

ZOTAC®

ION SERIES MOTHERBOARD

Integrated Intel® Atom™ D525 Processor



ION

IONITX SERIES

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

- ❖ Intel® NM10 Family Express Chipset

Size

- ❖ mini ITX form factor of 6.7 X 6.7 inch

Microprocessor support

- ❖ Integrated with Intel® Atom™ processor D4/D5 series

Operating systems

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

System Memory

- ❖ Supports single-channel DDR2 800/667 SDRAM
- ❖ Supports two unbuffered DIMMs
- ❖ Maximum memory size: 4 GB

USB 2.0 ports

- ❖ Supports hot plug and play
- ❖ Eight USB 2.0 ports (six rear panel ports, two from onboard USB header)
- ❖ Supports USB 2.0 protocol up to 480 Mbps transmission rate

Onboard Serial ATA

- ❖ Independent DMA operation on two ports (Optional)
- ❖ Data transfer rates of 3.0 Gb/s

Onboard Lan

- ❖ PCI Express base specification 1.0a compliant
- ❖ Compliant to 802.3x flow control support
- ❖ Wake On LAN (WOL) power management support
- ❖ RTL8111DL is Gigabit Ethernet controller

Onboard High Definition Audio

- ❖ Supports 6-channel
- ❖ Supports Jack-Sensing function
- ❖ One SPDIF-out header on board

Green Function

- ❖ Support SMM, APM, ACPI
- ❖ Suspend to DRAM supported (STR)
- ❖ RTC timer to power-on the system
- ❖ AC power failure recovery

❑ Graphics Processing Unit Features

- ❖ NIVIDA® GeForce GT218 ION GPU, Direct x10.1, Shader Model 4.1, CUDA cores up to 16
- ❖ Supports GDDR3 memory up to 512 MB
- ❖ Supports Dual_Link DVI display feature and max resolutions up to 2560x1600 at 60 Hz (DVI)
- ❖ DVI and HDMI dual output support

❑ Expansion slots

- ❖ One PCI Express X1 slot
- ❖ One Mini PCI Express slot

Motherboard Layout

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

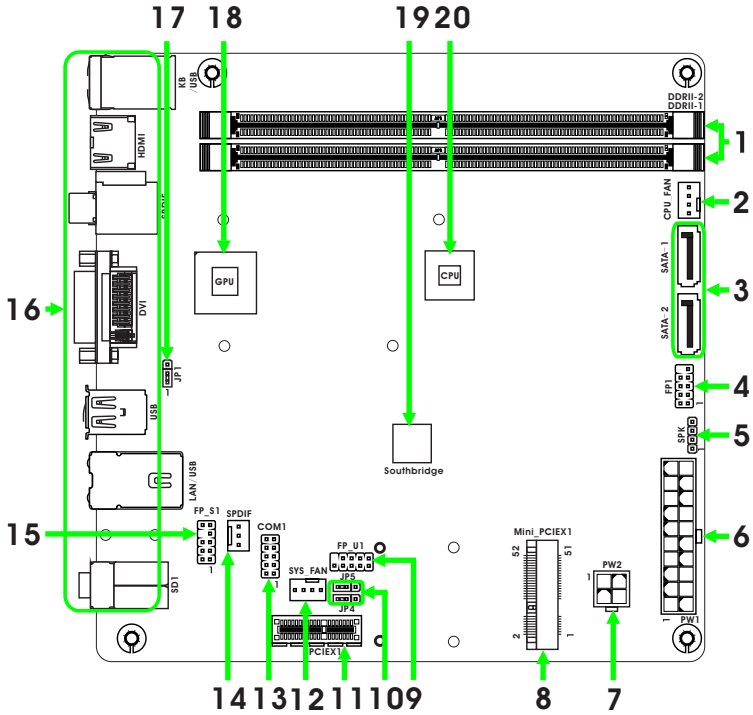
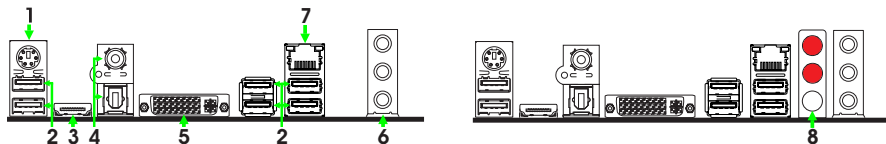


Figure 1

Figure 1. Board Layout

- | | |
|---|------------------------------|
| 1. DDRII DIMM Sockets | 11. PCI Express x1 Slot |
| 2. CPU Fan Connector | 12. SYS Fan Connector |
| 3. Serial-ATA (SATA) Connectors (SATA1~2) | 13. COM Header |
| 4. Front Panel Header | 14. SPDIF-Out Header |
| 5. Speaker Header | 15. Front panel audio Header |
| 6. 20-pin ATX Power Connector | 16. Backpanel connectors |
| 7. 4-pin ATX_12V Power Connector | 17. Clear CMOS Jumper |
| 8. Mini PCIe Slot | 18. Onboard GPU |
| 9. USB Headers | 19. Southbridge |
| 10. USB/Mini_PCLE Select Jumpers | 20. CPU |

Figure 2

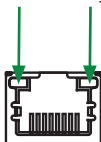


1. PS/2 Keyboard Port
2. USB Connectors
3. HDMI Port (Optional)
4. SPDIF Connectors
5. DVI Port

6. Port	2-Channel	4-Channel	6-Channel
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

7. LAN port LED indicators

Speed LED Activity LED



Speed LED

Status	Description
Off	Speed: 10 Mbps
Green	Speed: 100 Mbps
Orange	Speed: 1000 Mbps

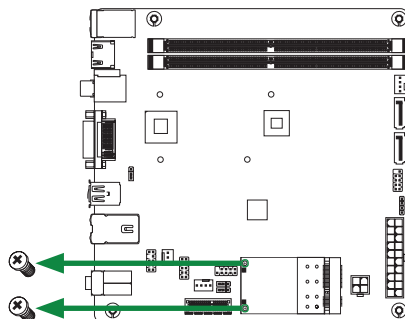
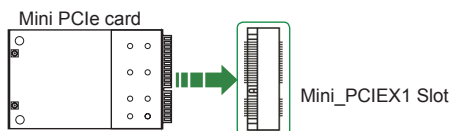
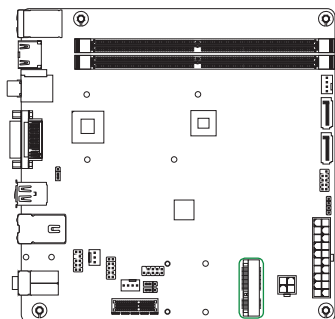
Activity LED

Status	Description
Off	No link
Orange	Linked
Blinking	Data activity

8. WiFi antenna connector (Optional)

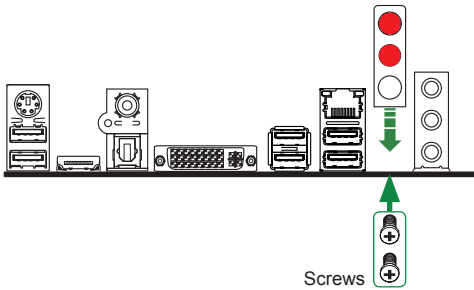
Refer to the following to install the WiFi antenna modules.

Step 1. Secure the Mini PCIe card into the Mini_PCIEX1 slot with screws.

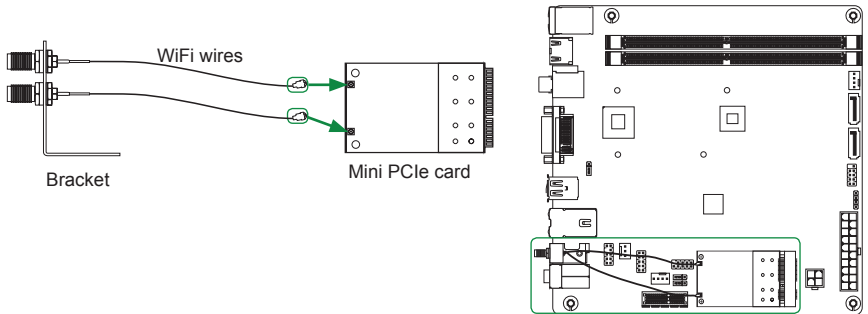


Screws

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

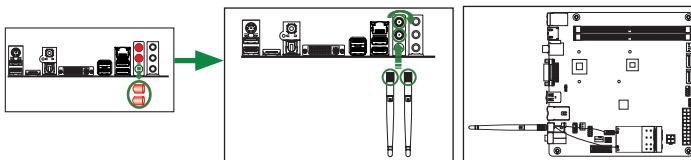


Step 3. Connect the WiFi wire to the Mini PCIe card as the following picture shows.



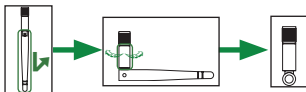
Step 4. Remove the red cap from the WiFi antenna connector.

Install the WiFi antenna to the WiFi antenna connector, and make sure the screw is 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 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:

- Installing Memory Modules
- Installing the motherboard
- Installing the I/O Shield
- Connecting cables and setting switches

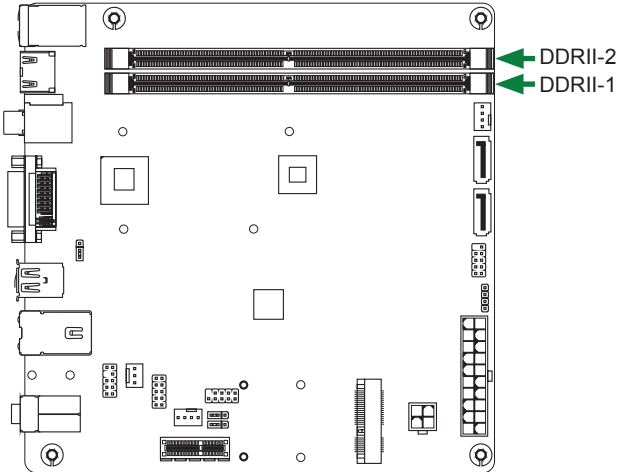
Safety Instructions

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.

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin DDR2 800/667. The total memory capacity is 4 GB. You must install at least one module in any of the two slots. Refer to the following recommendations to install the memory modules.



Refer to the following procedure to install the memory modules. 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

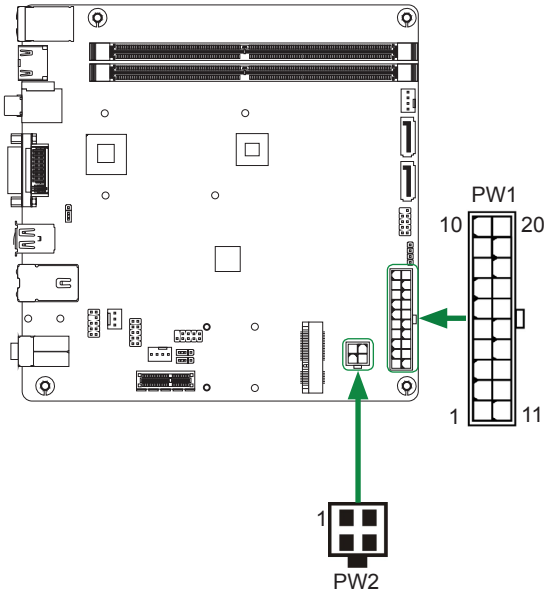
This section takes you through all the connectors and switch settings necessary on the motherboard. This will include:

- Power Connectors
 - ❖ 20-pin ATX Power Connector-PW1
 - ❖ 4-pin ATX_12V Power Connector-PW2
- Internal Headers/Connectors
 - ❖ SPDIF-Out Header-SPDIF
 - ❖ COM Header-COM1
 - ❖ Front Panel Header-FP1
 - ❖ USB Header-FP_U1
 - ❖ Front Pannel Audio Header-FP_S1
 - ❖ Speaker Header-SPK
- Serial-ATA (SATA) Connectors (SATA1~2)
- Chassis Fan Connectors
- Expansion Slots
- CMOS Jumper Settings

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

20-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	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWROK	18	-5V
9	+5V_AUX	19	+5V
10	+12V	20	+5V

4-pin ATX 12V power connector-PW2

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.

PW2-Pin Definition

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

SPDIF-Out Header-SPDIF

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

COM Header-COM1

COM1 - 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.

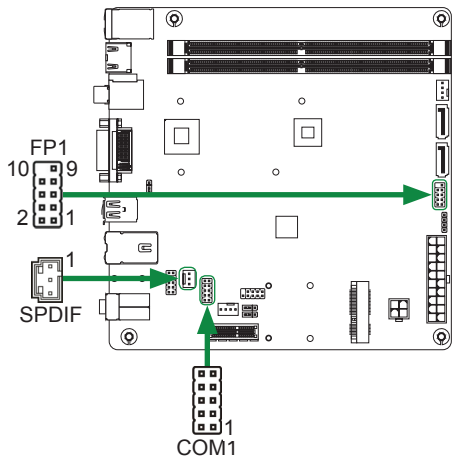
RST SW

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.

SPDIF - Pin Definition

Pin	Signal
1	GND
2	SPDIF-out
3	VCC



USB Header-FP_U1

This motherboard contains six USB 2.0 ports that are exposed on the rear panel of the chassis. The motherboard also contains one 10-pin internal header 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-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

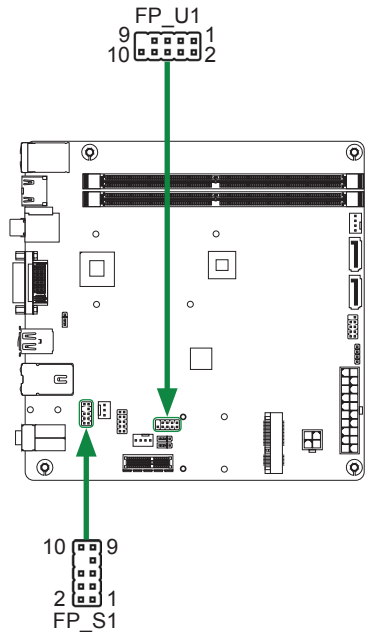
The audio connector supports HD audio standard and provides two kinds of audio output choices: the Front Audio, the Rear Audio. The front Audio supports re-tasking function.

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 contract your dealer.



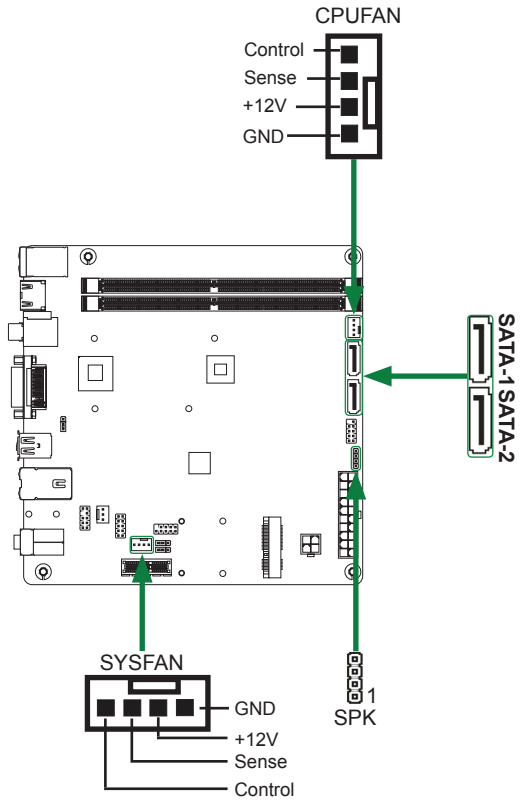
Speaker Header-SPK

SPK-Pin Definition

PIN	Assignment
1	VCC
2	NC
3	NC
4	SPK-

Fan Connectors

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



Serial-ATA (SATA) Connectors (SATA1~2)

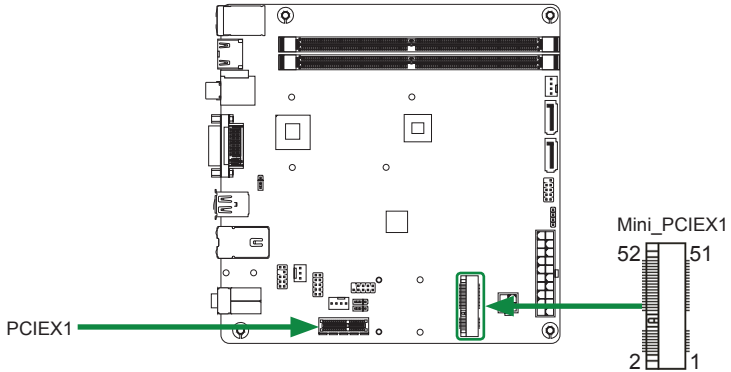
The Serial ATA connector is used to connect the Serial ATA device to the motherboard. These connectors support the thin Serial ATA cables for primary storage devices. The current Serial ATA interface allows up to 300 MB/s data transfer rate. There are two serial ATA connectors on the motherboard that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

SATA-Pin Definition

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

Expansion Slots

The motherboard contains two expansion slots, one Mini PCIe slot and one PCIe x1 slot.



Mini PCIe Slots-Mini_PCIEX1

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 section whenever in doubt.

CMOS Clear Jumper-JP1

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

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

USB/Mini_PcIe Select Jumpers-JP4/5

JP4/5	Selection
1  1-2*	FP_U1 is enabled
1  2-3	Mini_PCIEX1 is enabled

Note: You should set JP4 and JP5 at the same pin.

 Close  Open * = Default setting.

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.

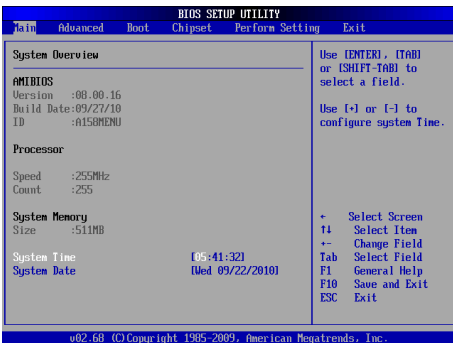
1. Power on the computer.,
2. Press the **Del** key when the following message briefly displays at the bottom of the screen during the Power On Self Test (POST).

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.

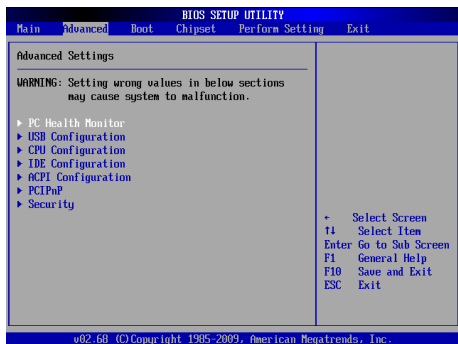


Note: Users please note that the data in gray is non-changeable, and the others are for selection.

- AMI BIOS**
Displays the auto-detected BIOS information
- Processor**
Display the auto-detected CPU specification
- System Memory**
Displays the auto-detected system memory
- System time**
Allows you to set the system time

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:



PC Health Monitor

This menu is used to monitor the PC health status. Press <enter> to display the configuration options:

CPUFAN Mode Setting

Use this item to set the CPUFAN mode.

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.

USB Mass Storage Device Configuration

Enter the sub-menu of this item, then you can set the number of seconds POST waits for the USB mass storage device after start unit command.

CPU Configuration

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

Configure advanced CPU settings

Displays the auto-detected CPU information

Max CPUID Value Limit

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 Capability

This function enhances protection of your computer , reducing exposure to viruses and malicious buffer overflow attacks when working with its supporting software and system.

 Hyper Threading Technology

Enable this function for Windows and Linux4 OS, (OS supports Hyper Threading Technology)

Disable this function for other OS. (OS not optimized for Hyper Threading Technology)

IDE Configuration

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

 Configure SATA as

This item allows you to configure SATA as IDE/AHCI/Disabled mode.

 SATA Run Mode Configuration

This item allows you to configure the SATA run mode.

 Primary/Secondary IDE Master

This displays the status of auto detection of IDE devices.

 Hard Disk Write Protect

This item will be effective only if the device is accessed through BIOS.

 IDE Detect Time Out (Sec)

The item allows you to select the time out value for detecting ATA/ATAPI devices.

ACPI Configuration

The items in this menu allow you to set General ACPI configuration, Advanced ACPI Configuration and Chipset ACPI Configuration.

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.

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

 Boot Sector Virus Protection

The item allows you to enable or disable boot sector virus protection.

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.

Full Screen Logo

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.

Hit 'DEL' Message Display

When set to [Enabled], the system displays the message "press DEL to run setup" during POST.

Interrupt 19 Capture

When set to [Enabled], this function allows the option ROMs to trap interrupt 19.

Boot Device Priority

The items allow you to specify the boot device priority sequence.

Hard Disk Drivers

This option allows you to specify the boot device from hard disk drivers.

Chipset Menu

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



North Bridge Configuration

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

South Bridge Configuration

The item allows you to configure south bridge features, including USB, HDA, SMBUS, and so on.

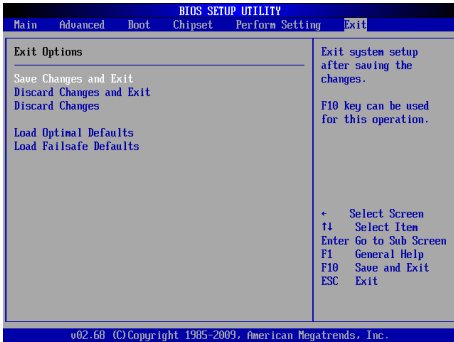
Perform Setting Menu

The perform setting menu items allow you to set CPU frequency and so on. Changing some settings could damage your system



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.

<p>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.</p>
--

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.

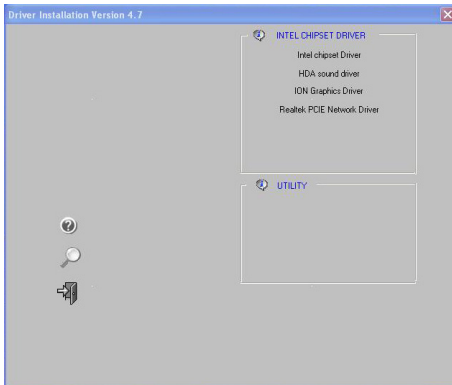
The CD that has been shipped with your Intel® NM10 motherboard contains the following software and drivers:

- Intel chipset Driver
- HDA sound driver
- ION Graphics Driver
- Realtek PCIE network Driver

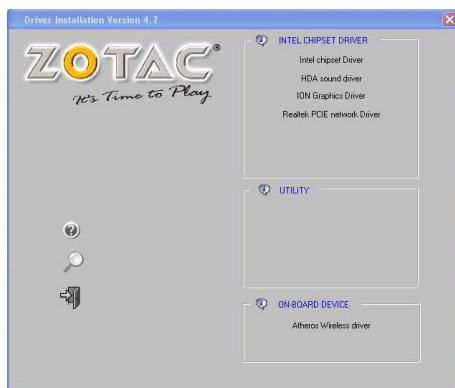
Note. We reserve the right to update the driver version presented in the manual. The driver installation pictures shown in this section are for reference only.

Driver Installation

1. Insert the Intel® NM10 driver CD into the drive after loading your operating system, and then you can see the interface below.

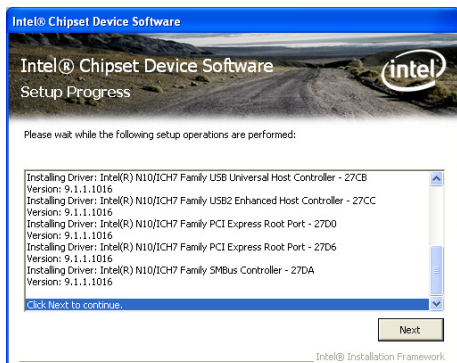


Note. If the MINI PCIE card is installed, the option Atheros Wireless driver will display as the following window.

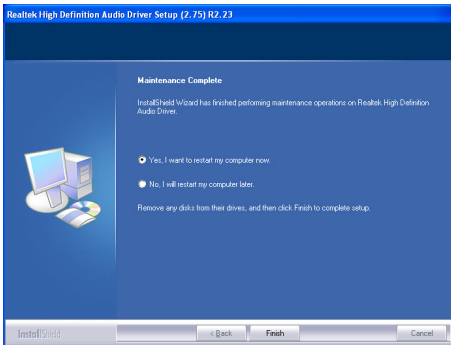
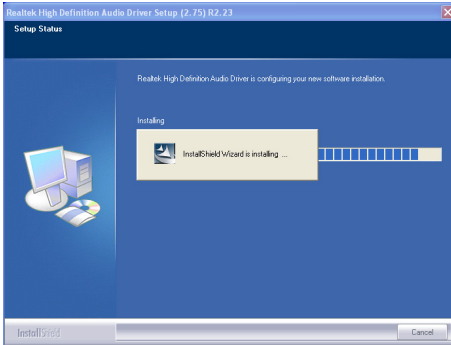
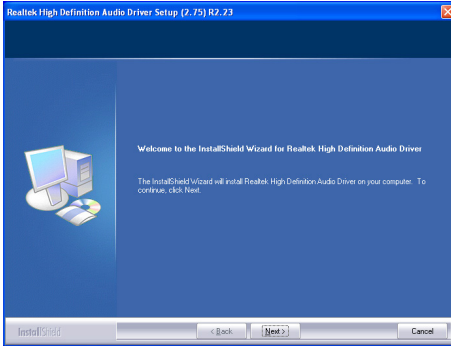


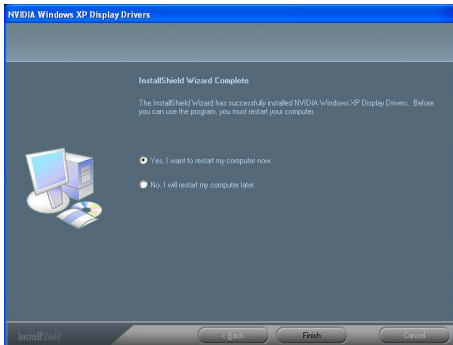
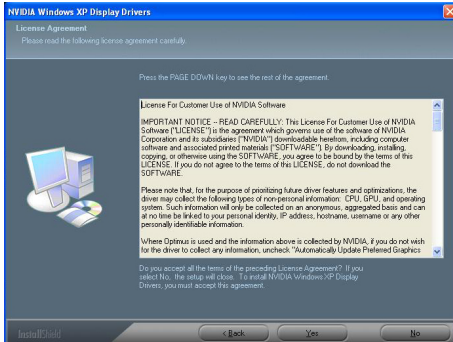
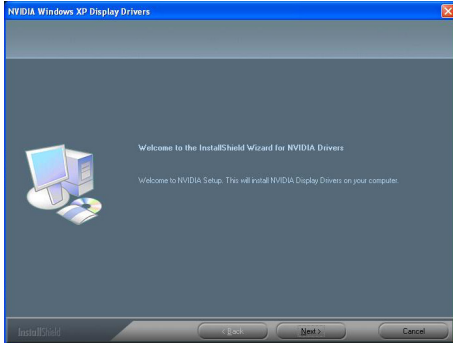
2. Left-click **Intel chipset Driver**, begin loading

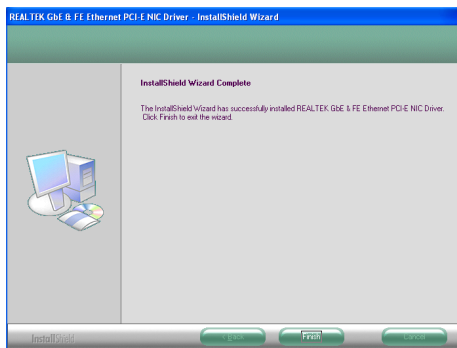
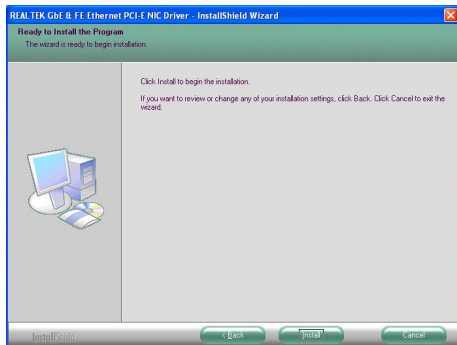
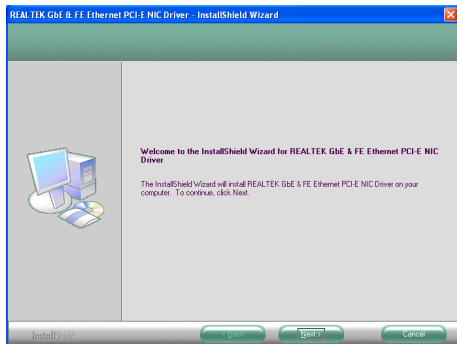


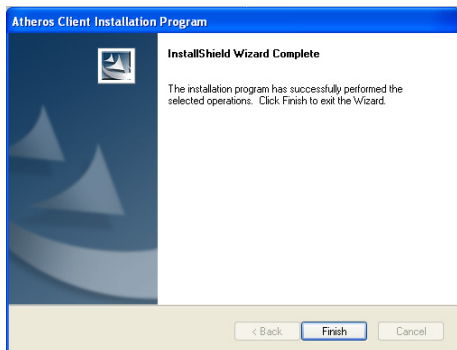
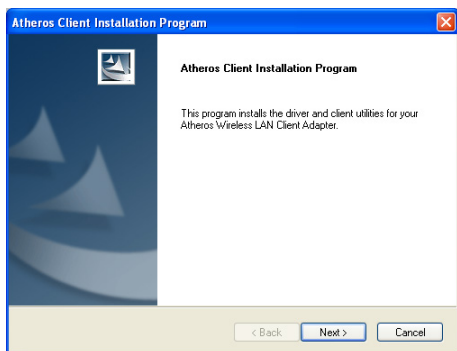
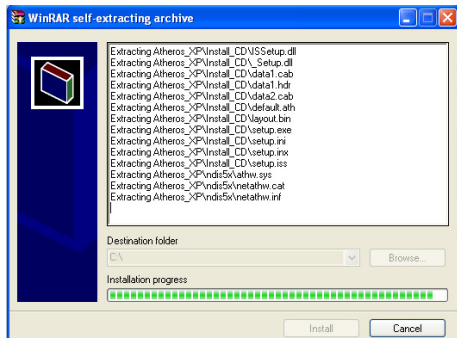


3. Left-click **HDA sound driver**, begin loading

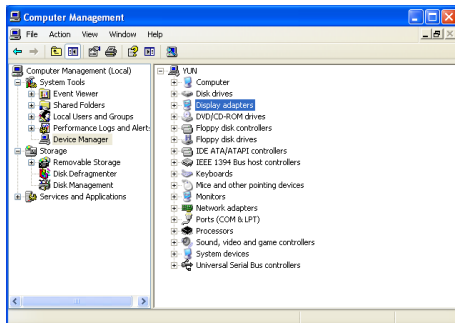


4. Left-click **ION Graphics Driver**, begin loading

5. Left-click **Realtek PCIE network Driver**, begin loading

6. Left-click **Atheros Wireless driver**, 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 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:



Sound Effect

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



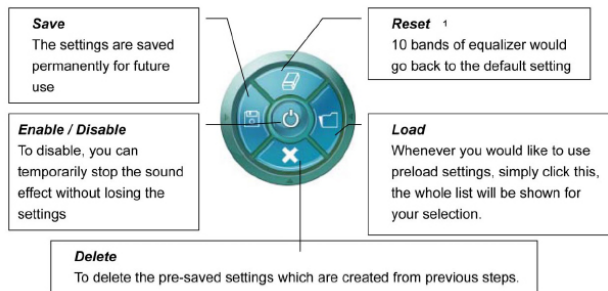
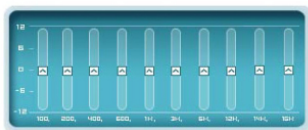
Environment Simulation

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.

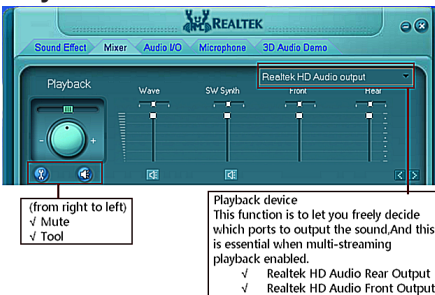
Key Adjustment: Using “Up / Down Arrow” to find a key which better fits your vocal range.

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

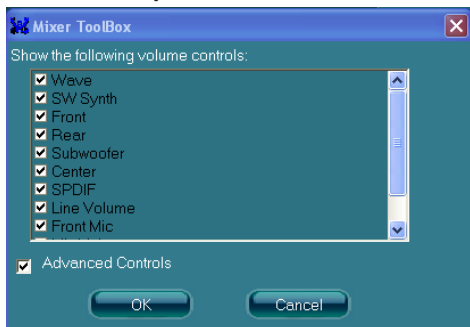
✓ **Show the following volume control**

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

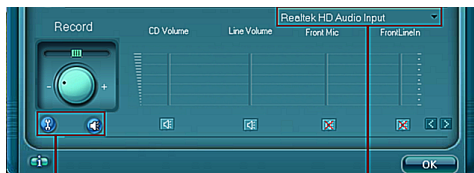
✓ **Advanced controls**

✓ **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



(from right to left)
 Mute
 Tool

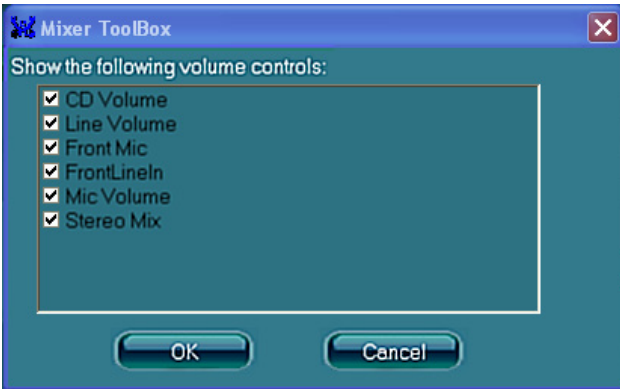
Recording device
 Back Line in/Mic, Front Line in
 Realtek HD Audio Digital Input

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 strengthen.
- ✓ **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.

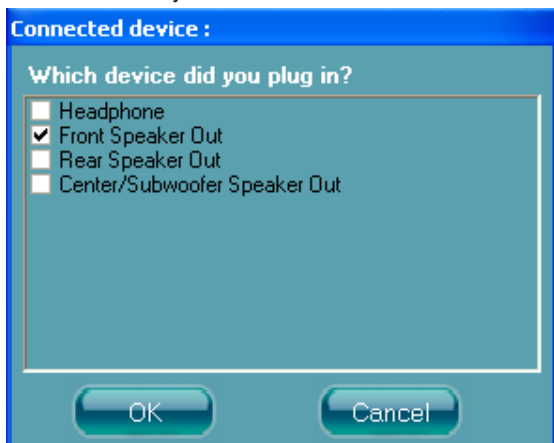


Speaker Configuration


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

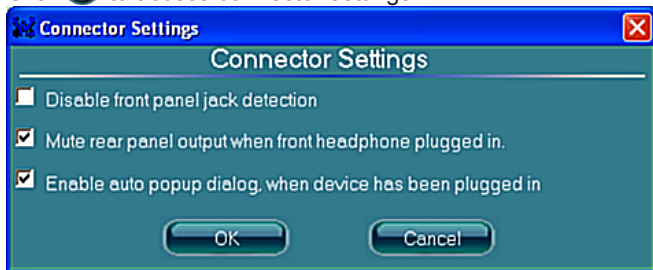
Step 2: Dialogue "connected device" will pop up for your selection. Please select the device you are trying to plug in.

- * 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.



Connector Settings

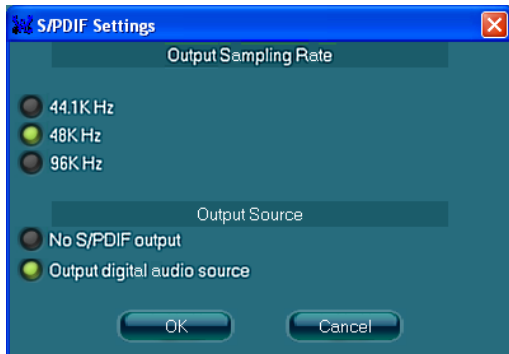
Click  to access connector settings



- ✓ **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.

S/PDIF

Short for **S**ony/**P**hilips **D**igital Interface, 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

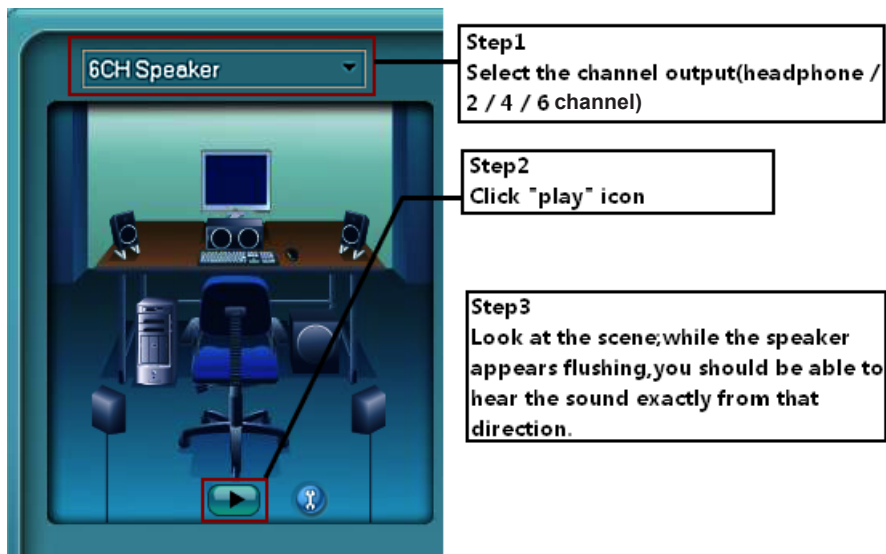
- 44.1KHz: This is recommended while playing CD
- 48KHz: This is recommended while playing DVD or Dolby.
- 96KHz: This is recommended while playing DVD-Audio.

√ Output Source

- Output digital audio source: The digital audio format (such as .wav, .mp3, .midi, and 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.



6CH Speaker

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

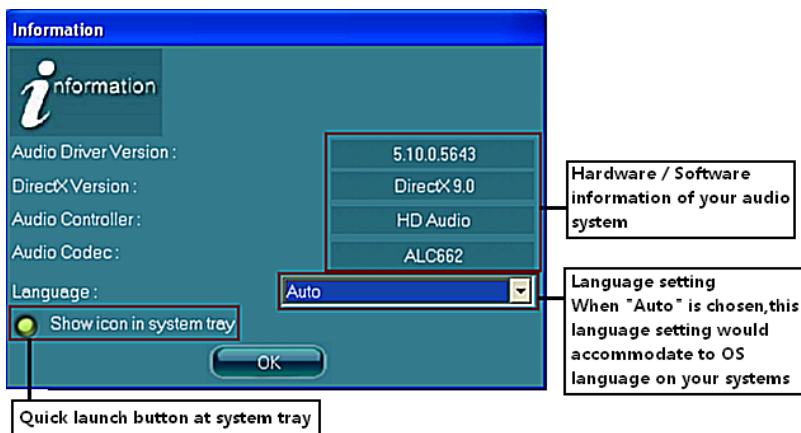
This function prevents playback sound from being recorded by microphone together with your sound. For example, you might have chance to use VOIP function through Internet with your friends. The voice of your friend will come out from speakers (playback). However, the voice of your friend might also be 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



This section provides information about your current system audio device.

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291-MA158-0184F