

# ZOTAC<sup>®</sup>

*INTEL SERIES MOTHERBOARD*



Designed for 2nd generation Intel<sup>®</sup>  
Core i3, i5, i7 and Pentium<sup>®</sup> Processors

**H61MATX** 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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### Trademarks

All brand names, logos and registered trademarks mentioned are property of their respective owners.

### CAUTION:

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

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# Motherboard Specifications

## Chipset

- ❖ Intel® H61 Chipset

## Size

- ❖ MATX form factor of 9.6 inch X 7.04 inch

## Microprocessor support

- ❖ Supports LGA 1155 Socket for 2nd Generation Intel® Core i3/i5/i7 and Pentium processors

## Operating systems

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

## System Memory

- ❖ Supports 1 GB, 2 GB, 4 GB and 8 GB DDR3 DRAM devices
- ❖ Supports Dual Channel DDR3 1066 and 1333 MT/s
- ❖ Maximum memory size: 16 GB

## USB 2.0 ports

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

## Onboard Serial ATA ports

- ❖ Independent DMA operation on three ports
- ❖ Three SATAII ports(3.0 Gb/s)

## eSATA Port

- ❖ One eSATA port on backpanel
- ❖ Supports hot plug and play
- ❖ Provide a link for 3.0 Gb/s data speed

## Onboard LAN

- ❖ Support Full Duplex flow control (IEEE802.3x)
- ❖ 10/100/1000 BASE-T IEEE 802.3 compliant
- ❖ Wake On LAN (WOL) power management support

## Audio

- ❖ 6 channel High Definition Audio
- ❖ All DACs support 192k/96k/48k/44.1kHz sample rate

**❑ Green Function**

- ❖ Support SMM, APM, ACPI
- ❖ Suspend to DRAM supported (STR)
- ❖ AC power failure recovery

**❑ Onboard Graphics Features**

- ❖ Integrated GPU contains a refresh of the sixth generation graphics core
- ❖ DX10.1 and OpenGL 3.0 are supported
- ❖ 3D Graphics Rendering Enhancements
- ❖ VGA and DVI ports output support
- ❖ Support resolution up to 1920x1200 @ 60Hz for DVI

**❑ PCI Express Interface**

- ❖ Supports PCI Express 2.0
- ❖ Wake up function is supported
- ❖ Clock spread spectrum capability

**❑ Expansion slots**

- ❖ One PCI Express x16 slot
- ❖ One PCI Express x1 slot
- ❖ Two PCI slots

# Motherboard Layout

Figure 1 shows the motherboard and Figure 2 shows the back panel connectors.

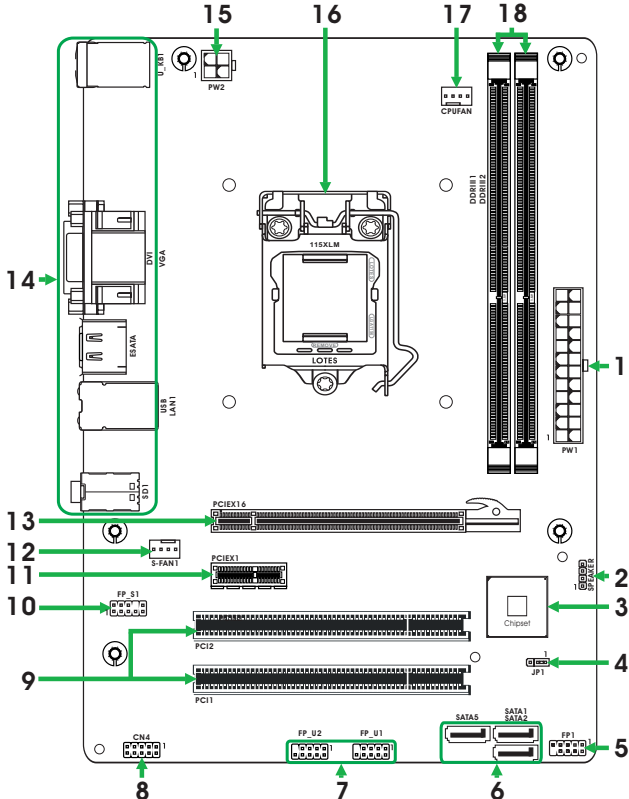


Figure 1

Figure 1. Board Layout

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| 1. 24-pin ATX Power Connector-PW1    | 10. Front Panel Audio Header-FP_S1    |
| 2. Speaker Header-SPEAKER            | 11. PCI Express x1 Slot-PCIEX1        |
| 3. Chipset                           | 12. SYS Fan Connector-S-FAN1          |
| 4. Clear CMOS Jumper-JP1             | 13. PCI Express x16 Slot-PCIEX16      |
| 5. Front Panel Header-FP1            | 14. Backpanel Connectors              |
| 6. Serial-ATA Connectors (SATA1/2/5) | 15. 4-pin ATX_12V Power Connector-PW2 |
| 7. USB Headers (FP_U1~FP_U2)         | 16. CPU Socket                        |
| 8. COM Header_CN4                    | 17. CPU Fan Connector_CPUFAN          |
| 9. PCI Slots-PCI1~2                  | 18. DDRIII DIMM Sockets-DDRIII1~2     |





## 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 DIMMs
- Installing the motherboard
- 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

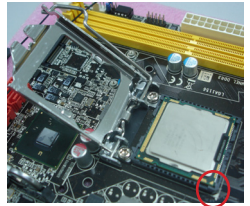
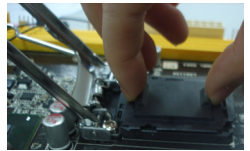
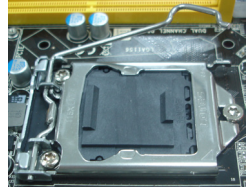
The motherboard shipped in the box does not contain a CPU or memory module. You need to purchase them to complete this installation.

### 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.

The following illustration shows CPU installation components

1. Unhook the socket lever by pushing down and away from the socket.
2. Lift the socket lever and the load plate to fully open position.
3. Use your thumb and forefinger to lift the cap up vertically.
  - Be careful not to touch the socket contacts.
4. Hold the processor with your thumb and forefinger. Insert the processor into the socket vertically.
  - Align the CPU pin 1 mark with the pin 1 corner of the CPU socket.
5. Make sure the CPU is fully seated, and then replace the load plate.
  - Be sure that the front end of the load plate is under the shoulder screw.
6. Secure the load lever to its locked location.

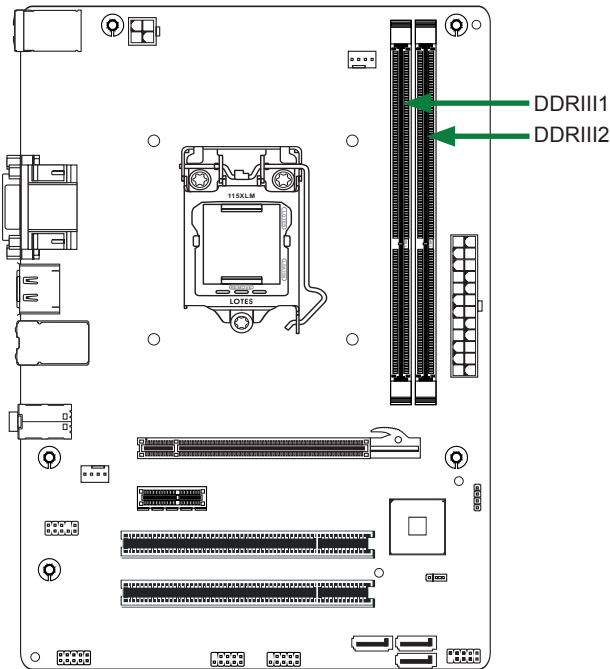


## Installing the CPU Fan

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

Your new motherboard has two 1.5V 240-pin slots for DDR3 memory. These slots support 1 GB/2 GB/4 GB/8 GB DDR3 devices. There must be at least one memory bank populated to ensure normal operation.



Refer to the following procedure to install memory modules into the slots on the motherboard. Note that there is only one gap near the center of the DIMM slot. This slot matches the slot on the memory DIMM to ensure the component is installed properly.

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

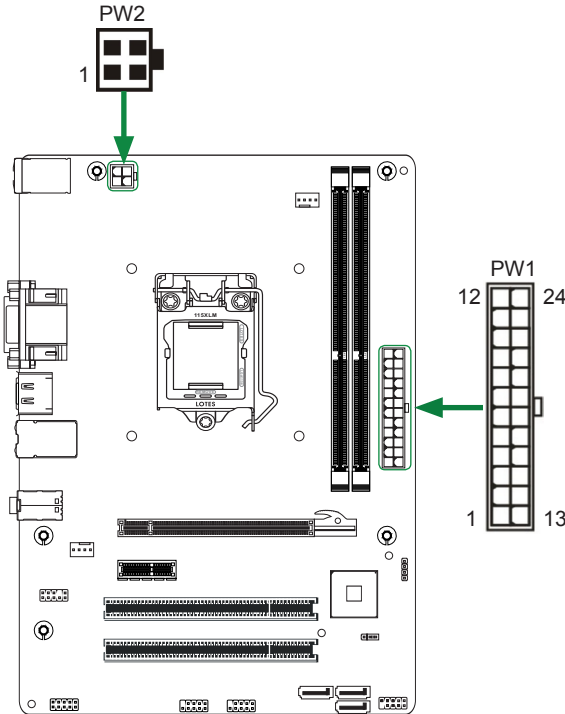
This section takes you through all the connectors and switch settings necessary on the motherboard. This will include:

- Power Connectors
  - ❖ 24-pin ATX Power Connector-PW1
  - ❖ 4-pin ATX\_12V Power Connector-PW2
- Internal Headers/Connectors
  - ❖ COM Header-CN4 (Optional)
  - ❖ Front Panel Header-FP1
  - ❖ USB Headers (FP\_U1/2)
  - ❖ Front Panel Audio Header-FP\_S1
  - ❖ Speaker Header-SPEAKER
- Serial-ATA (SATA) Connectors (SATA1/2/5)
- Fan Connectors
- Expansion Slots
- CMOS Jumper Settings

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

## 24-pin ATX Power Connector-PW1

**PW1** 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.



**PW1-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

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

**PW2-Pin Definition**

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

## COM Header-CN4 (Optional)

### CN4 - Pin Definition

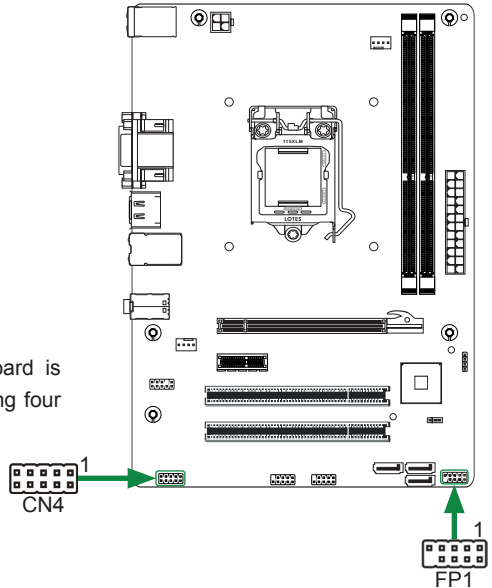
Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

## Front Panel Header-FP1

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

### FP1-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



#### PWRLED

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.*

## USB Headers-FP\_U1~FP\_U2

This motherboard contains four USB 2.0 ports that are exposed on the rear panel of the chassis. The motherboard also contains two 10-pin internal headers connector onboard.

**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\_U1~FP\_U2-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

## Front Panel Audio Header-FP\_S1

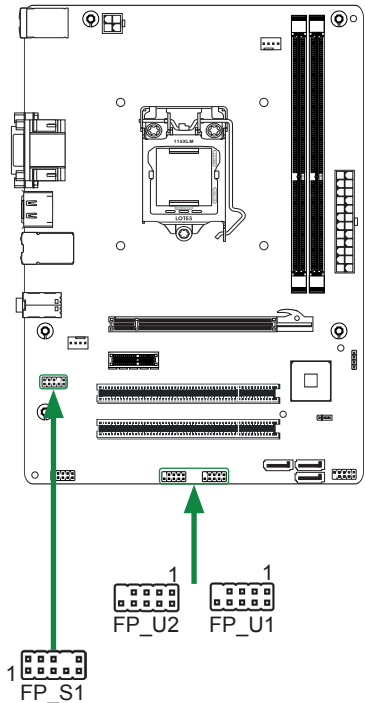
The audio connector supports HD audio standard and provides two kinds of audio output choices: the Front Audio, the Rear Audio. The front Audio supports retasking function.

FP\_S1-Pin Definition

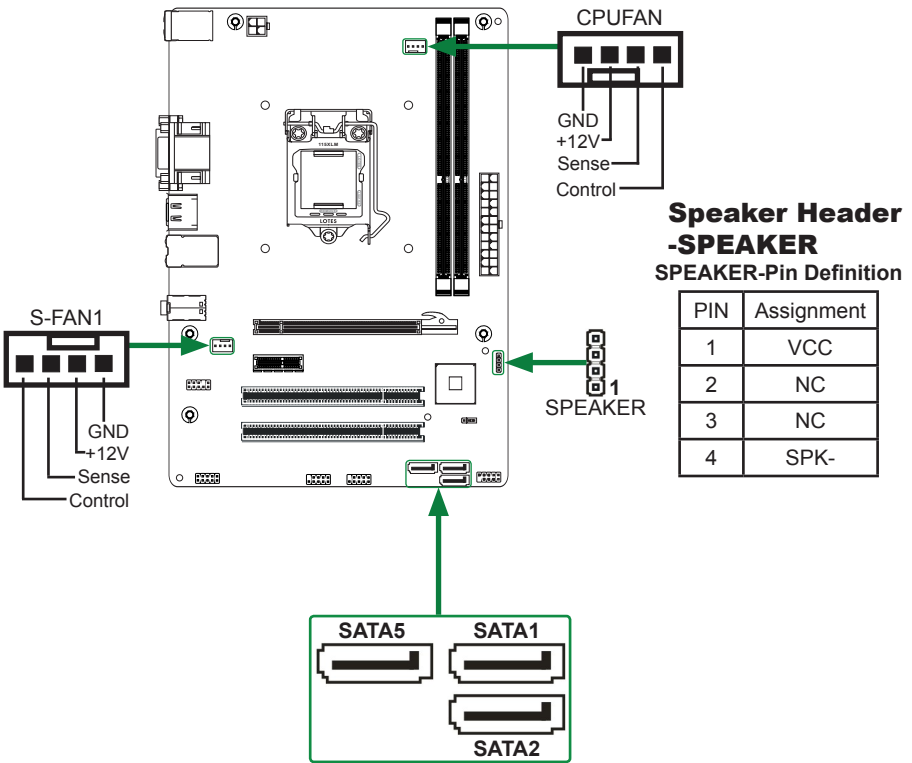
PIN	Assignment	PIN	Assignment
1	MIC2(L)	2	GND
3	MIC(R)	4	-ACZ-DET
5	Front Audio(R)	6	Reserved
7	FAVDIO-JD	8	Key(No pin)
9	Front Audio(L)	10	Reserved

### 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 contact your dealer.*







### Serial-ATA (SATA) Connectors (SATA1/2/5)

The Serial ATA connector is used to connect the Serial ATA device to the motherboard. These connectors support the thin Serial ATA cables for primary storage devices. The current Serial ATA interface allows up to 300 MB/s data transfer rate.

### SATA-Pin Definition

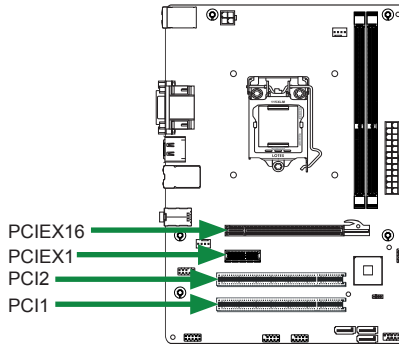
Pin	Signal
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

### Fan Connectors

There are two fan connectors on the motherboard, including system fan connectors-S-FAN1 and CPU fan connector-CPUFAN.

## Expansion Slots

The motherboard contains four expansion slots, including one PCI Express x16 slot, one PCI Express x1 slot and two PCI slots.



### PCI Express x16 Slot-PCIEX16

There is one PCI Express x16 slot reserved for graphics or video cards. The PCIe x16 slot is complying with PCIe 2.0 specification.

### PCI Express 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.

### PCI Slots-PCI1~2

The two PCI slots support many expansion cards such as a LAN card, USB card, SCSI card and other cards that comply with PCI specifications.

## Jumper Settings

This section 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 section whenever in doubt.

### CMOS Clear Jumper-JP1

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

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.

Refer to the following procedure to verify/change BIOS settings.

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

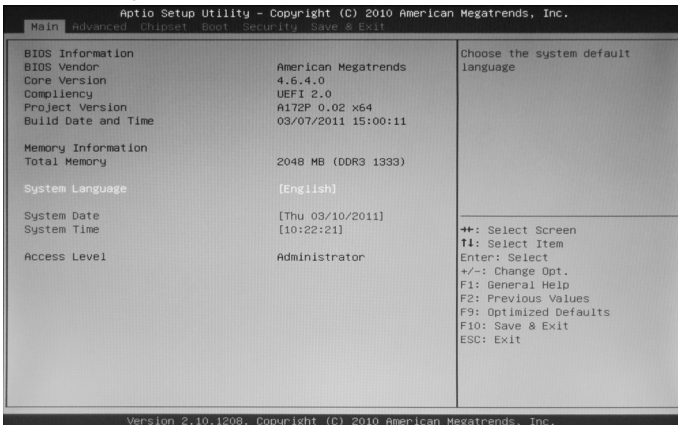
Pressing **Del** takes you to the BIOS Setup Utility.

**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.

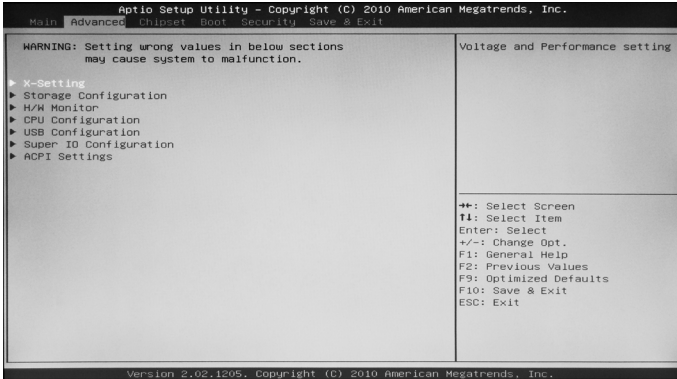


**Note:** Users please note that the data in gray is non-changeable, and the others are for selection.

- BIOS Information**  
Displays the auto-detected BIOS information.
- Memory Information**  
Displays the auto-detected memory information.
- System Language**  
Choose the system default language.
- System Date/Time**  
Allows you to set the system date/time.

## Advanced Menu

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



### X-Setting

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

- Adjust Memory Voltage**  
Use this item to adjust memory voltage.
- Adjust PCH Voltage**  
Use this item to adjust PCH voltage.

### Storage Configuration

The items in this menu allow you to set or change the storage configurations. Press <enter> to display the configuration options:

- SATA Mode**  
Allows you to choose SATA mode, including [Disabled], [IDE Mode], and [AHCI Mode].
- Serial-ATA Controller 0/1**  
Allows you to configure SATA controller.

### H/W Monitor

The items in this menu allow you to monitor the hardware status. Press <enter> to display the configuration options:

- CPU FAN Control Mode**  
Use this item to select CPU FAN Control mode.
- Start Temperature**  
Use this item to select the start temperature.
- Start Fan Duty**  
Use this item to select the start fan duty.
- Highest Fan Duty**  
Use this item to select the highest fan duty.

## CPU Configuration

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

- Hyper-threading**  
Use this item to enable or disable Hyper-threading technology.
- Active Processor Cores**  
This item allows you to choose the number of the active processor cores. The default value is [All].
- Limit CPUID Maximum**  
Allows you to determine whether to limit CPUID maximum value. Set this item to [Disable] Windows XP operating system; set this item to [Enable] for legacy operating system such as Windows NT4.0..
- Execute Disable Bit**  
When disabled forces the XD feature flag to always return 0, defaults choose [Enable].
- Hardware Prefetcher**  
Use this item to enable or disable hardware prefetcher (hardware prefetch mechanism).
- Adjacent Cache Line Prefetch**  
Use this item to enable or disable the adjacent cache line prefetch mode. If you disable this item, only one 64-bit line will be prefetched from the 128-bit section (including the required data). If you enable this item, two lines will be prefetched whether there is required data or not.
- Intel Virtualization Technology**  
Hardware Virtualization Technology enables processor feature for running multiple simultaneous virtual machines allowing specialized software applications to run in full isolation of each other.
- Power Technology**  
Use this option to set Power Technology.

## 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.
- EHCI Hand-Off**  
Allows you to enable support for operating systems without an EHCI hand-off feature.
- USB transfer time-out**  
Allows you to set USB transfer time-out.
- Device reset time-out**  
Allows you to set device reset time-out.
- Device power-up delay**  
Allows you to set device power-up delay.

## Super IO Configuration

The items in this menu allow you to configure NCT5577D Super IO Chipset.

### PS2 Keyboard/Mouse Swap

Allows you to set PS2 Keyboard/Mouse swap. The default value is [Keyboard].

### Serial Port 0 Configuration

Allows you to set parameters of Serial Port 0 (COMA).

## ACPI Settings

The items in this menu allow you to set ACPI Configuration.

### ACPI Sleep State

Select the highest ACPI sleep state, the system will enter when the SUSPEND button is pressed.

### Restore on AC Power Loss

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

### Deep Sleep

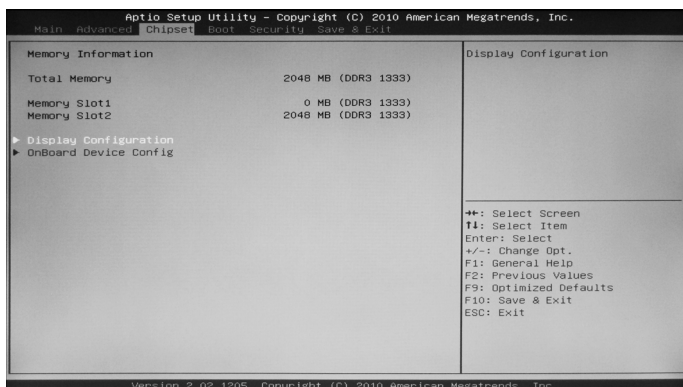
When enabled, wake up from S4/S5 can only be done by power button.

### Wake system with Fixed Time

Use this item to enable or disable wake system with fixed time.

## Chipset Menu

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



## Display Configuration

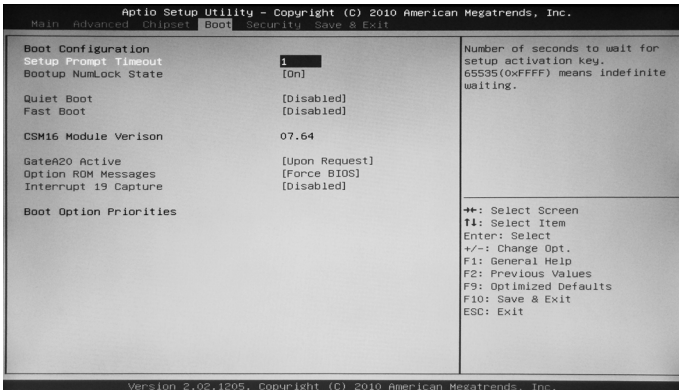
The item allows you to configure north bridge features, including Memory, Graphics, and so on.

## OnBoard Device Config

The item allows you to configure onboard device features, including LAN, HDA, and so on.

## Boot Menu

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



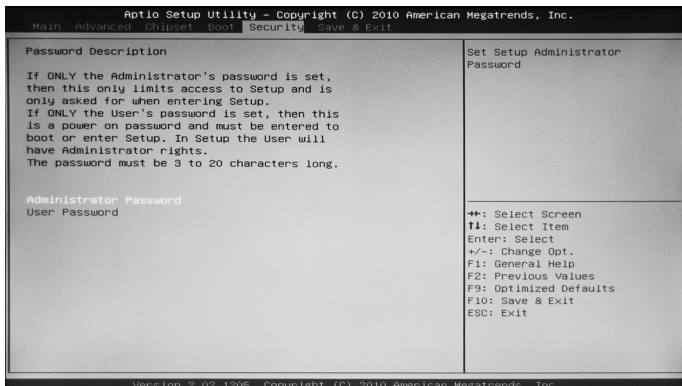
## Boot Settings Configuration

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

- Setup Prompt Timeout**  
Use this item to set number of seconds to wait for setup activation key.
- Bootup NumLock State**  
Use this item to select the keyboard NumLock state: [On] or [Off].
- Quiet Boot**  
When set to [Disabled], displays normal POST message. When set to [Enabled], displays OEM Logo instead of POST messages.
- Fast Boot**  
Enable or disable boot with initialization of a minimal set of devices required to launch active boot option.
- GateA20 Active**  
When set to [Upon Request], GA20 can be disabled using BIOS services. When set to [Always], GA20 can not be disabled; this option is useful when any RT code is executed above 1MB.
- Option ROM Messages**  
Use this item to set display mode for Option.
- Interrupt 19 Capture**  
When set to [Enabled], this function allows the option ROMs to trap interrupt 19.

## Security Menu

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



### Administrator Password

Select this item to set Setup Administrator Password.

### User Password

Select this item to set the user password.

To set an Administrator/User Password:

1. Select the item [Administrator/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.

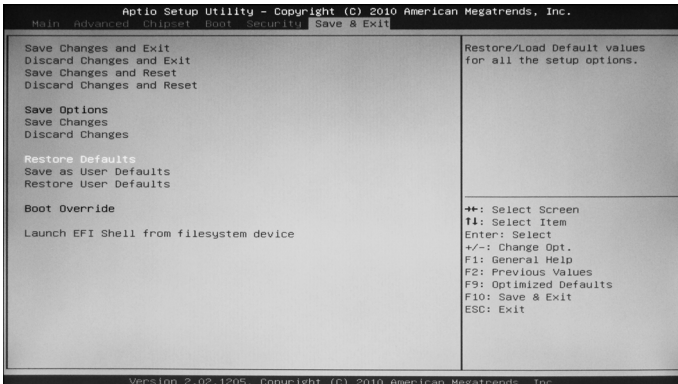
To change the administrator/user password, follow the same steps as setting a use password.

To clear the administrator/user password, select the item [Administrator/User password], then press <enter>. The message "Password Uninstalled" appears.



## 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 and exit?] appears, select [Yes] to save and exit, or select [No] 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 have 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.

### Save Changes and Reset

Select this item and press <Enter> to reset the system after saving the changes. When the dialog box [Save configuration and reset?] appears, select [Yes] to save and reset, or select [No] to return to the main menu.

### Discard Changes and Reset

Select this item and press <Enter> to reset system setup without saving any changes. When the dialog box [Reset without saving?] appears, select [Yes] to discard and reset, or select [No] to return to the main menu.

### Save Changes

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?] appears, select [Yes] to save changes, or select [No] to return to the main menu.

## Discard Changes

This option allows you to discard the selections you have made and restore the previously saved values. When the dialog box [Load Previous Values?] appears, select [Yes] to discard any change and load the previously saved values.

## Restore Defaults

Use this item to restore/load default values for all the setup options.

## Save as User Defaults

Use this item to save the changes as User Defaults.

## Restore User Defaults

Use this item to restore the User Defaults to all the setup options.

## Launch EFI Shell from filesystem device

Use this item to launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

## FLASH Update Procedure

The program EFUDOS.exe is included on the driver CD (D:\Utility\EFUDOS .exe). 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 EFUDOS.exe to the diskette.
2. Allow the PC system to boot from the DOS diskette.
3. At the DOS prompt, type

**EFUDOS XX.ROM /P /B /N <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:** 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.

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

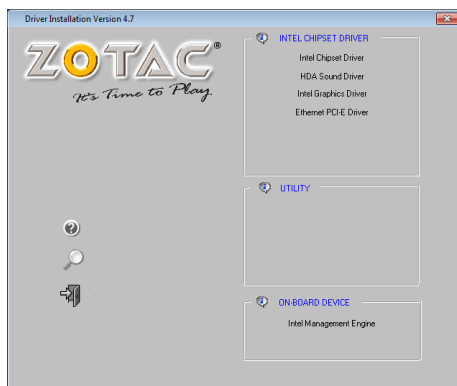
The CD that has been shipped with your motherboard contains the following software and drivers:

- Intel Chipset Driver
- HDA Sound Driver
- Intel Graphics Driver
- Ethernet PCI-E Driver
- Intel Management Engine

**Note.** 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.

## Drivers Installation

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

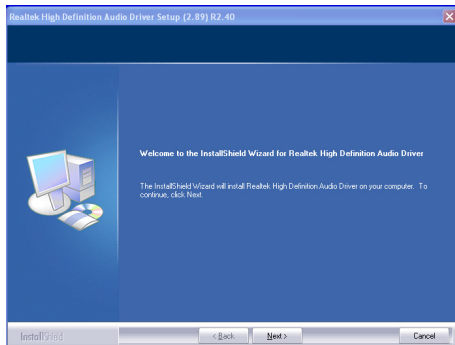
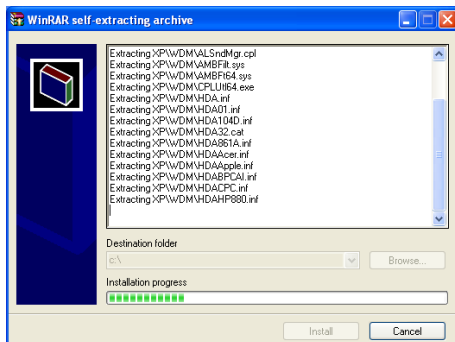


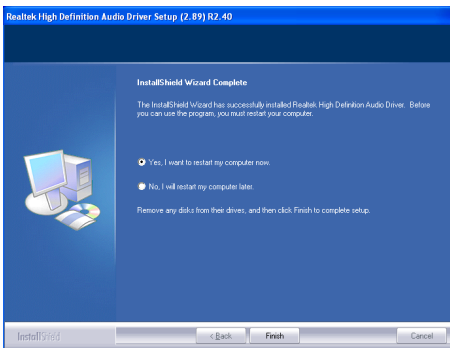
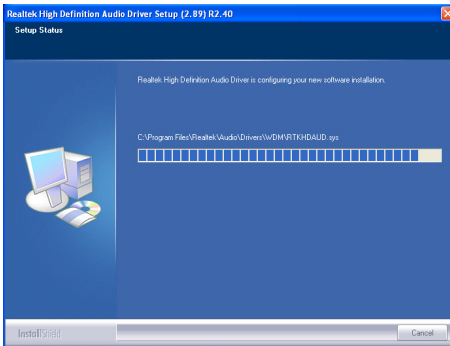
## 2. Left-click **Intel Chipset Driver**, begin loading



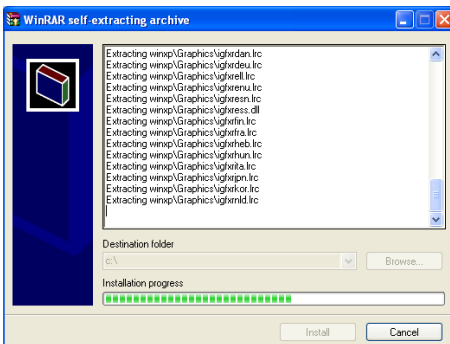


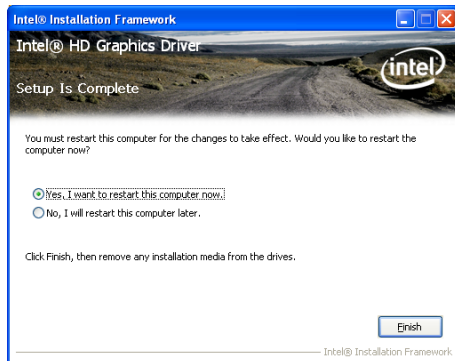
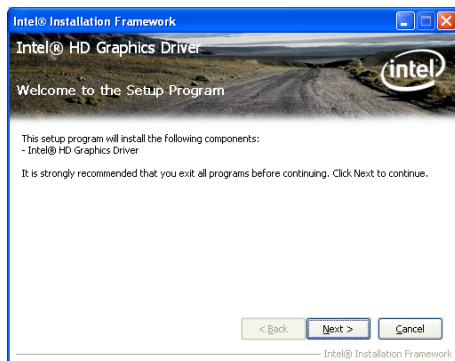
### 3. Left-click **HDA Sound Driver**, begin loading



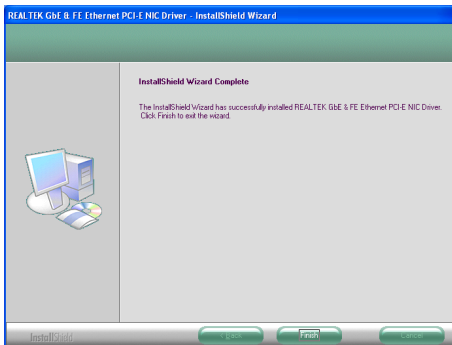
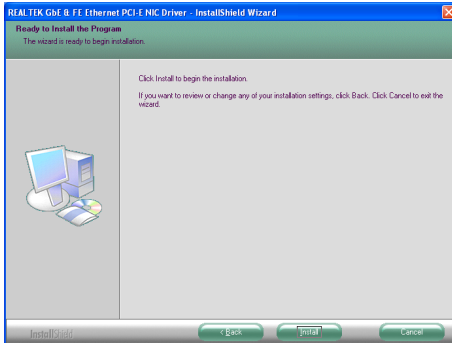
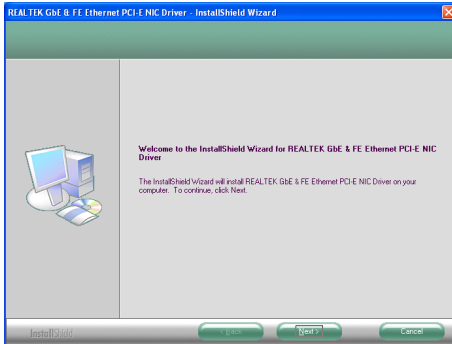


#### 4. Left-click Intel Graphics Driver, begin loading

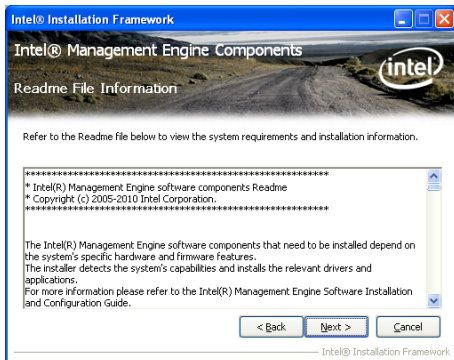
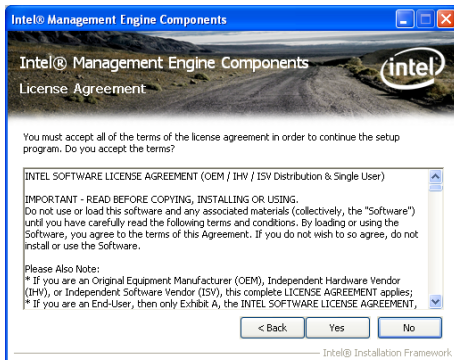


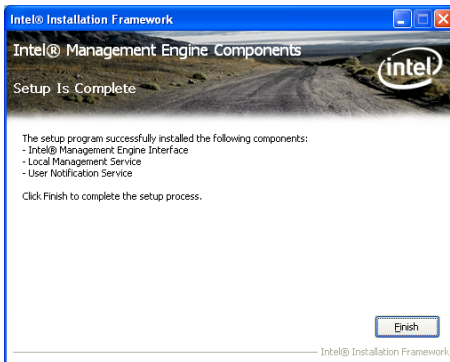
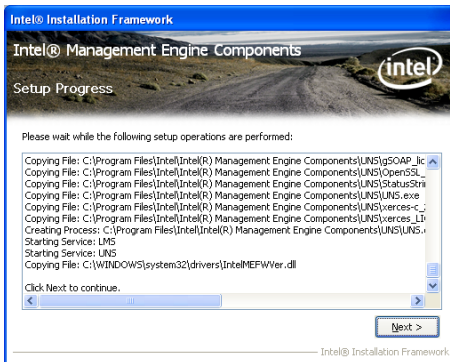


## 5. Left-click **Ethernet PCI-E Driver**, begin loading

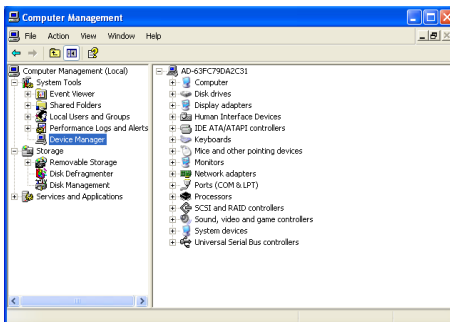




9. Left-click **Intel Management Engine**, begin loading



At last, you can enter Computer Management that provides information about the hardware devices on this motherboard to check if the driver installation is complete.



## Realtek HD Audio Driver Setup Getting Started

After Realtek HD Audio Driver being installed (insert the driver CD 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.



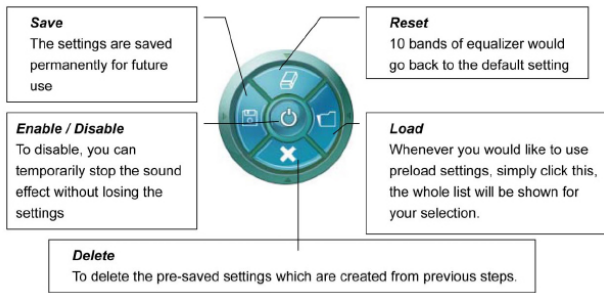
### Environment Simulation

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

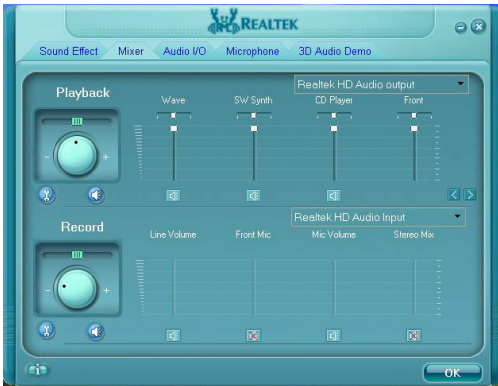
Karaoke mode brings Karaoke fun back home by simply using the music you usually play, Karaoke mode can help you eliminate the vocal of the song or adjust the key to accommodate your range.

**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.

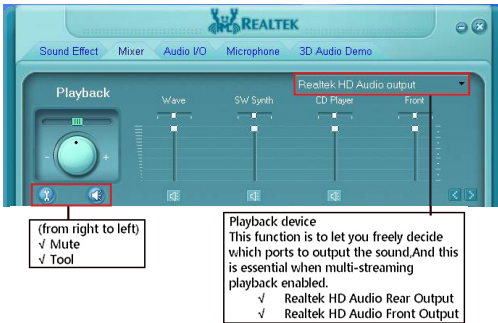
**Key Adjustment:** Using “Up/Down Arrow” to find a key which better fits your vocal range.

## 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

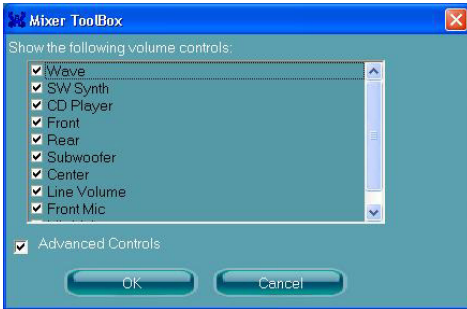
#### ✓ Show the following volume control

This is to let you freely decide which volume control items to be displayed, total 10 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



(from right to left)  
 ✓ Mute  
 ✓ Tool

Recording device  
 ✓ Back Line in/Mic,Front Line in  
 ✓ Realtek HD Audio Digital Input

## 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.

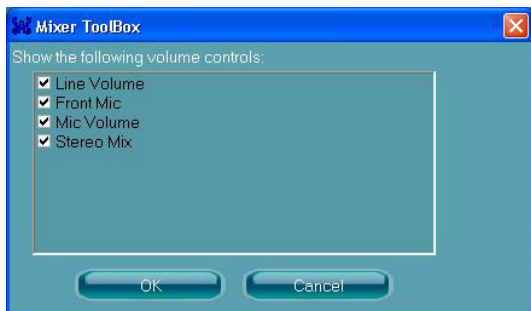
### ✓ Advanced controls.

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.

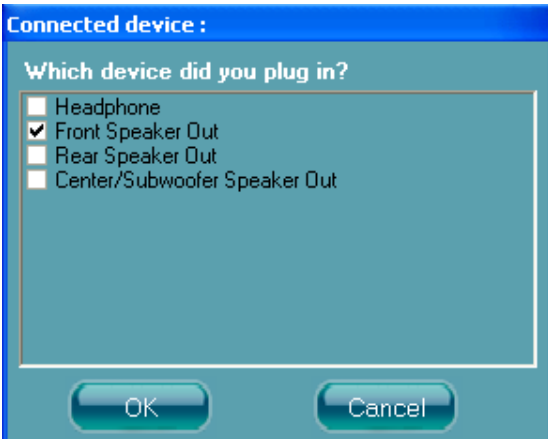


## Speaker Configuration

**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.





## Connector Settings

Click  to access connector settings



✓ **Mute rear panel when front headphone plugged in**

Once this option is checked, when 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?

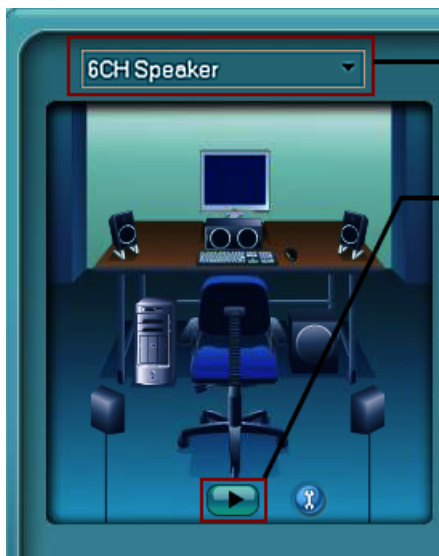
Please check if front jacks on your system are so-called AC'97 jacks. If so, please check this item to disable front panel jack detection.

✓ **Enable auto popup dialogue, when device has been plugged in.**

Once this item checked, the dialog "Connected device" would automatically pop up when device plugged in.

## 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**

Audio Driver Version : 5.10.0.6235

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.



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