

Xear 3D Sound for USB Audio Device

User Manual

Revision: 1.1

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Table of Content

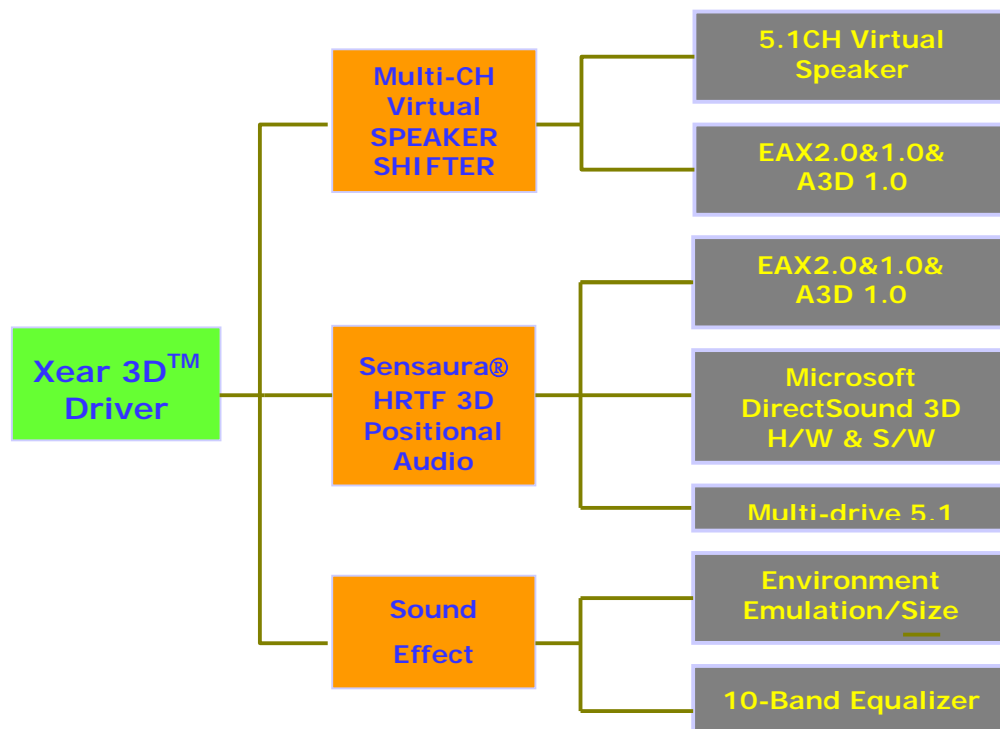
1. Introduction Xear 3D Sound Technology	2
2. Function Structure and Overview	2
3. Advantages of USB Xear 3D Sound Solution	3
4. System Requirement and Installation	8
5. Sound Environment Set Up	15
6. User Interface and Function Control	16
7. FAQ & Technical Support	22

1. Introduction Xear 3D Sound Technology

The user manual is a guide for users to understand how to use the new generation USB Digital Audio with exclusive Xear 3D™ sound technology. With this manual, users can quickly understand the advantage of these great features to enjoy amazing sound effects even better than consumer electronics devices. Xear 3D™ Sound Technology offers an immersive virtual 5.1Ch and 7.1Ch sound field to the users regardless of what type of output device is actually utilized. Thanks to Xear 3D™ Sound Technology, even if users are using a pair of earphones or two-channel speakers, still they can avail themselves of a much better virtual 5.1Ch or 7.1Ch environment capable only by Xear 3D™ Sound Technology. Better yet, all audio formats can be converted to thrilling 3-dimensional audio by this technology. Personalized and optimum 5.1Ch/7.1Ch listening environment and experience is achieved.

2. Function Structure and Overview

The following shows the function overview of the driver. Optional features mean optional offers decided by system manufactures.



Xear 3D Driver Function Diagram

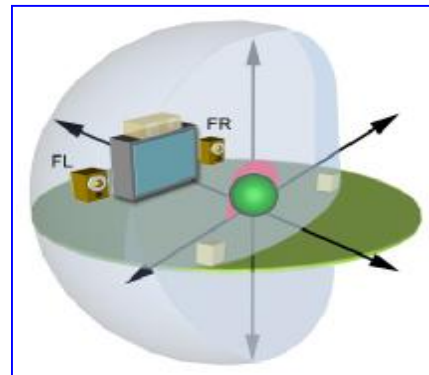
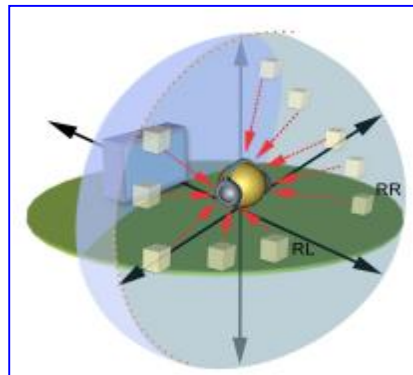
3. Advantages of USB Xear 3D Sound Solution

The 1st Advantage of Xear 3D™ Sound Technology: Virtual Multi-Channel Audio

SPEAKER SHIFTER allows the users to obtain a 5.1CH & 7.1CH virtual speaker environment no matter what output device they are using (2CH speakers). Moreover, the users are able to drag the virtual speakers to anywhere they want without moving the actual ones to accommodate their need. Therefore, by dragging a specific virtual speaker shown on the GUI to the preferred position, enhanced individual channel output is feasible. This revolutionary technology is welcome by those who always complain about the not-loud-enough volume of the center (for dialog) or bass output in DVD. With Xear 3D™ SPEAKER SHIFTER, no more low-volume center and/or bass output problems.

To remedy this, the Xear 3D™ filter provides virtual 5.1CH & 7.1CH audio by means of a pair of speakers (2CH speakers to output virtual 5.1CH or 7.1CH).

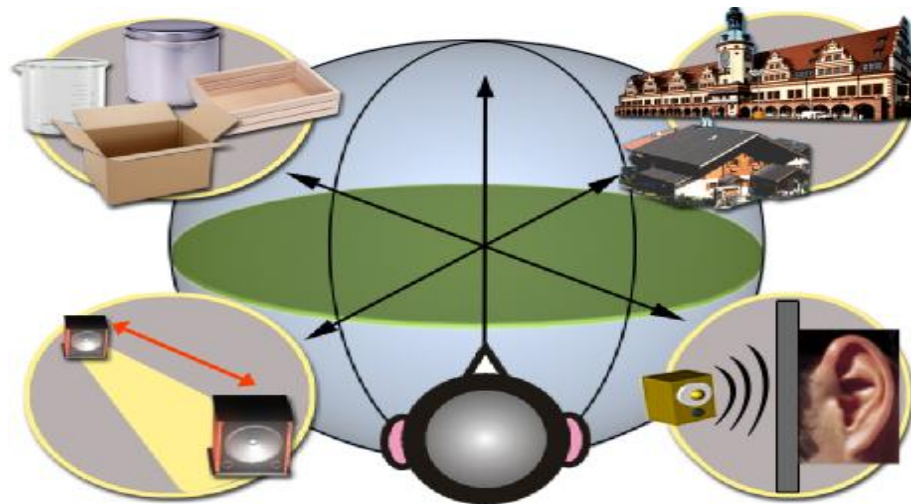
Xear 3D™ SPEAKER SHIFTER allows users to obtain comprehensive 5.1CH and 7.1CH audio even though they are actually using a pair of speakers of 2CH speakers.
PS: 7.1CH was supported on WinXP OS and depend on device hardware capability.



The 2nd Advantages of Xear 3D™ Sound Technology: Environment FX™ and 3D Positional Audio

In the real world sounds travel directionally; furthermore, sounds would have myriad manifestations according to different factors of the environment: the room size, distance, reflecting materials, obstructing objects, etc. For example, same footsteps in different settings, say the cave and the sewer pipe, will generate distinctive effects to the ears. In that regard, besides eye perception, sound cues also play an important role in helping people tell the changes of the surroundings.

Regarding 3D VR (Virtual Reality) implementation, not only actual 3D visual images are concerned, but what people would hear in the real world is count as well. One of the major 3D VR implementations is 3D gaming for PC. When a command for 3D audio is given, Microsoft operation system would provide DirectSound3D, an interface conversion technology, to function as the bridge interfacing the upper application program and lower audio device. Even so, it should be noted that only when the lower audio device has 3D engine could the upper application program activate 3D effects. Hence, if audio device does not provide 3D engine, no real-time audio effect conversion (sound effects in different settings) is feasible. The gaming effect is thus seriously destroyed.



As previously explained, in the process of real-time simulation of visual and acoustic elements, powerful HRTF 3D engine and EnvironmentFX™ are a must. B patented Xear 3D™ Engine excels all other solutions in that Xear 3D™ Engine supports powerful HRTF (Head Related Transfer Function) 3D audio and real-time EnvironmentFX™, exhibiting comprehensive and supreme environmental audio effects. When Xear 3D™ Engine is utilized, game players can instantly perceive different sound effect when the setting is changed. No more confusion in directions.

4. System Requirement and Installation

Windows 98se, Me, XP, or 2000.PC supports USB 1.1 or 2.0.

Case 1 -- No external driver installed :

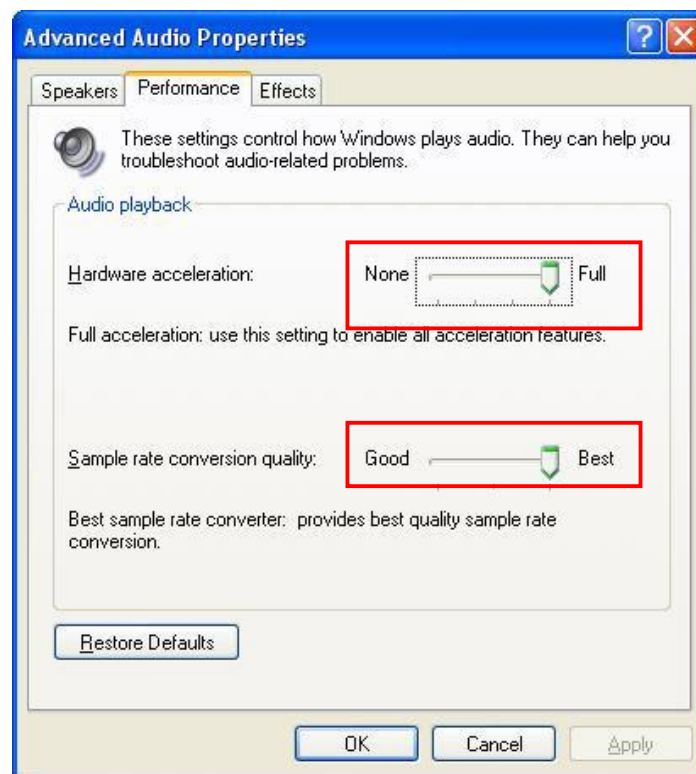
ØOS Support : Win98SE, WinME, Win2000, WinXP

ØSystem recommended : Intel Pentium III or AMD K6 500 CPU above

ØAt least 64 MB RAM (Win98SE) or 128MB RAM (WinME, Win2000 and WinXP)

ØAt least 50 MB hard disk space

ØFor good sound quality, please adjust your system's H/W acceleration and Sample rate conversion quality to Full and Best.



Note: Some USB Host Controller may have problem with data stream package loss, this will influence output audio data and make some discontinuous sound. But this is very rare.

Sometime, when user plugs USB audio device on PC system and OS cannot auto change audio device to USB audio, please switch the audio device to USB audio sound and audio devices properties in control panel.



Case 2 -- Install Xear 3D technology driver :

Ø OS Support : Win98SE, WinME, Win2000, WinXP

Ø System recommended : use Intel Pentium III 或 AMD K6 500 CPU above

Ø At least 64 MB RAM (Win98SE) or 128MB RAM (WinME, Win2000 and WinXP)

Ø At least 50 MB hard disk space

Ø Support direct sound 3D

Note : Windows OS has default USB driver support, but no support for HRTF 3D, EAX , Virtual Multi-channel sound effect and Dolby Digital sound DSP function. Thus, if user wants to enjoy these fancy experiences must install Xear 3D sound audio driver.

Before installing Xear 3D sound audio driver, make sure USB audio device has been connected to PC system.

If your PC system has more than one USB connecting port, remember which one for USB audio device is connected for installation. Use the same USB port

when you unplug and plug again the USB audio device to the PC so that Xear 3D driver can be initialized properly.

Xear 3D Sound Audio Driver Installation Step :

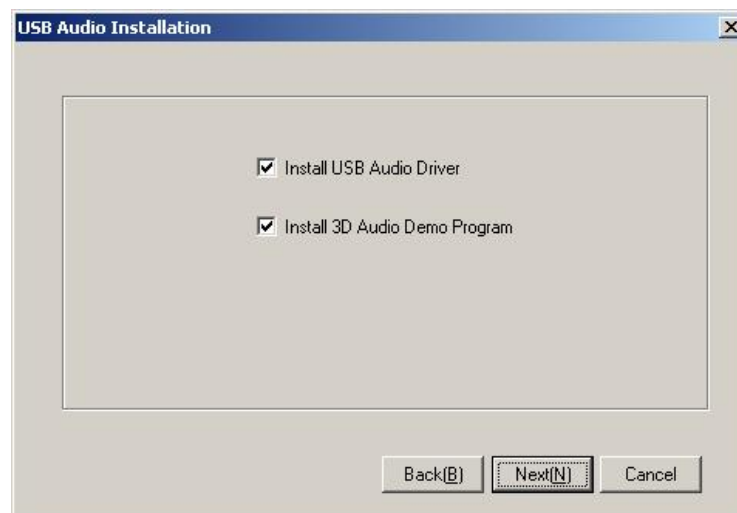
☞ Turn on PC system and connect USB audio device to PC system.

- Insert Installation CD on your CD-ROM drive, change to [\xear3d](#) folder and run [setup].



☞ Please follow up the set up procedure and click “Next” button to continue installation.

- You can Select install driver only or both driver and demo program then click “Next” to continue installation. The demo program includes a simple helicopter and Rock shooting for 3D sound.



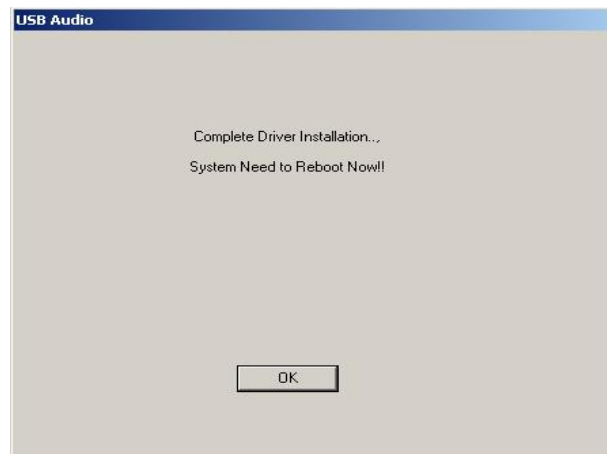
- Set up will install USB audio kit to default path and folder.



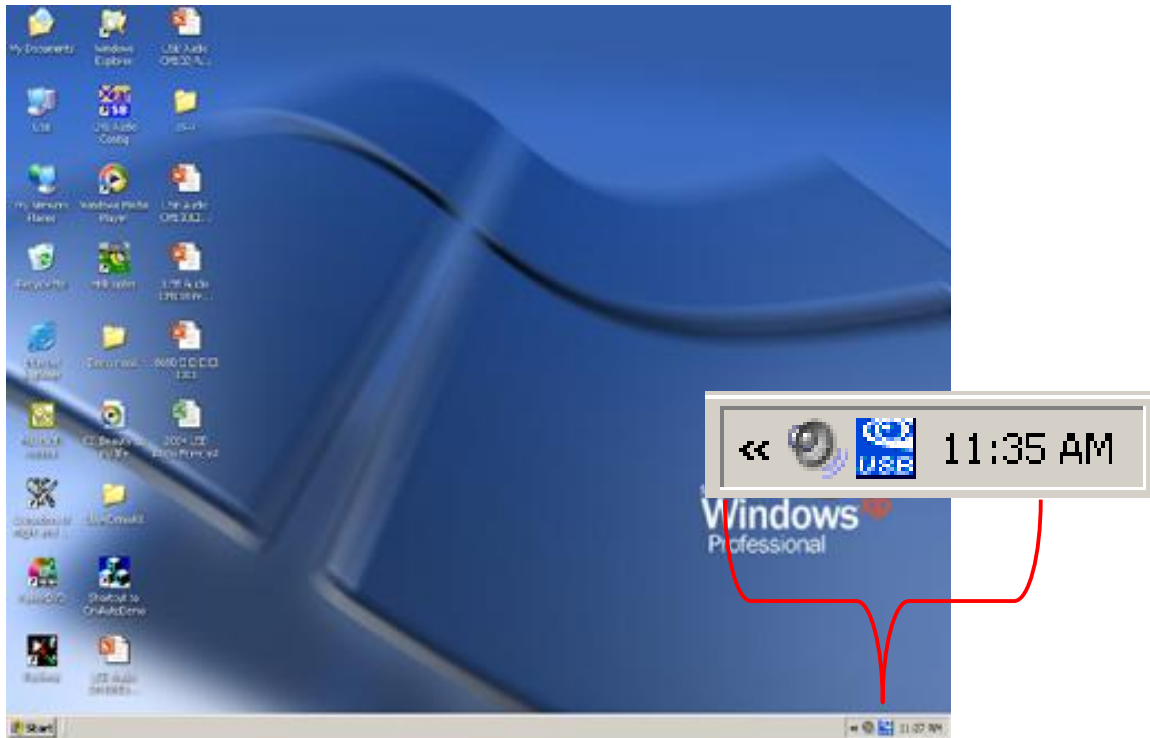
- If your System is Windows XP, you may see a dialog box asking you about Windows logo issue, please click “Continue Anyway” to complete installation. And set up program will continue install.



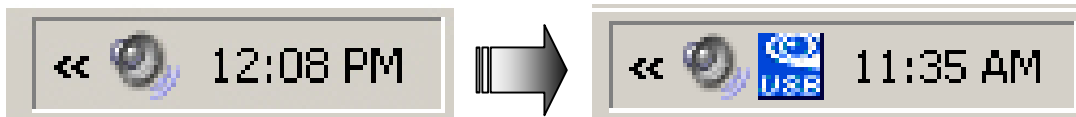
- When set up program complete installation system will need to restart to initialize the driver.



“ After reboot and system running up again, you can see a small icon on right down of screen. You can click it to open Xear 3D Sound driver functions for control.



“ If your PC system has more than one USB port, you can just plug the USB audio device to any USB port. If this connection is right, the driver will detect device and show a task bar icon on the bottom right side of the screen, guiding you which port is correct.

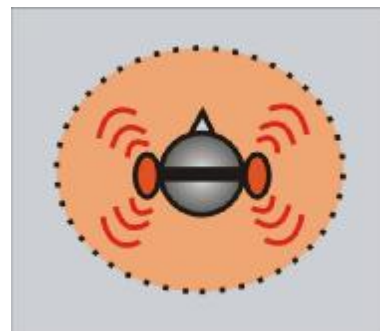
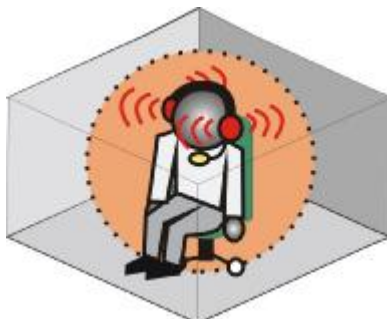
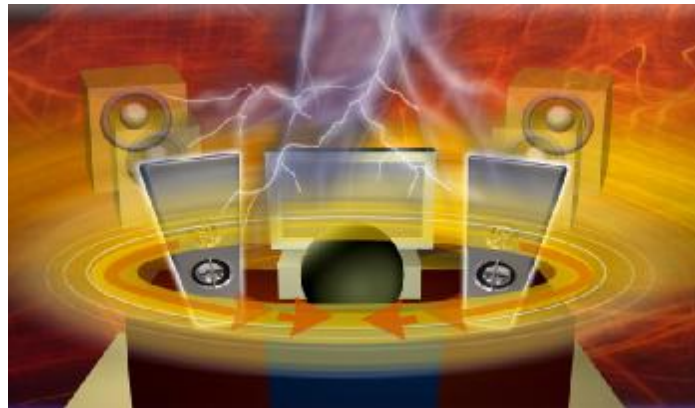
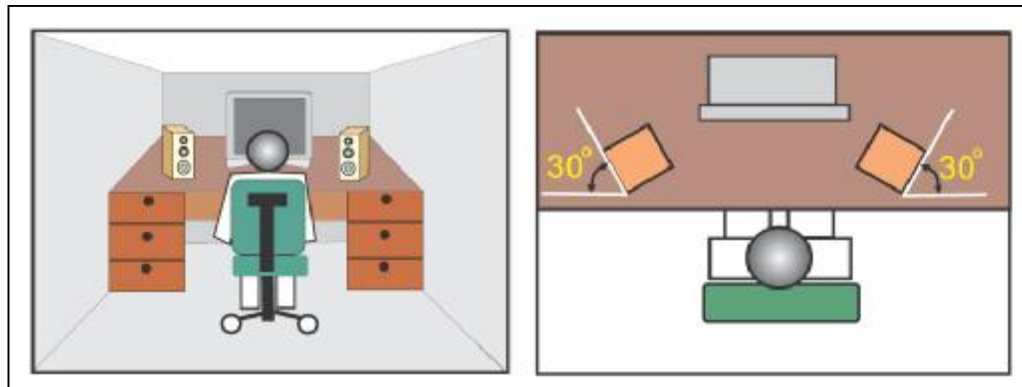


When this USB sound icon was showing, it means Xear3D sound driver was initialized and working now. If you have more than one USB port and you forgot which one was used for Xear 3D sound driver installation, this icon indicates whether you are connecting to the right port or not. Try plugging to each USB port until the icon shows up.

5. Sound Environment Set Up

USB 2CH speakers and headphone set

You may use Xear 3D sound on 2CH speakerphone products or headphone set. The best thing for Xear 3D sound technology was easy to suit and create great sound effects on any kind of listening environment. Even if only 2CH physical speaker or headphone, Xear 3D sound can create virtual 5.1CH surround sound effect and dynamic to adjust multi-channel sound source by way of SPEAKER SHIFTER function. Better yet, user can in terms of different music and song to re-define favorite sound effect by function of SPEAKER SHIFTER, EnvironmentFX or Equalizer and got personalize listening style.

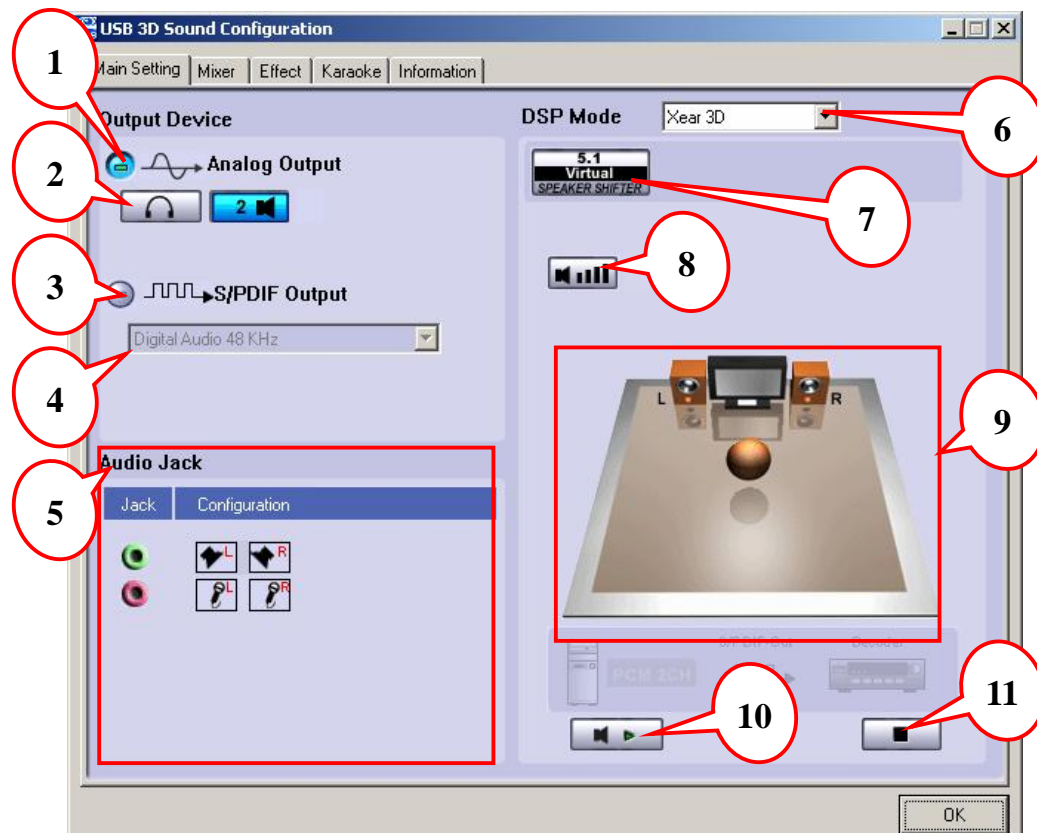


6. User Interface and Function Control

Main Setting

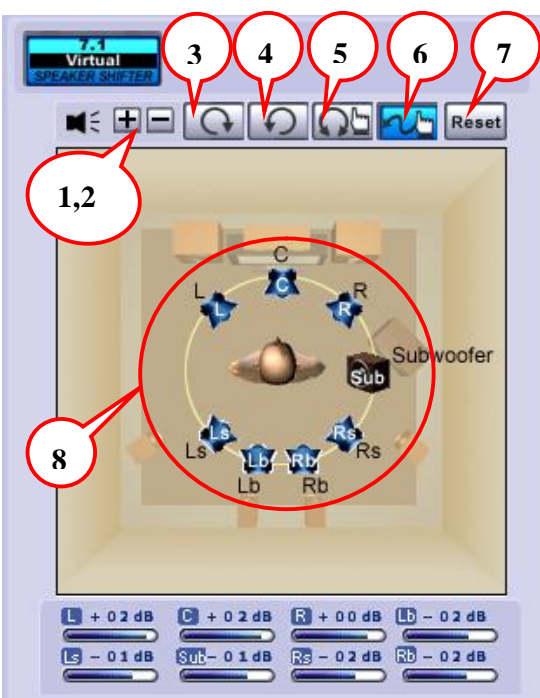
Using Analog Output or Digital S/PDIF-Out

1. Analog Output : turn on this button then can select analog output channels mode.
2. Analog Output channels Mode : Earphone & 2CH for selected.
3. Digital Output : turn on this button then can select SPDIF Out data format. **(Optional)**
4. Digital Output Mode : Dolby RTCE, PCM for selected. **(Optional)**
5. Audio Jack Connected Display
6. DSP Mode : pull down to select different DSP Mode. (Default support Xear 3D)
7. Virtual SPEAKER SHIFTER : can open SPEAKER SHIFTER windows for control.
(For detail information see the next page)
8. Digital Volume Control : can open each channel to adjust digital volume. (For detail information see the next page)
9. Channel Display & Speaker Test : can show analog output channel status and directly click speaker graphic can do sound testing.
10. Auto Sound Test : can auto testing every channel sound effect.
11. Stop Auto Sound Test : can stop auto testing.

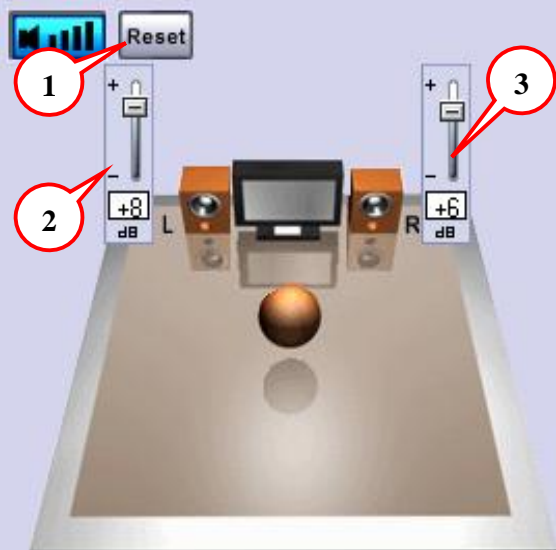


Main Setting

Virtual SPEAKER SHIFTER

1.Total Volume Up Control	
2.Total Volume Down Control	
3.Clockwise	
4.Counter Clockwise	
5.Manual Rotation	
6.Manual Shifter	
7.Reset	
8.Shifter Drag	

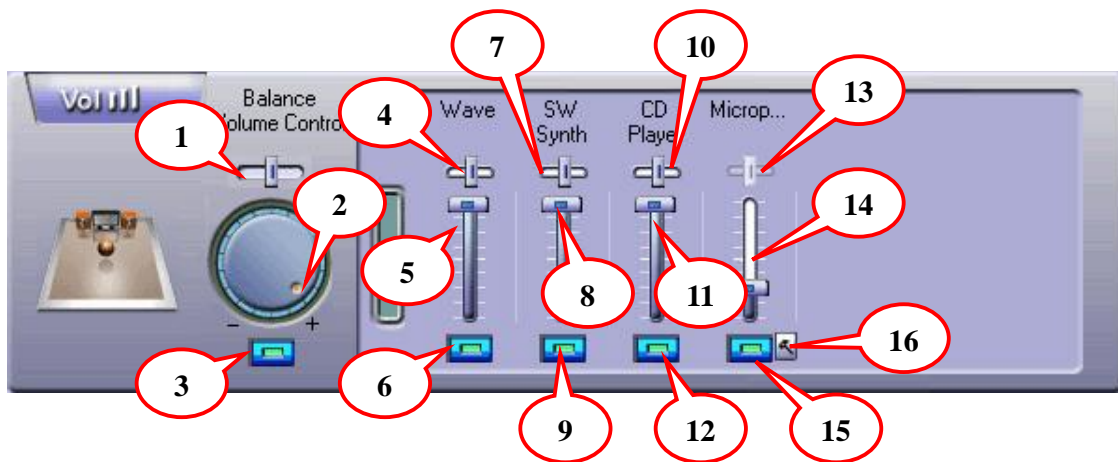
Digital Volume Control

1.Reset Volume	
2.Left Channel Control	
3.Right Channel Control	

Mixer

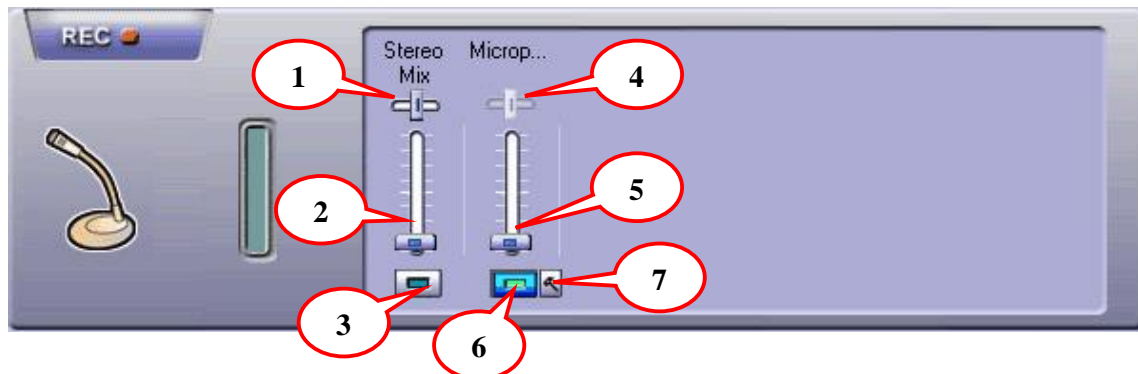
Playback Volume Control

1.Balance Control	9. SW Synth Volume On/Off
2.Volume Up/Down Control	10.CD Volume Balance
3.Master Volume On/Off	11.CD Volume Control
4.Wave Volume Balance	12.CD Volume On/Off
5.Wave Volume Control	13.Microphone Balance
6.Wave Volume On/Off	14.Microphone Control
7.SW Synth Volume Balance	15.Microphone On/Off
8. SW Synth Volume Control	16.Microphone Advanced Setting



Recording Volume Control

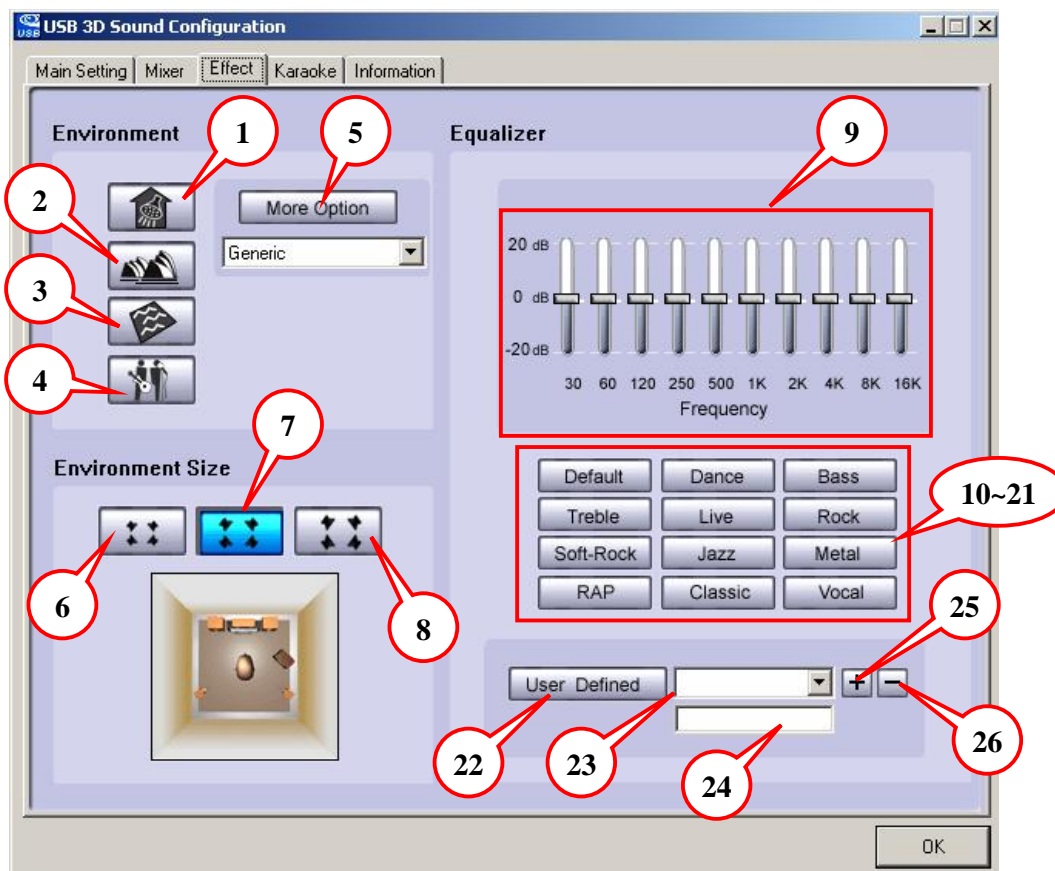
- 1.Stereo Mixer Balance Control
- 2.Stereo Mixer
- 3.Stereo Mixer
- 4.Microphone Record Balance
- 5.Microphone Record Volume Control
- 6.Microphone Record Volume On/Off
- 7.Microphone Record Advanced Setting





Effects

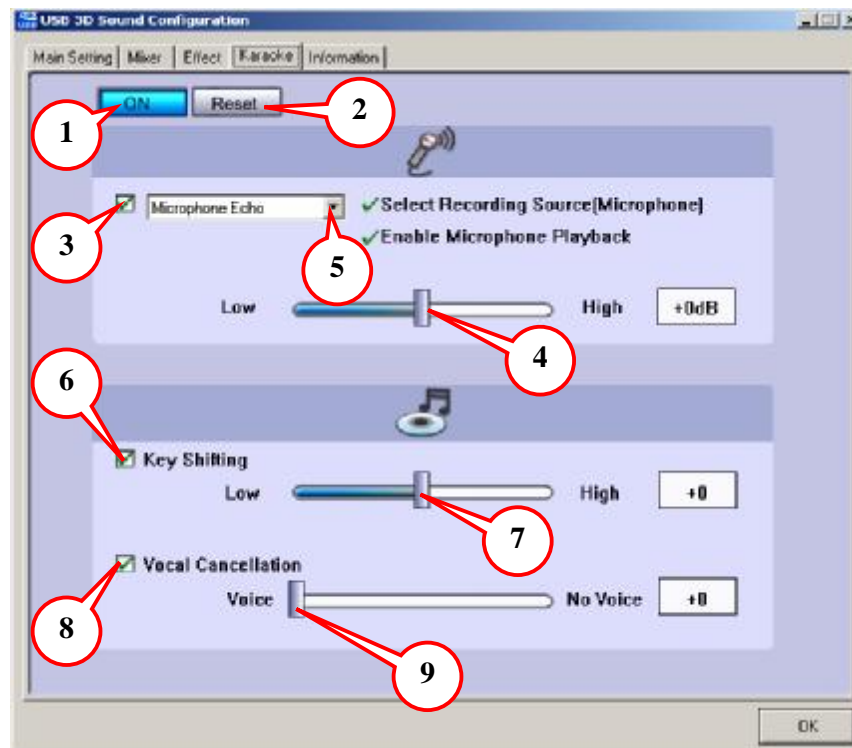
Environment	Environment Size
1.Bathroom	6.Large
2.Opera	7.Middle
3.Underwater	8.Small
4.Music Pub	
5.More option : 27 mode for selected	

Equalizer	
9.Ten Band Equalizer Adjust	18.Pre-Set Mode (Metal)
10.Pre-Set Mode (Default)	19.Pre-Set Mode (RAP)
11.Pre-Set Mode (Dance)	20.Pre-Set Mode (Classic)
12.Pre-Set Mode (Bass)	21.Pre-Set Mode (Vocal)
13.Pre-Set Mode (Treble)	22.Equalizer User Define On/Off
14.Pre-Set Mode (Live)	23.Pull to select user define mode
15.Pre-Set Mode (Rock)	24.User Define naming key in
16.Pre-Set Mode (Soft-Rock)	25.Add new user define mode
17.Pre-Set Mode (Jazz)	26.Del user define mode



Karaoke

1.Karaoke On/Off	Click this button then can control all karaoke functions
2.Karaoke Setting Reset	Can reset all setting to default value
3.Start Microphone Echo Function	<p>Select this button will pop up a dialog box to enable microphone function.</p>  <p>Click "OK" button to select recording source and enable microphone</p>
4.Echo Low/High Control Bar	Adjust echo low/high
5.Magic Voice Function (Optional)	<p>This function only supported in multi-channel audio products.</p>  <p>When you enable microphone echo then can pull down the menu to select magic voice. Magic voice provides 5 different effects for choice.</p>
6.Start Key Shifting Function	Select this button to enable key shifting function and control.
7.Key Shifting Low/High Control Bar	This function can adjust tune of background music to fit your singing.
8.Start Vocal Cancellation Function	Select this button to enable vocal cancellation function and control.
9.Vocal Canceling Control Bar	This function can control singer's vocal of background music and cancel it as possible.

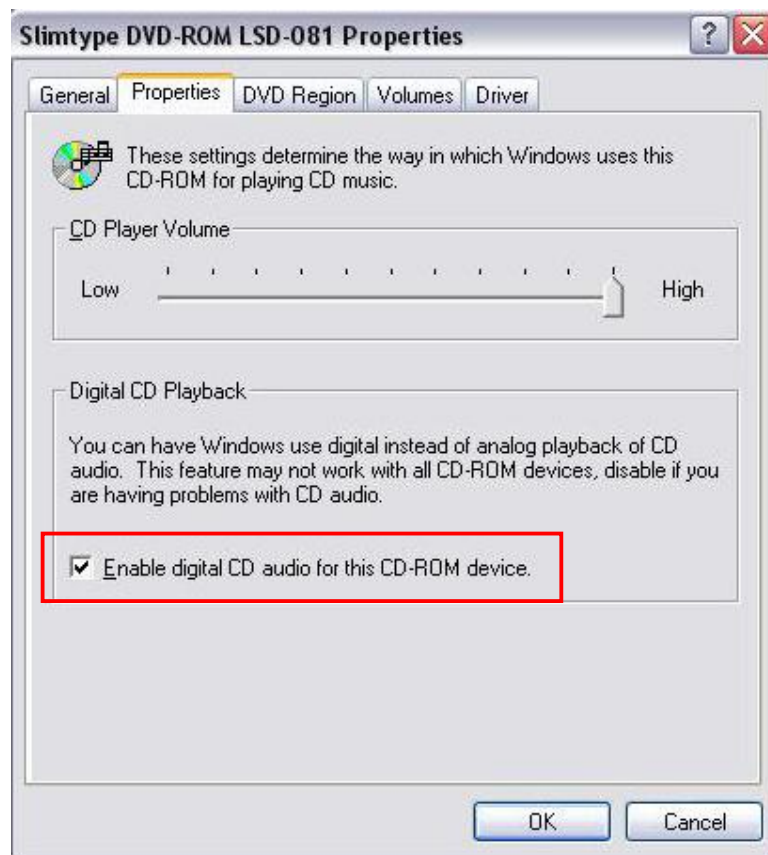


7. FAQ & Technical Support

Q1 : Why play CD without sound ?

Most general case was digital CD playback function did not open. Because USB audio is digital signal, it is use different path to process CD music with traditional analog CD.

You should open “Device Manager”, select “DVD/CD ROM drives” and open it. Then switch to “properties” page and enable digital CD audio.



Q2 : Why sometimes Win98SE and WinME can not auto detect USB audio device and switch?

Since Win98SE and Win ME have different driver architecture with Win2000 and WinXP. When users plug in/out USB audio device too much time or faster, these two OSs may not detect the change on device. So, sometimes user got to switch audio device to USB audio device by them self.

While user plug in USB audio device on Win98SE and WinME system, if system

cannot switch audio device to USB, please open “Control Panel”, select “Sounds and Audio Devices”, choice “Audio” page then switch “Default device” to Generic USB Headphone Set, C-Media USB Headphone Set, or C-Media USB Device.

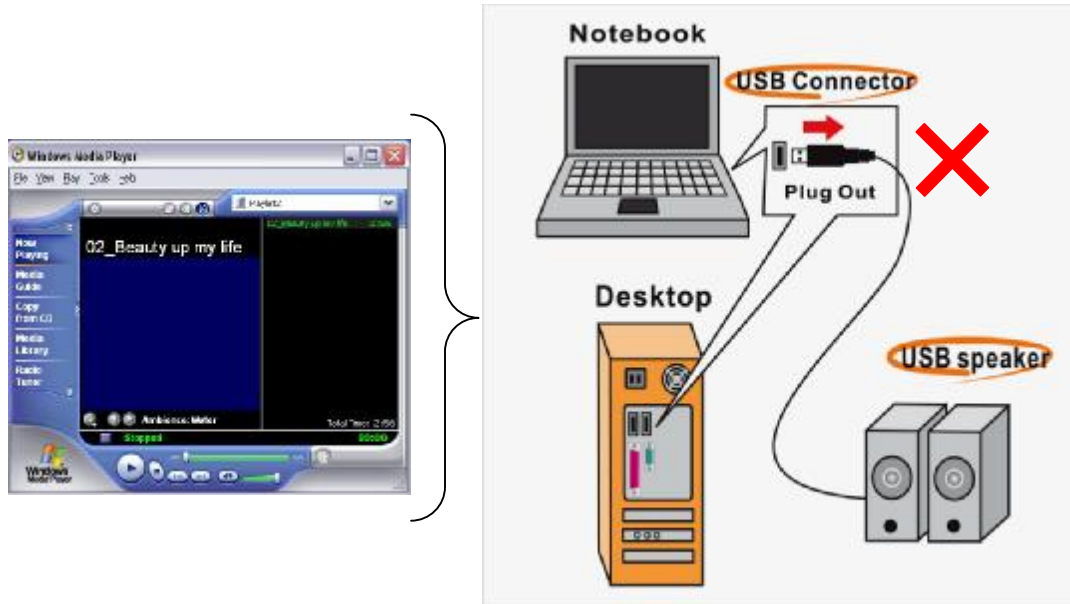


Q3 : When using software application program (Like: Media player, Winamp, PowerDVD, WinDVD....) to playback any media files, can I plug out USB audio device while playing?

It is incorrect mode of operations, because while application programs were playing audio stream, windows system is stilling using audio device to process and deliver data real-time. So, when user plug out USB audio device windows system can not delivering audio data to the same device, so that system will be confused and make application programs failure or system crash.

The right way to plug out USB Audio device was stop playback function first. Especially when your Windows system was Win98SE or WinME, this corrected operation will keep stability of working system. Otherwise, uncorrected plug out will cause application program or system crash.

- ※ Do unplug USB audio device while application programs are playing media files. Please stop playback before unplug the USB audio device.



Q4 : Xear 3D Sound technology provide amazing function In virtual 5.1 speaker shifter, how to using this function in different media format?

Virtual 5.1 Speaker shifter can process 2CH, 4CH or 5.1CH audio format and make 2CH audio file like MP3, stereo wave to transfer in virtual 5.1 surround sound. However, the most perfect application is playing 5.1CH DVD content like Dolby digital AC-3 and DTS. User can using physical 2CH device (earphone, speaker) to enjoyed dynamic 5.1CH surround sound by moving graphic user interface.

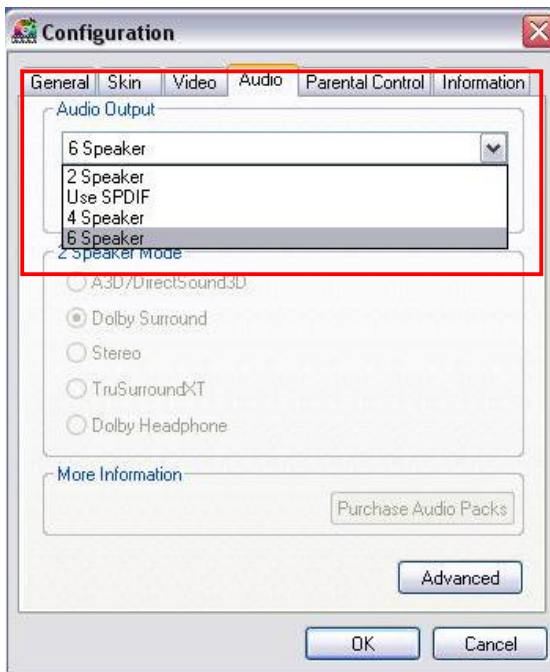
In general, when user buy a new computer usually got a free bundle software DVD player like PowerDVD or WinDVD. Most of these free bundle software version only provide 2CH DVD audio playback capability that because 5.1CH decoding was more expensive. So that, when user playback real 5.1CH DVD content it can not processing different 6 channel audio source to spread out characteristic with each channel. If user wants to enjoy real 5.1CH DVD surround sound, you can buy a software DVD player with Dolby digital AC-3 or DTS 5.1CH decoding function.

- ※ User can check software DVD player to confirm what decoding version that DVD software player supported.

1. Open Software DVD Player

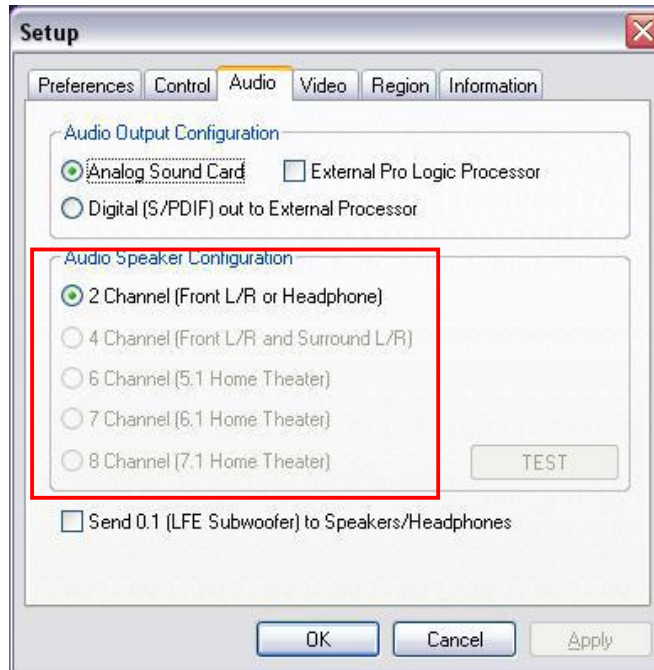
2. Click display windows
3. Click right key of mouse
4. Select “Configuration” or “Setup”
5. Choice “Audio” function setting page
6. Check “Audio Output”→If you can see or select speaker from 2 to 6 that mean this version was supported 5.1CH decoding capability. Otherwise, it is only supported 2CH decoding capability.





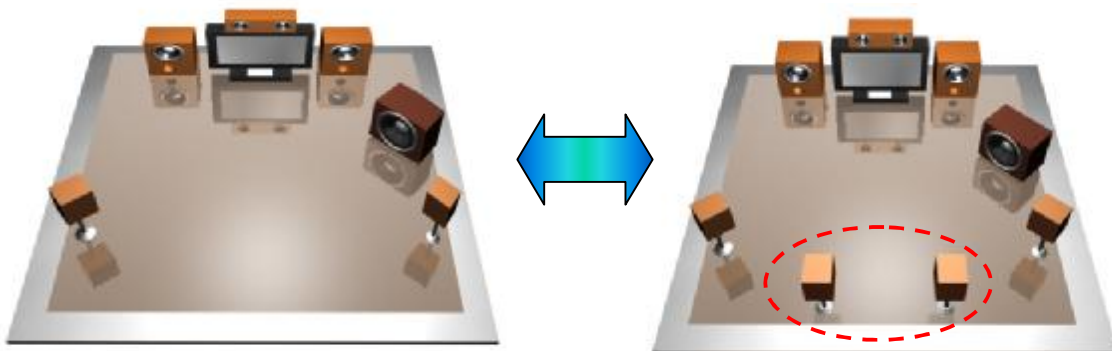
or





Q5 : What is 7.1CH listening environment and how different with 5.1CH?

1. The 7.1 channel mode is newest multi-channel audio format and technology in the market. It's include center, subwoofer, front left, front right, rear left, rear right and back surround. This definition was the same as Dolby Lab. and DTS Lab.
2. This format is a new standard and not very much content has supported it. The 7.1CH content was naming Dolby Digital EX by Dolby Lab. and DTS was naming DTS-ES (Extended Surround).
3. The difference of 5.1CH and 7.1CH is additional 2CH. This 2 speaker was placed on rear area and to enrich backward sound effects.



5.1CH Environment

7.1CH Environment

Q6 : When can I use 7.1CH function and have any application note or limitation on it?

1. If you are using Microsoft default USB audio driver to process this device, the 7.1CH mode only can work on Windows XP operation system. Moreover, you have to buy a 7.1Ch DVD content with Dolby Digital EX or DTS-ES format and use DVD software player to decoding this format.
2. If you are using Xear 3D sound technology driver to process this device, no matter any sound source you playback this driver can convert it to 7.1CH. This function was virtual multi-channel effects and you can feel 7.1CH sound effect on any devices, like earphone, 2CH speakers, 4Ch speakers, 5.1CH speakers or 7.1CH speakers. But, if you want to listen to real 7.1CH sound effect that has to work on 7.1 audio device products and connected real 8 speakers.