Time Out (Sec)

This item allows you to set the HD detect time out.

Power Management

The items in this menu allow you to control the system power management. Press <Enter> to display the configuration options:

 ACPI Version Features

Enable RSDP pointers to 64-bit Fixed System Description Tables. Di ACPI version has some.

 Suspend mode

This item allows you to set the ACPI state used for System Suspend.

 Restore on AC Power Loss

This item allows you to configure how the system board responds to a power failure.

 EUP Deep Sleep

When enabled, wake up from S4/S5 can only be done by power button.

 RTC Resume

Enable or disable Real Time Clock resume function.

USB Configuration

The items in this menu allow you to change the USB-related features. Press <enter> To display the configuration options:

 Legacy USB Support

Allows you to enable or disable support for USB devices on legacy operating systems.

 USB 2.0 Controller Mode

Allows you to configure the USB 2.0 controller in HiSpeed or Full Speed .

 BIOS EHCI Hand-Off

Allows you to enable support for operating systems without an EHCI hand-off feature.

 Legacy USB1.1 HC Support

Allows you to enable or disable Legacy USB1.1 HC support.

 USB Mass Storage Device Configuration

Allows you to configure USB Mass Storage Device.

Security

The security menu items allow you to change the system security settings. Press <enter> to display the configuration options:

Change Supervisor/User Password

Select this item to set or change the supervisor/user password. The Supervisor/User Password item on top of the screen shows the default setting: [Not Installed]. After you set a password, this item shows [Installed].

To set a Supervisor/User Password:

1. Select the item [Change Supervisor/User Password] and press <Enter>.
2. From the password box, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted:
The message "Password Installed" appears after you successfully set your password.
To change the supervisor/user password, follow the same steps as setting a user password.

Clear User Password

Select the item to clear user password.

PCIPnP

The items in this menu show the function of PCI bus system and PnP. Press <enter> to display the configuration options:

Clear NVRAM

The items allow you to select whether clear NVRAM during system boot.

Plug and Play O/S

When set to [No], BIOS configure all the devices in the system. When set to [YES] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.

PCI Latency Timer

Allows you to select the value in units of PCI clocks for PCI device latency timer register.

Allocate IRQ to PCI VGA

When set to [YES], BIOS assigns an IRQ to PCI VGA card if the requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested .

Palette Snooping

When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly.

PCI IDE BusMaster

When set to [Enabled], BIOS use PCI busmastering for reading/writing to IDE drives.

OffBoard PCI/ISA IDE Card

Use this option to set the PCI slot number for some PCI IDE Cards holding.

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

These items allow you to set the Interrupt Request.

DMA Channel 0/1/3/5/6/7

Use these items to set the Direct Memory Access Channel.

 Reserved Memory Size

This item allows you to set the size of memory block to reserve for legacy ISA devices.

Chipset Menu

The chipset menu items allow you to change the advanced chipset settings. Press <Enter> to display the sub-menu:



Display Configuration

The items allow you to configure display features, including internal graphics mode, surround view and so on.

OnBoard Device Configuration

The items allow you to configure onboard device, including HD Audio, LAN and so on.

Memory Configuration

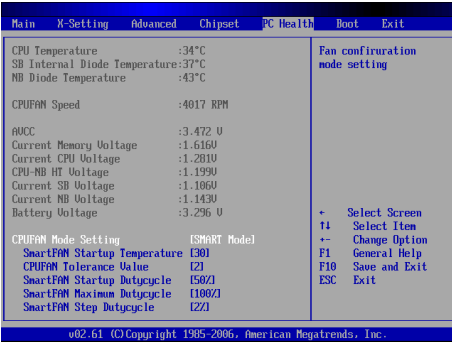
The items allow you to configure memory.

PCI Express Configuration

The items allow you to configure PCI Express.

PC Health Menu

Select PC Health from the BIOS Setup Utility menu to display the System menu.

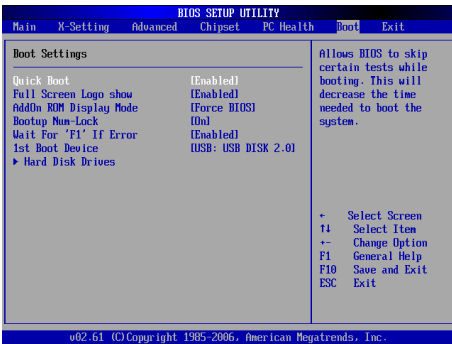


CPUFAN Mode Setting

This item allows you to set the CPUFAN mode.

Boot Menu

The Boot menu items allow you to change the system boot options. Press <Enter> to display the configuration options:



Boot Settings Configuration

The items allow you to configure Boot settings. Press <Enter> To display the configuration options:

Quick Boot

Enabling this item allows the BIOS to skip some power on self tests while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items.

Fullscreen LOGO Show

Enable or disable fullscreen LOGO show.

AddOn ROM Display Mode

Sets the display mode for option ROM.

Bootup Num-Lock

Allows you to select the power-on state for the NumLock.

 Wait for 'F1' if Error

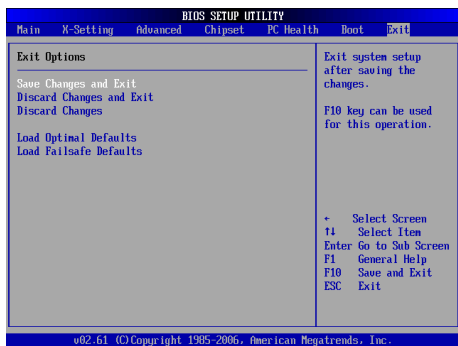
When set to [Enabled], the system waits for the F1 key to be pressed when error occurs.

 1st Boot Device/Hard Disk Drives

Allows you to specify the boot sequence from the available devices.

Exit Menu

The exit menu items allow you to load the option or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items. Press <Enter> to display the sub-menu:



Save Changes and Exit

Select this item and press <Enter> to save the changes that you have made in the BIOS Setup and exit the BIOS Setup. When the dialog box [Save configuration changes and exit setup?] appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Discard Changes and Exit

Select this option only if you do not want to save the changes that you made to the setup program. If you made changes to fields other than system date, system time, and password, the BIOS asks for a confirmation before exiting.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [Ok] to discard any change and load the previously saved values.

Load Optimal Defaults

This option allows you to load the default values for each of the parameters on the setup menus. When you select this option, a confirmation window appears. Select [Ok] to load default values. Select [Cancel] to make other changes before saving the values to the non-volatile RAM.

Load Failsafe Defaults

This option has been set by the manufacturer and represents settings which provide the minimum requirements for your system to operate.

Flash Update Procedure

The program AFUDOS XX.ROM is included on the driver CD (D:\Utility\AFUDOS XX.ROM). Please follow the recommended procedure to update the flash BIOS, as listed below.

1. Create a DOS-bootable floppy diskette. Copy the new BIOS file (just obtained or downloaded) and the utility program AFUDOS XX.ROM to the diskette.
2. Allow the PC system to boot from the DOS diskette.
3. At the DOS prompt, type

AFUDOS XX.ROM /P /C /B /N /X <ENTER>

Note: XX (the BIOS file name) can be defined by users.

4. Wait until the flash-update is complete.
5. Restart the PC.

Warning: - Do not turn off or RESET the computer during the flash process.
- If you are not sure how to upgrade the BIOS, please take your computer to an Authorized Service Center and have a trained technician do the work for you.

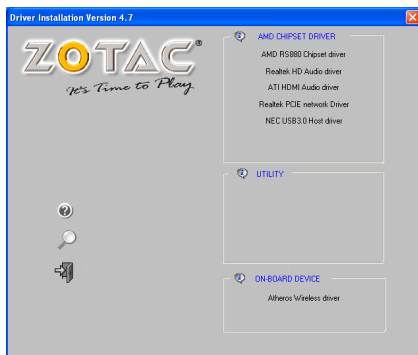
Installing Drivers and Software

- Note:** 1. It is important to remember that before installing the driver CD that is shipped in the kit, you need to load your operating system. The motherboard supports Windows XP 32 bit/64 bit; Windows Vista 32 bit/64 bit and Windows 7 32bit/64bit.
2. We reserve the right to update the driver version presented in the manual. The driver installation pictures shown in this section are for reference only.
3. To ensure a successful installation, please install Microsoft .net framework 2.0 or Windows XP SP3 or later version before installing the driver CD.

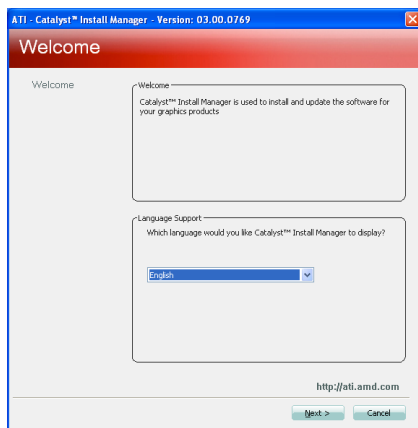
The kit comes with a CD that contains utility drivers and additional software.

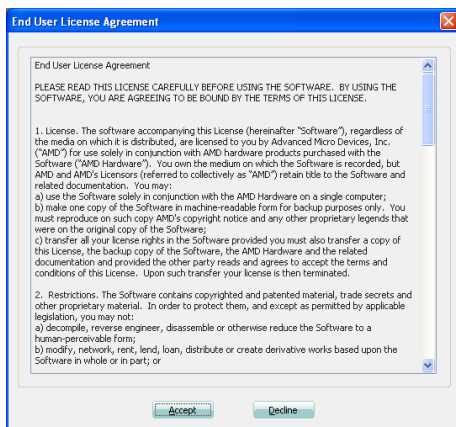
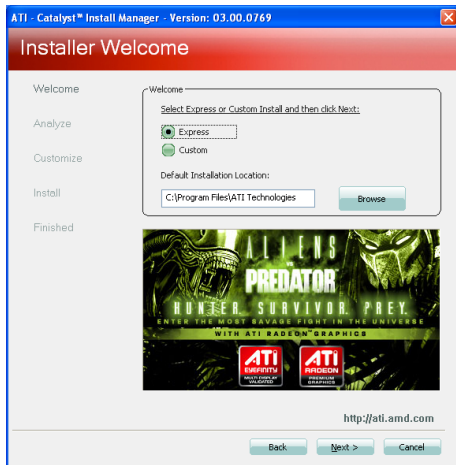
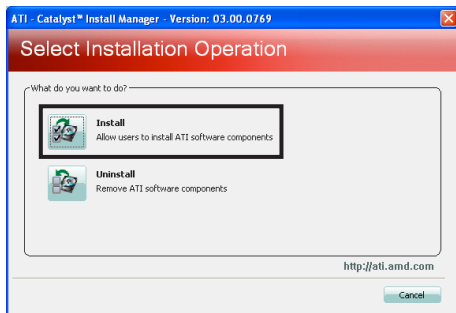
Drivers Installation

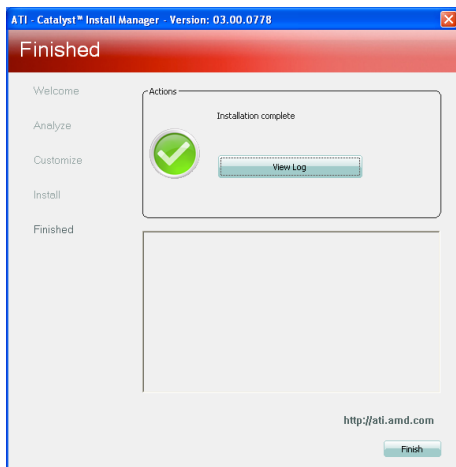
1. Insert the driver CD into the drive after loading your operating system, and then you can see the interface below.



2. Left-click **AMD RS880 Chipset driver**, and follow the instructions below to install the chipset driver.

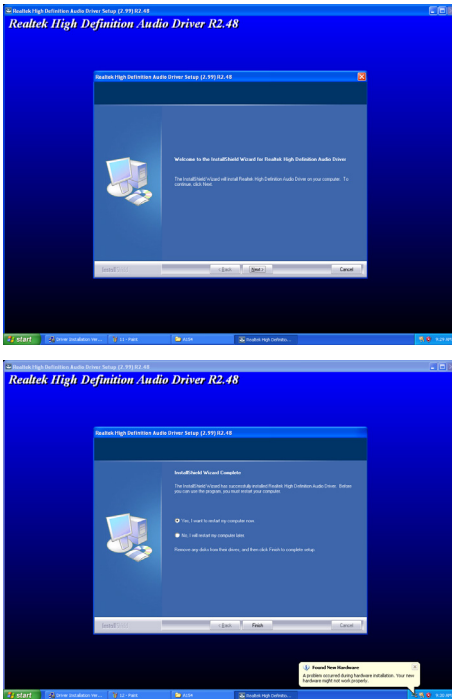




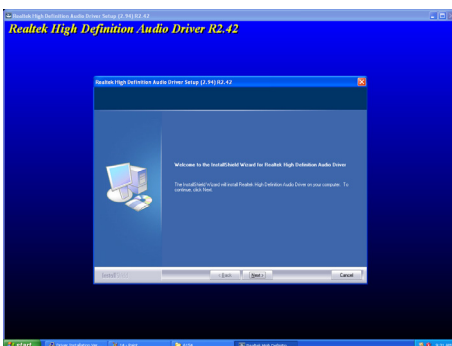


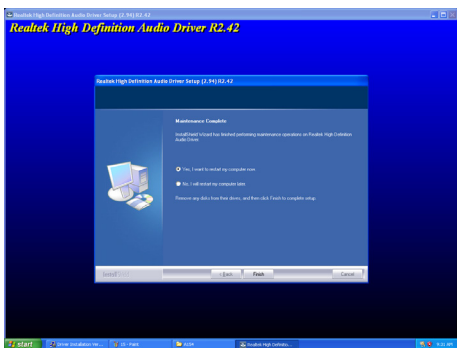
Note: If the software *Microsoft .net Framework 2.0* has not been installed, the failure report will display: Failures occurred during installation.

3. Left-click **Realtek HD Audio driver**, and follow the instructions below to install the sound driver.

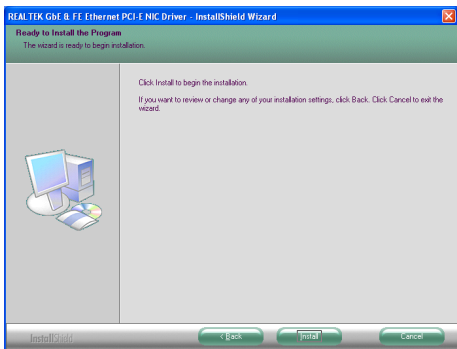
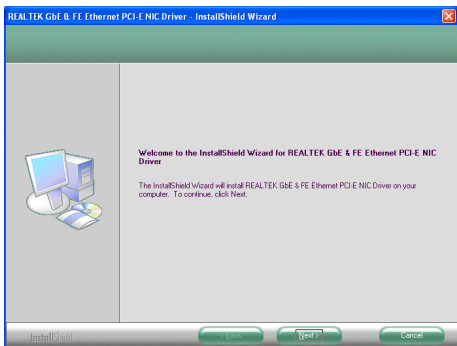


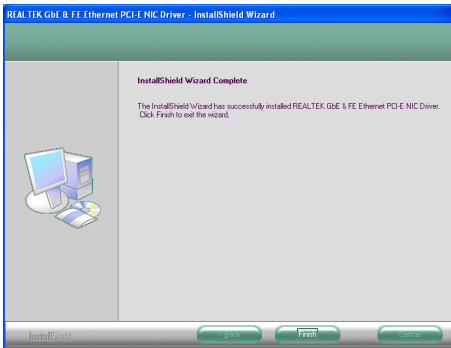
4. Left-click **ATI HDMI Audio driver**, and follow the instructions below to install the sound driver.



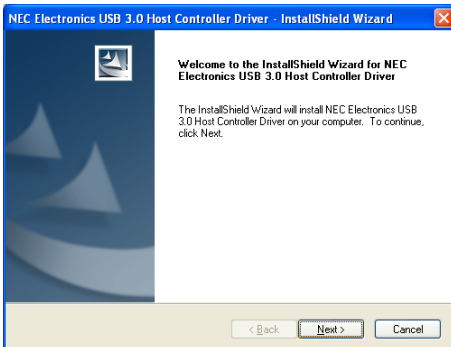


5. Left-click **Realtek PCIE network Driver**, and follow the instructions below to install the network driver.

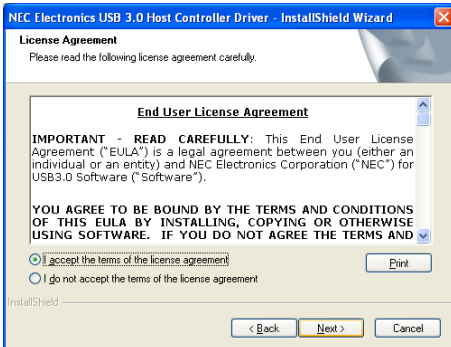


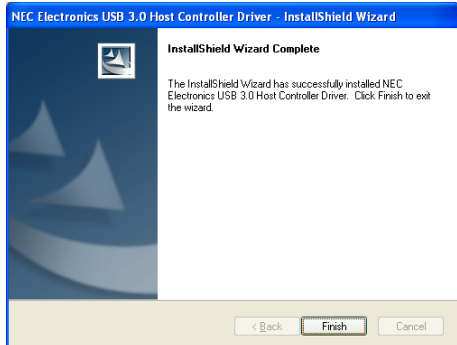
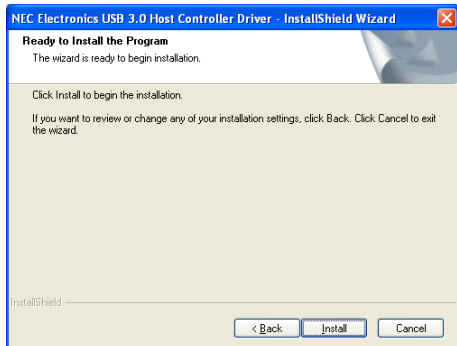
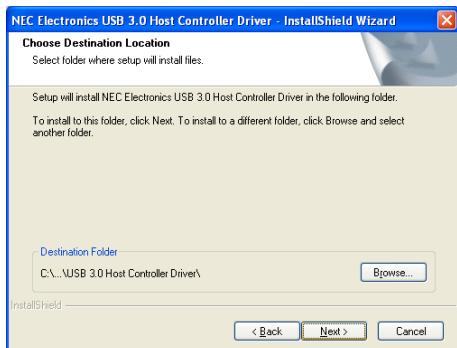


6. Left-click **NEC USB3.0 Host driver**, and follow the instructions below to install the USB3.0 host driver.

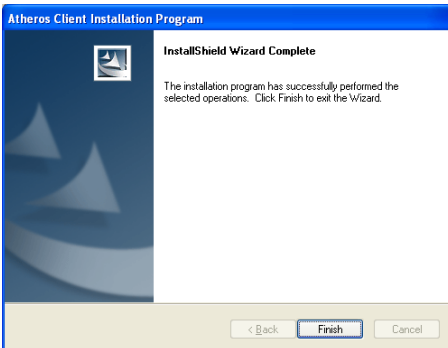
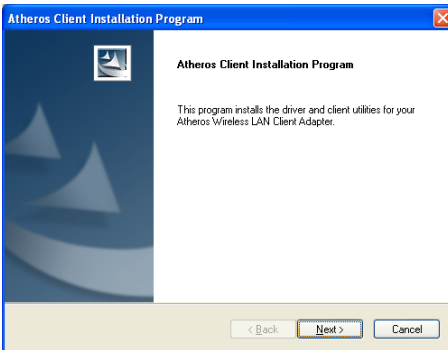


Note: USB 3.0 port would not work in POST, CMOS setup and DOS mode.

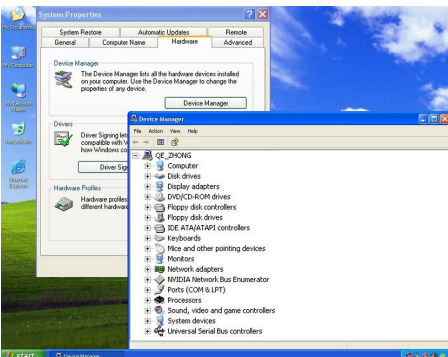




7. Left-click **Atheros Wireless driver**, and follow the instructions below to install the wireless driver.



8. At last, you can enter **Device Manager** interface that provides information about the hardware devices on this motherboard, and check if the installation is finished.



Realtek HD Audio Driver Setup

Getting Started

After Realtek HD Audio Driver being installed (insert the driverCD and follow the on-screen instructions), “Realtek HD Audio Manager” icon will show in System tray as below. Double click the icon and the control panel will appear:



Double click to enable
Realtek HD Audio Manager

Sound Effect

After clicking on the “Sound Effect” tab, 3 sections “Environment”, “Equalizer” and “Karaoke” are available for selection.



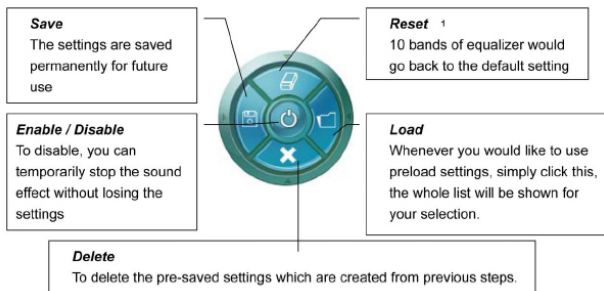
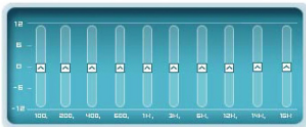
Environment Simulation

You will be able to enjoy different sound experience by pulling down the arrow, totally 23 kinds of sound effect will be shown for selection. Realtek HD Audio Sound Manager also provides five popular settings “Stone Corridor”, “Bathroom”, “Sewer pipe”, “Arena” and “Audio Corridor” for quick enjoyment.

Equalizer Selection

The Equalizer section allows you to create your own preferred settings by utilizing this tool.

In standard 10 bands of equalizer, ranging from 100Hz to 16KHz are available:



Frequently Used Equalizer Setting

Realtek recognizes the needs that you might have. By leveraging our long experience at audio field, Realtek HD Audio Sound Manager provides you certain optimized equalizer settings that are frequently used for your quick enjoyment.

How to Use

Other than the buttons “Pop” “Live” “Club” & “Rock” shown on the page, to pull down the arrow in “Others” , you will find more optimized settings available to you.

Karaoke Mode

Karaoke mode brings Karaoke fun back home by simply using the music you usually play, Karaoke mode can help you eliminate the vocal of the song or adjust the key to accommodate your range.

Vocal Cancellation: Single click on “Voice Cancellation”, the vocals of the songs will be erased, while the background music is still playing which lets you take over the vocal part.

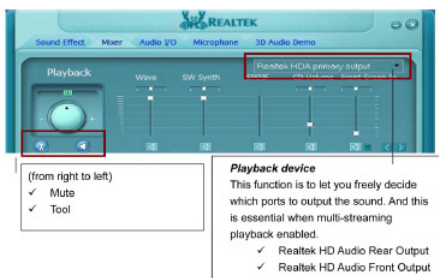
Key Adjustment: Using “Up / Down Arrow” to find a key which better fits your vocal range.

Mixer

Realtek HD Audio Sound Manager integrates Microsoft's "Volume Control" functions into the Mixer page. This gives you the advantage to you to create your favorite sound effect in one single tool.



Playback control



Mute

You may choose to mute single or multiple volume controls or to completely mute sound output.

Tool

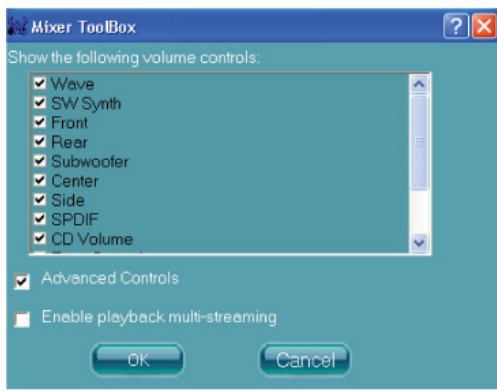
✓ Show the following volume control

This is to let you freely decide which volume control items to be displayed, total 13 items to be chosen.

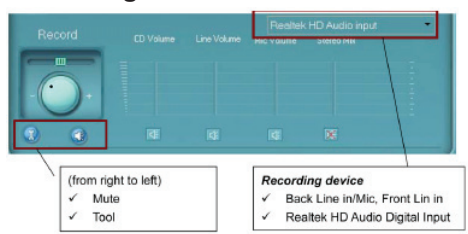
✓ Advanced controls

✓ Enable playback multi-streaming

With this function, you will be able to have an audio chat with your friends via headphone (stream 1 from front panel) while still have music (stream 2 from back panel) playing. At any given period, you can have maximum 2 streams operating simultaneously.



Recording control



Mute

You may choose to mute single or multiple volume controls or to completely mute sound input.

Tool

✓ Show the following volume controls

This is to let you freely decide which volume control items to be displayed.

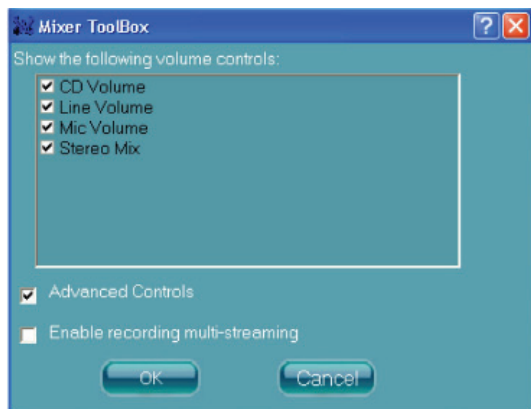
✓ Advanced controls.

Advanced control is a “Microphone Boost” icon.

Once this item is checked, you will find “advanced” icon beside “Front Pink In” & “Mic Volume”. With this, the input signal into “Front Pink In” & “Mic Volume” will be strengthened.

✓ Enable recording multi-streaming

At any given period, you can have maximum 2 streams operating simultaneously.



Audio I/O

Realtek HD Audio Manager frees you from default speaker settings. Different from before, for each jack, they are not limited to perform certain functions. Instead, now each jack is able to be chosen to perform either output (i.e. playback) function or input (i.e. Recording) function, we call this "Retasking".

Audio I/O aims to help you setting jacks as you wish. Moreover, other than blue to blue, pink to pink, the way that you used to do, Audio I/O would guide you to other right jacks that can also serve as microphone / speaker / headphone.



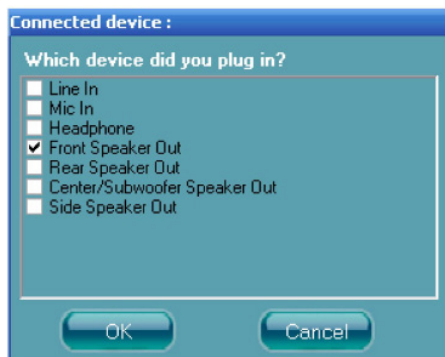
Speaker Configuration

Step 1: Plug in the device in any available jack.


Step 2: Dialogue "connected device" will pop up for your selection. Please select the device you are trying to plug in.

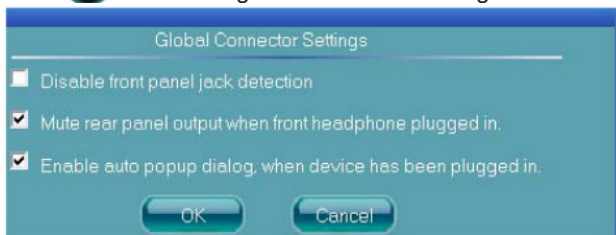
* If the device is being plugged into the correct jack, you will be able to find the icon beside the jack changed to the one that is same as your device.

* If not correct, Realtek HD Audio Manager will guide you to plug the device into the correct jack.



Global Connector Settings

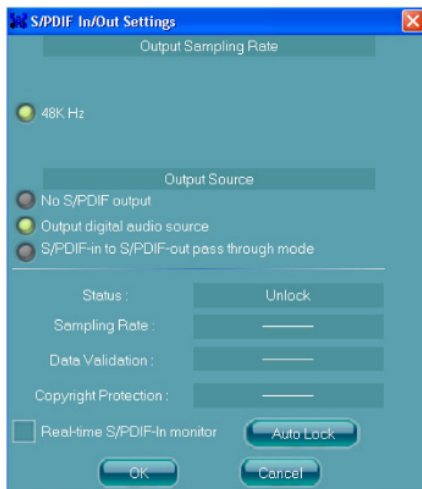
Click  to access global connector settings



- ✓ **Mute rear panel when front headphone plugged in**
Once this option is checked, whenever front headphone is plugged, the music that is playing from the back panel, will be stopped.
- ✓ **Disable front panel jack detection (option)**
Did not find any function on front panel jacks?
Please check if front jacks on your system are so-called AC'97 jacks. If so, please check this item to disable front panel jack detection.
- ✓ **Enable auto popup dialogue, when device has been plugged in.**
Once this item checked, the dialog "Connected device", would not automatically pop up when device plugged in.

S/PDIF

Short for **S**ony/**P**hilips **D**igital **I**nterface, a standard audio file transfer format. S/PDIF allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Maintaining the viability of a digital signal prevents the quality of the signal from degrading when it is converted to analog.



√ Output Sampling Rate

- 44.1KHz: This is recommended while playing CD
- 48KHz: This is recommended while playing DVD or Dolby.
- 96KHz: This is recommended while playing DVD-Audio.

√ Output Source

- Output digital audio source: The digital audio format (such as .wav, .mp3, .midi etc) will come out through S/PDIF-Out.

Speaker Calibration

After you have successfully plugged in speakers and assigned to the right jacks, you are only one more step to go to enjoy the intended sound. We provide "Speaker Calibration" to help you check if the speakers are located in the correct position.



Step1

Select the channel output (headphone / 2 / 4 / 6 /channel)

Step2

Click "play" icon

Step3

Look at the scene; while the speaker appears flashing, you should be able to hear the sound exactly from that direction.

Microphone

This page is designed to provide you better microphone / recording quality.

Below picture indicates both “Noise Suppression” & “Acoustic Echo Cancellation” are both enabled.



Noise Suppression

If you feel that the background noise, especially the sound generated from the fan inside PC, is too loud? Try “Noise Suppression”, which allows you to cut off and suppress disturbing noise.

Beam Forming

Also known as “directional recording”, this option lets you do the following: Once beam forming is enabled; only the sound from certain direction will be recorded. You will get the best quality if you chose 90° position, which we recommend you to use, this effectively means that you speak right into the microphone.

Note: A Stereo Microphone is required when using Beam Forming function.

Acoustic Echo Cancellation

This function prevents playback sound from being recorded by microphone together with your sound. For example, you might have chance to use VOIP function through Internet with your friends. The voice of your friend will come out from speakers (playback). However, the voice of your friend might also be recorded into your microphone then go back to your friend through Internet. In that case, your friend will hear his/her own voice again. With AEC (Acoustic Echo Cancellation) enabled at your side, your friend can enjoy the benefit with less echo.

3D Audio Demo

The section “3D Audio Demo” grants you another possibility to enjoy your sound. The Audio Demo allows you to listen to sound in an extraordinary way.



Information

Information

information

Audio Driver Version : 5.10.0.5643

DirectX Version : DirectX 9.0

Audio Controller : HD Audio

Audio Codec : ALC662

Language : Auto

Show icon in system tray

OK

Hardware / Software information of your audio system

Language setting
When "Auto" is chosen, this language setting would accommodate to OS language on your systems

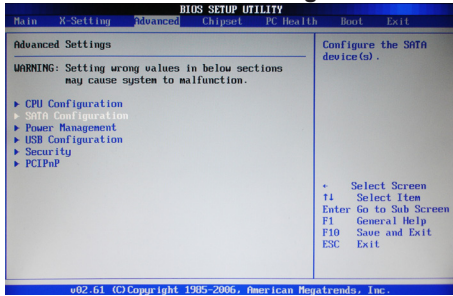
Quick launch button at system tray

This section provides information about your current system audio device.

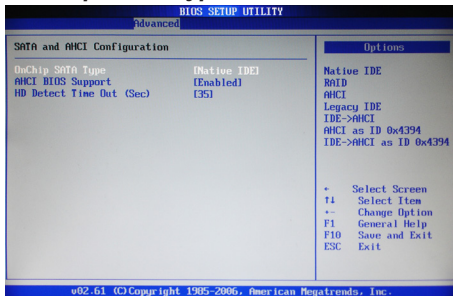
SATA RAID User Manual

Setting up the BIOS

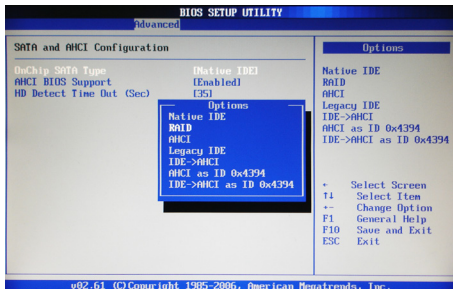
1. Setting your computer, then press <Delete> to enter BIOS SETUP UTILITY.
2. Use the arrow key to select Advanced menu. When enter the Advanced menu, select the Item “SATA Configuration”.



3. Press <Enter> to display SATA and AHCI Configuration, then select the item “OnChip SATA Type”.



4. Press <Enter> and enable the option “RAID”.



5. Enable the disks that you want to use as RAID disks.
6. Press F10 to save the configuration and exit. The PC reboots.
7. Enter the RAID BIOS Setup by pressing F10 when prompted, and proceed to set up the RAID BIOS as described in the next Section.

Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press <Ctrl-F>.
2. **Option ROM Utility (c) 2009 Advanced Micro Devices, Inc.-Main Menu** window appears.

```
View Drive Assignments .....[ 1 ]
LD View / LD Define Menu .....[ 2 ]
Delete LD Menu .....[ 3 ]
Controller Configuration .....[ 4 ]
```

Creating a RAID set

1. In **Main Menu**, select <2> to enter **LD View Menu**, and press <Ctrl-C> to enter **LD Define Menu**.
 - a. In the RAID Mode field, use the space bar to select a RAID Mode. The supported RAID modes include Mirroring (RAID 1), Striping (RAID 0) and Stripe Mirroring (RAID 10), Spanning(JBOD) and RAID 5. The following is an example of RAID 0 array creation.
 - b. If RAID 0 (Striping) is selected, you can manually set the striping block size. In the Striping Block field, use the UP or DOWN ARROW key to set the Striping Block size. The KB is standard unit of Striping Block size. We recommend you leaving it to the default setting-Optimal (64k). The size range is from 4k to 128k.

```
Option ROM Utility (c) 2009 Advanced Micro Devices, Inc.
[ LD Define Menu ]

LD No  LD Name                RAID Mode  Drv
LD 1   Logical Drive 1        RAID 0     0

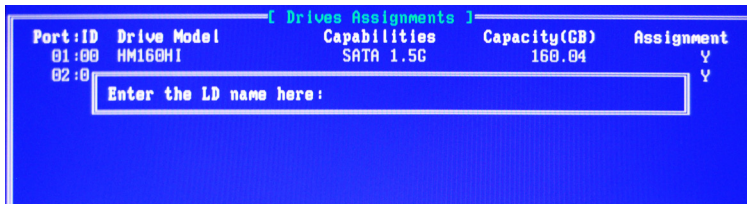
Stripe Block    64 KB
Gigabyte Boundary ON
Fast Init       ON
Cache Mode     WriteThru
```

2. In **Drives Assignments** menu, use the space bar to select <Y>, and press <Ctrl-Y>.

```
[ Drives Assignments ]

Port:ID  Drive Model  Capabilities  Capacity(GB)  Assignment
01:00   HM160H1      SATA 1.5C    160.04        Y
02:00   HM160H1      SATA 1.5C    160.04        Y
```

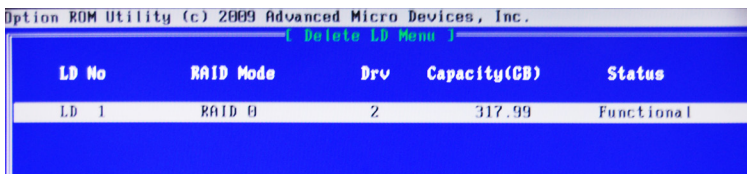

3. Enter the LD name.



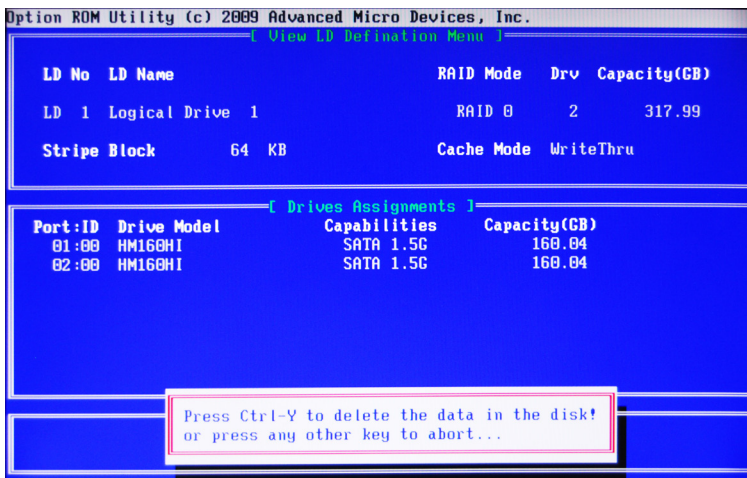
4. Modify Array Capacity, and press <Ctrl-Y> to save the modification. When the setup is finished, press <Esc> to exit the RAID interface. After the PC reboots, the RAID controller will display the ready RAID.

Deleting a RAID set

1. In **Main Menu**, select <3> to enter **Delete LD Menu**, and select the RAID you want to delete.

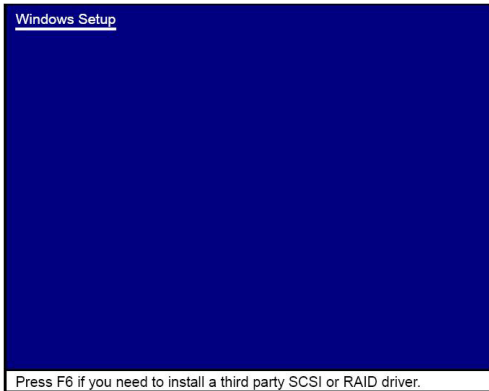


2. Press <Ctrl-Y> to delete the RAID, or press any other key to abort.

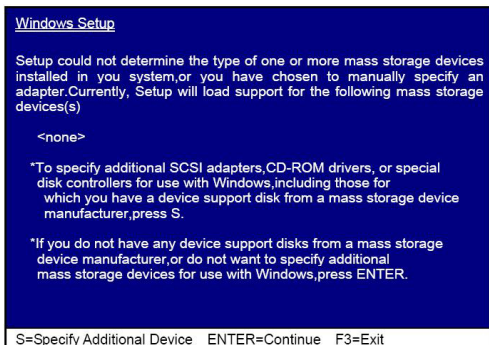


Installing the RAID Drivers

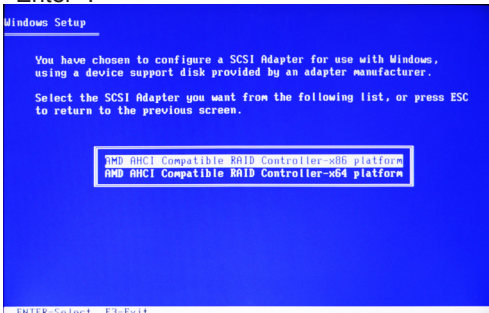
1. After you complete the RAID BIOS setup, boot from the windowsXP CD. The Windows Setup program starts.



2. Press F6 and wait a few moments for the Windows Setup screen to appear.



3. Specify the AMD drivers.
 - a. Insert the floppy that has the RAID driver, and select the SCSI Adapter, then press <Enter>.



- b. When the window below display, press <S> to use the driver on floppy.



- c. Press <Enter> to continue the windows setup.



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