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Thanks for selecting Questyle Audio CMA600i DAC with headphone amplifier.

CMA600i follows the design of Questyle Audio's flagship current mode DAC with headphone amplifier CMA800i and uses components of the same level. The headphone amplification of CMA600i produces ultra low distortion to 0.00042% and ultra wide bandwidth up to DC-600kHz(+0,-3dB), working under super-current and Class A state only, all of which makes CMA600i most outstanding at headphone amplification among the all-in-one models.

CMA600i's USB input supports True DSD. Different from the commonly used DoP mode, CMA600i processes source data directly from PC and its hardware will switch to the True DSD channel when the system processes DSD signals, strictly following the process of SACD playback.

CMA600i supports pre-amp unbalanced (RCA) and balanced (XLR) outputs. RCA pre-amp output level is up to 4Vrms, and XLR up to 8Vrms, which can meet the requirements of most power amplifiers for output level. Volume control employs a ALPS16 potentiometer working in analog mode only, supporting remote control. It is user-friendly for users of high-end active speakers.

CMA600i supports headphone balanced output. Four groups of pure Class A current mode amplification circuits drive headphones in full balanced mode, doubling the output voltage, quadrupling the output power against that of single ended mode. It can easily drive headphones of low impedance and high sensitivity rating, able to reveal full performance of your headphones.

Performance of the circuit will be improved by Hi-end components. The sound quality and durability of CMA600i is guaranteed by using components like customized Plitron Toroidal transformer, WIMA capacitors, Nichicon FG capacitors, and Neutrik connectors etc., as well as applying more than 10 groups of separate power supply systems. CMA600i's aluminum chassis is specially CNC tooled into "mutual-bit" structure, and its cover is only 10mm in thickness, helping to reduce its natural resonance to the lowest level. CMA600i's feet are made of CNC-tooled pure aluminum, which makes CMA600i strong and stable.

1) Support USB, SPDIF, and Optical digital inputs, as well as analog input in headphone amplifier mode only.

2) USB port supports 44.1k-384k/16-32Bit PCM files, as well as Native DSD64, DSD128, DSD256, and DoP64, DoP128 decoding.

3) AK4490 DAC; DAC power supply voltage is up to +/-7V, producing huge dynamics.

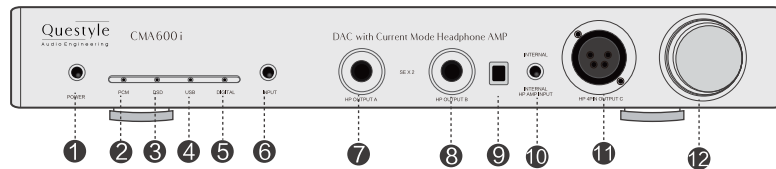
4) Four groups of amplifiers working in current mode and Class A state only support 4PIN full balanced output and dual 6.35mm standard headphone output.

5) Silver version sells in China, Space Grey version sells abroad.

Check List

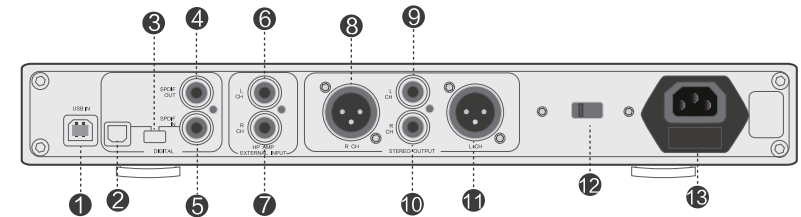
CMA600i	1pc
Power Cord	1pc
CD-ROM with CMA600i Driver	1pc
Remote Control	1pc
CMA600i User Manual	1pc
Test Report	1pc
User Manual of Remote Control	1pc

Front View



- ① Standby button
- ② PCM mode indicator
- ③ DSD mode indicator
- ④ USB input indicator
- ⑤ DIGITAL input indicator
- ⑥ USB/DIGITAL input switch
- ⑦ 6.35mm jack plug A
- ⑧ 6.35mm jack plug B
- ⑨ Remote control sensor
- ⑩ Internal&External input switch. When the switch bar is moved to “External”, CMA600i is used as a headphone amplifier only; when it is moved to “Internal”, CMA600i becomes a DAC with headphone amplifier, sourcing internally.
- ⑪ Balanced output
- ⑫ Volume control

Rear View

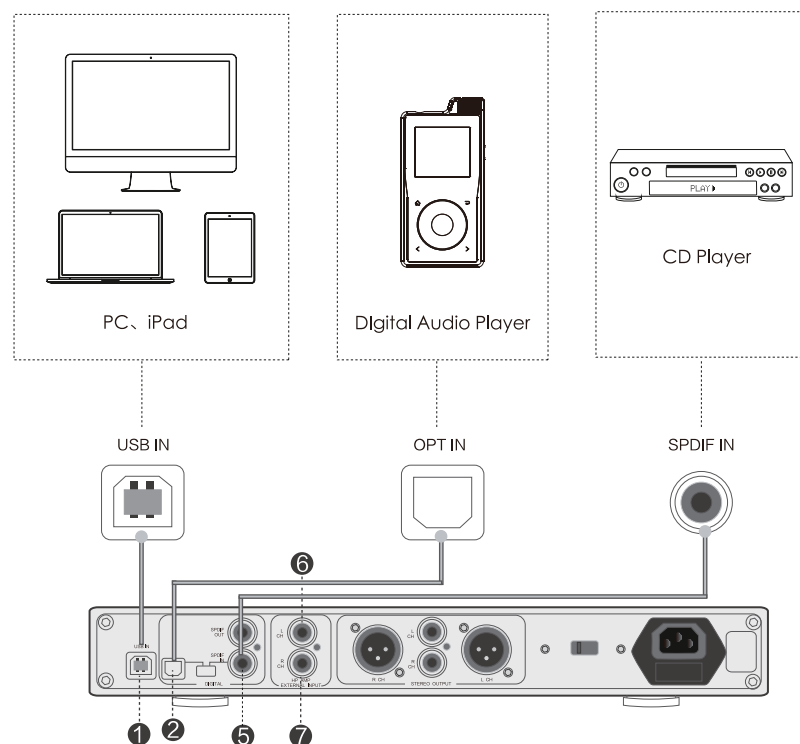


- ① USB input (type B)
- ② OPT input
- ③ SPDIF/OPT switch in DIGITAL mode
- ④ SPDIF output
- ⑤ SPDIF input
- ⑥ Left channel unbalanced input in “External” mode
- ⑦ Right channel unbalanced input in “External” mode
- ⑧ Pre-amp balanced output for Right channel
- ⑨ Pre-amp unbalanced output for Left channel
- ⑩ Pre-amp unbalanced output for Right channel
- ⑪ Pre-amp balanced output for Left channel
- ⑫ 220V/110V voltage switch (Please make sure the indicated voltage is in accordance with the local voltage)
- ⑬ AC power supply

How to Match with CMA600i

1 Audio Sources

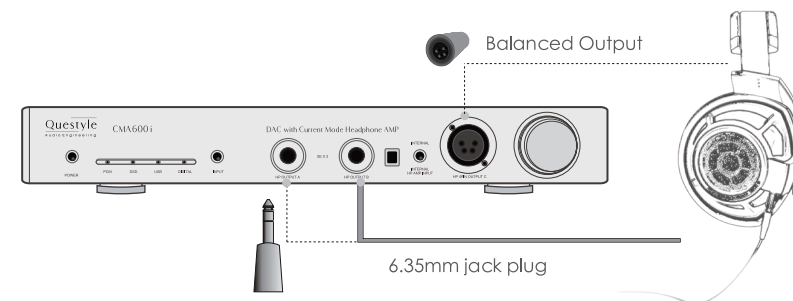
CMA600i has USB, OPT and SPDIF inputs. It can be connected to different kinds of audio devices, such as music players, computers, CD players and so on. To present the best performance, we recommend using quality audio device to match with CMA600i.



NOTE

- 1) Only when the "Internal & External input switch" is moved to "External" can you use ⑥ and ⑦ to connect with your audio source device. In this case, CMA600i doesn't support RCA and XLR pre-amp output but headphones only.
- 2) When the "Internal&External input switch" is moved to "Internal", you can use ①②⑤ to connect with your audio source device.

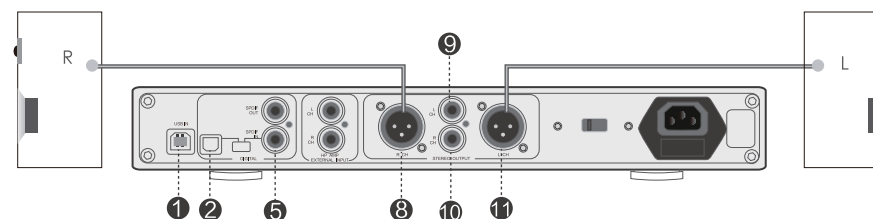
2 CMA600i has dual 6.35mm standard stereo jacks and a balanced headphone jack. It is easy for CMA600i to drive most headphones.



Note

- ① Headphone jacks on the front panel include dual 6.35mm headphone jacks and a 4-pin balanced headphone jack. You are NOT allowed to plug in all of the three jacks at the same time. When the 4-pin balanced headphone jack is plugged in, the other jacks are NOT allowed to be used.
- ② When you use the dual 6.35mm headphone jacks, you are NOT allowed to use different headphones, allowing a same pair of headphones only.
- ③ CMA600i has DC output protection. If your CMA600i fails to work properly, it will cut off the output automatically to protect your headphones.
- ④ The CMA600i is equipped with a short circuit protection for the headphone output. If the headphone jack isn't fully inserted to the end when put into the 6.35mm headphone jack, the indicator light will remain flashing. If this occurs, the CMA600i is in short circuit protection status. To reset the protection circuit, remove the headphones and restart the CMA600i. After powering off, when restarted, it will return to normal operation.

3 CMA600i can be used as a pre-amp only. It can drive various active speakers.

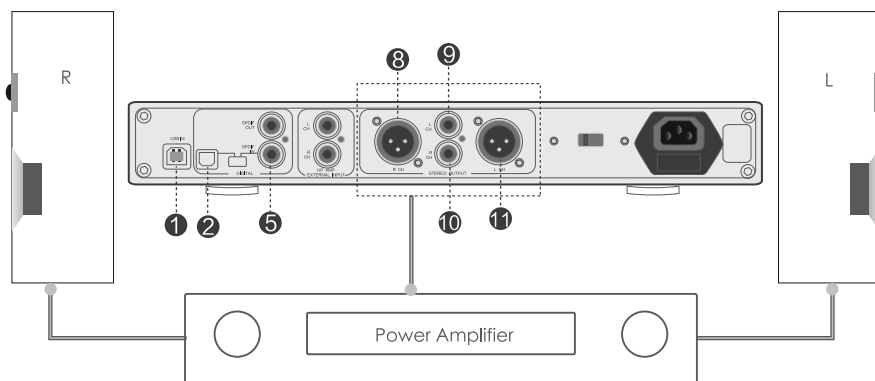


NOTE

1) In this case, the “Internal & External input switch” must be moved to “Internal” and ①②⑤ can be used to connect with your audio source device.

2) You can use ⑧⑪ balanced outputs or ⑨⑩ unbalanced outputs to connect with the left and right channels of your active speaker.

4 When CMA600i is used as a DAC and pre-amp, it can improve the performance of traditional Hi-end audio systems.



NOTE

1) In this case, the “Internal & External input switch” must be moved to “Internal” and ①②⑤ can be used to connect with your audio source device.

2) You can use ⑧⑪ balanced outputs or ⑨⑩ unbalanced outputs to connect with the left and right channels of your power amplifier.

Current Mode Amplification Technology

(Global PCT No.: PCT/CN2014/075775)

Current Mode Amplification refers to a Current Mode Audio Amplifier. It is a state-of-the-art technology of audio amplification based on Current Mode and discrete components. This Current Mode Audio Amplifier features the use of transistors to amplify, with all discrete structure designed in, to wit: voltage input and output, while the core amplification takes place in the current domain operating in a pure class A state. It is completely different from the traditional voltage mode amplifier in the structure of the amplification circuit. Capacitors in between the transistors, which affects speed and bandwidth, operate under ultra-low impedance, so it not only eliminates the TIMD, but also achieves large bandwidth (500kHz at full power) and ultra low distortion (0.0002%). The Current Mode Amplification technology can be used for amplifiers of any power level (10mW-2000W) and of any size (thousands of square centimeters for some professorial amplifiers).

PC System Requirements

1) Operation System

CMA600i's driver and hardware support Win XP/Vista/Win7/Win8/Win8.1/Win10. For Apple Mac OS, later versions than the 10.5.7 are well matched without installing any driver.

2) Media Player

CMA600i is not limited to any special media player. Any PC compatible player (including video players) is well matched.

3) File Format

File format is up to the media player on your PC. CMA600i can decode any file format that the media player supports.

4) Requirements for PC Configuration

At least one USB port is required. An acceptable USB2.0 high-speed cable of type A-to-B plug. We suggest using the high-quality USB cable to ensure the stability and reliability of data transmission and guarantee the best performance of CMA600i.

Install Driver Program on Windows OS

Your CMA600i can be recognized by PC after installing the CMA600i Driver on Windows OS. We take Win7 64bit OS for an example to show the Driver installation.

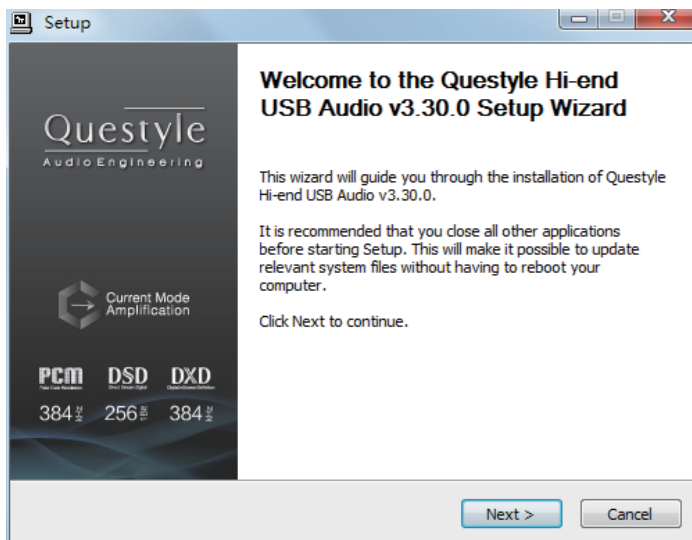
- 1) Connect your CMA600i to its power supply and switch it on;
- 2) Connect your CMA600i to PC with a USB cable;
- 3) Insert the provided Driver disc into your PC and open the folder labeled “CMA600i Driver/For Windows 7, 8, 8.1 and 10/” and then double click

“Setup.exe”.

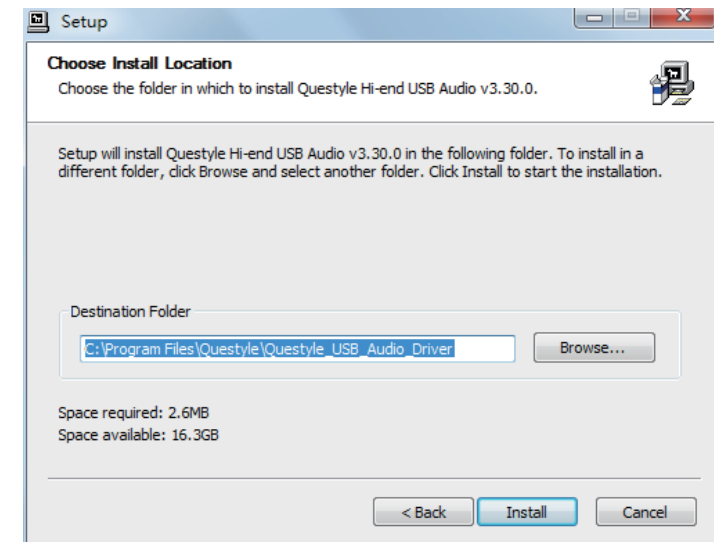


- 4) Then follow the steps below:

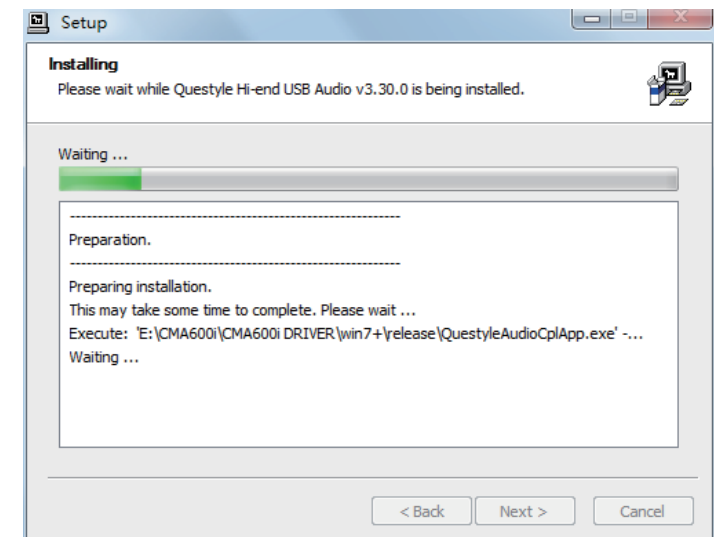
Click “Next”



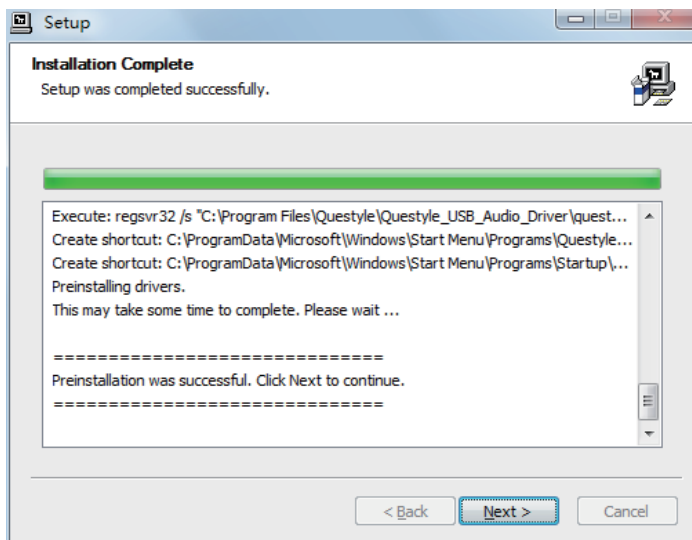
Click “Install” (Default install location is C drive)



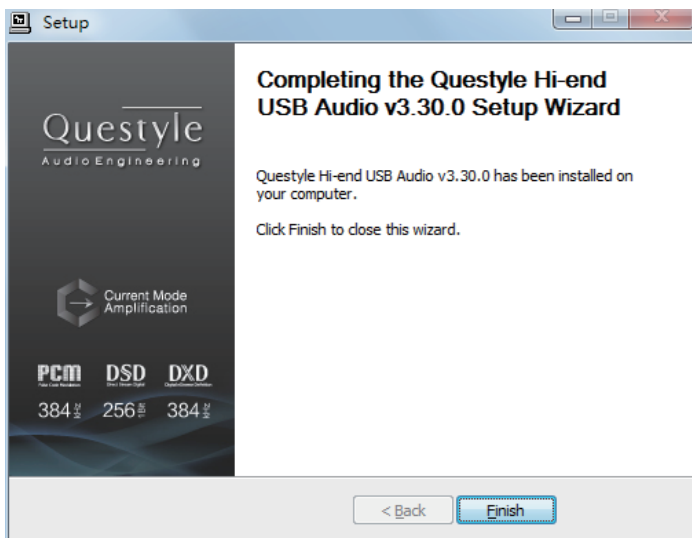
Installation will take 3 or 5 minutes



Installation is completed, click “Next”



Click “Finish” to exit the installation



5) Restart your PC and the CMA600i Driver is finished installation;

6) Installation on Win XP, Vista is similar to the above.

Core Audio Stream Introduction

Core Audio Stream has formats of ASIO, KS and WASAPI, all of which can be supported perfectly by CMA600i. Besides, CMA600i supports DSD format.

According to general audio processing procedures of PC, all the sound from applications and systems is processed by SRC, going through the lengthy system processing and hardware layer transmission, and then output to the external device. The output data are totally different after all those procedures. To output the pure, original and “bit-perfect” data, we must open a high-speed and dedicated channel for audio device, which is the core audio stream technology.

CMA600i supports ASIO and KS on Win XP systems, and supports ASIO and WASAPI on Vista, Win7, Win8, Win10 systems. For example, when you enable WASAPI + Exclusive Mode between CMA600i and player software (like JRiver), you can't control the volume through system controller, the sound from the system or any other application will not be heard at the CMA600i output, which is because the system has opened the core audio stream channel for CMA600i and the audio data directly get to the DAC of CMA600i with high-speed.

Setup Core Audio Stream on JRiver Media Center

We recommend using JRiver Media Center 20 for getting the best performance.

JRiver Media Center is a fully functional media management and playback software. It can manage your music in groups and can stream music from the Internet. It also can be used for MP3 or DVD burning. JRiver can support kinds of audio files including Mp3, MusicEx, WAV, OGG, RealAudio, RealVideo, AVI, QuickTime etc.

Let's take JRiver Media Center player 20 on Win7 32bit OS for an example to

explain how to setup WASAPI.

I Download and Install

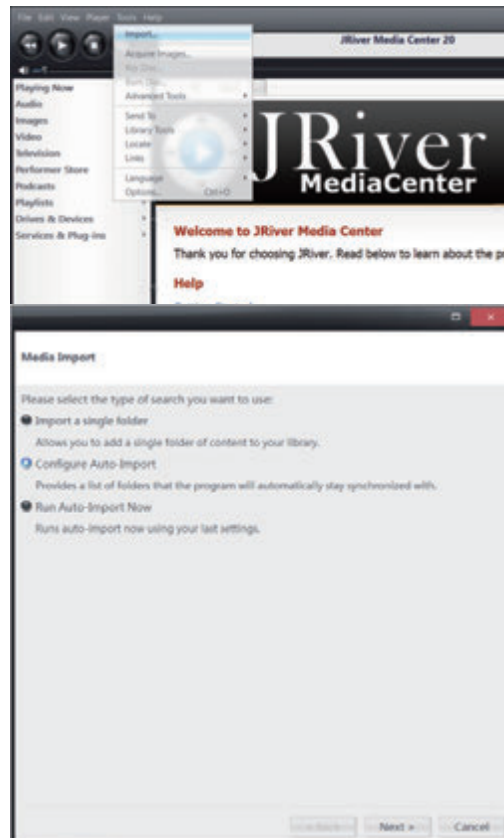
Go to JRiver website (<http://www.jriver.com/download.html>), and click

WINDOWS DOWNLOAD to download JRiver Media Center 20.0.131;

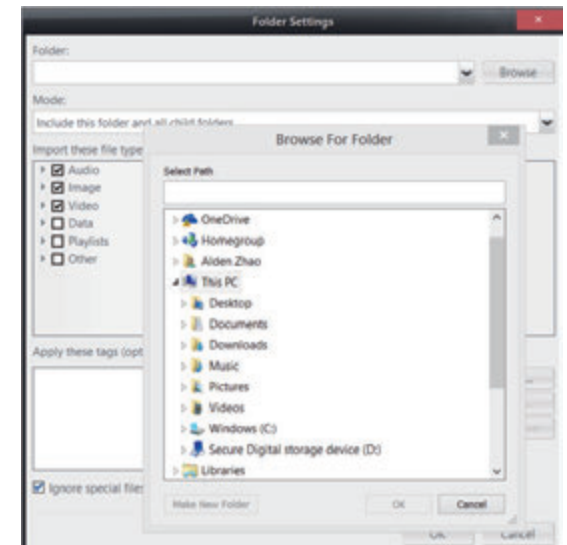
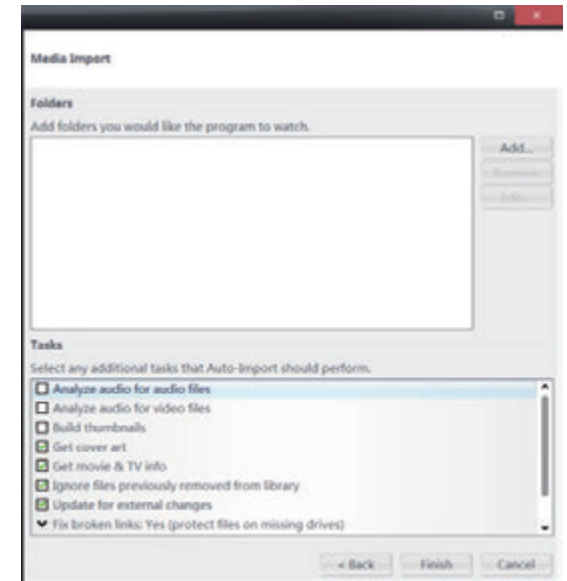
2)Install JRiver Media Center 20.

II Import Songs

1) Open “JRiver Media Center”, click “Tool”-“Import” and select “Configure Auto Import”, and then click “Next”;



2) Click “Add”-“Browse”, select the folder that contains songs, and then click “OK”-“Finish”.

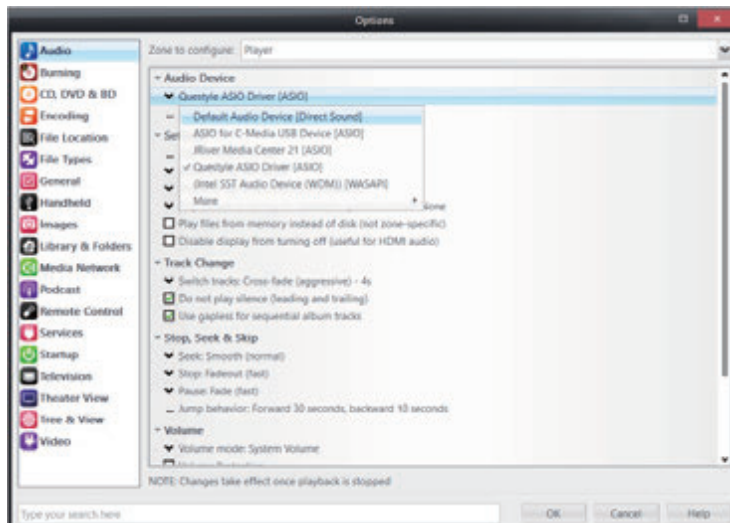


III JRiver Output Setup

1) Click “Tools” and select “Options”;



2) Select “Audio Device” under “Options”, and click “Questyle ASIO Driver[ASIO]” and select “Default Audio Device”, and then click “OK”.

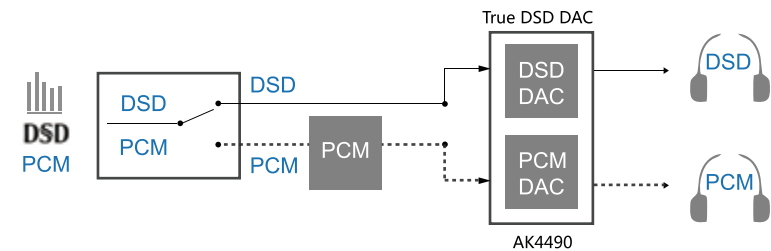


True DSD (Direct Stream Digital) Technology

(China Intellectual Property Office Patent No. 201520211945.X)

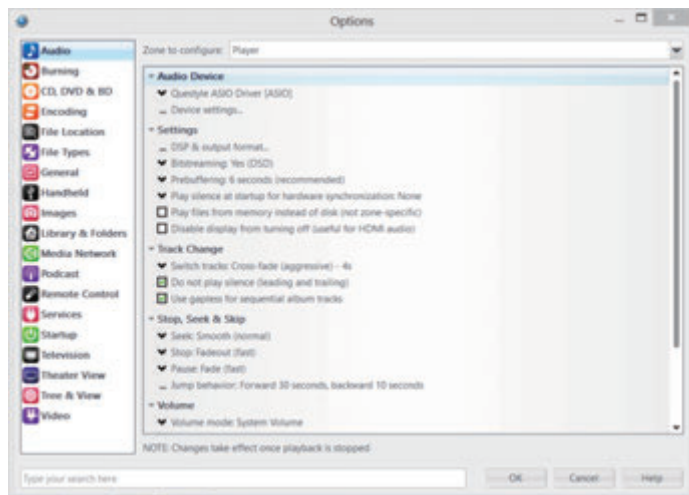
Nothing is better than the true. The True DSD technology is one of the core patented technologies of Questyle Audio. It processes DSD signals without any PCM converting and provides True DSD, which is fundamentally different from DoP and Native DSD.

When the system processes DSD signals, hardware mode switches to the True DSD channel. In this case, options for digital filter and digital volume control fail, strictly following the process of SACD playback.

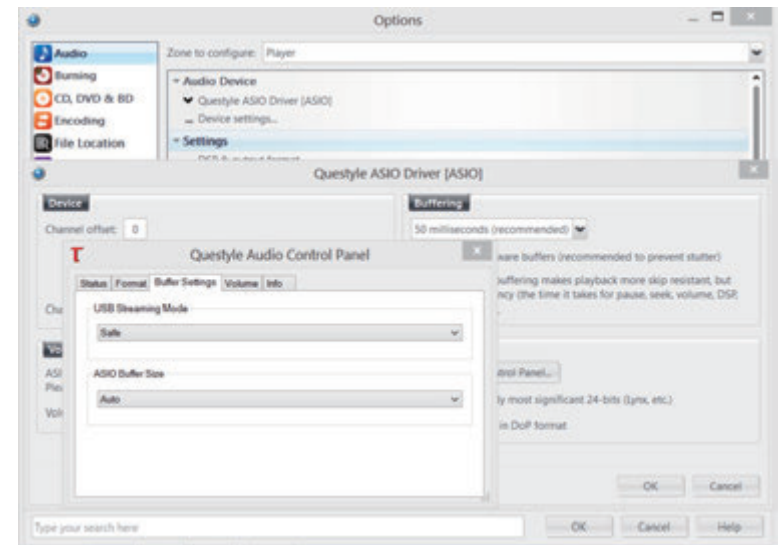
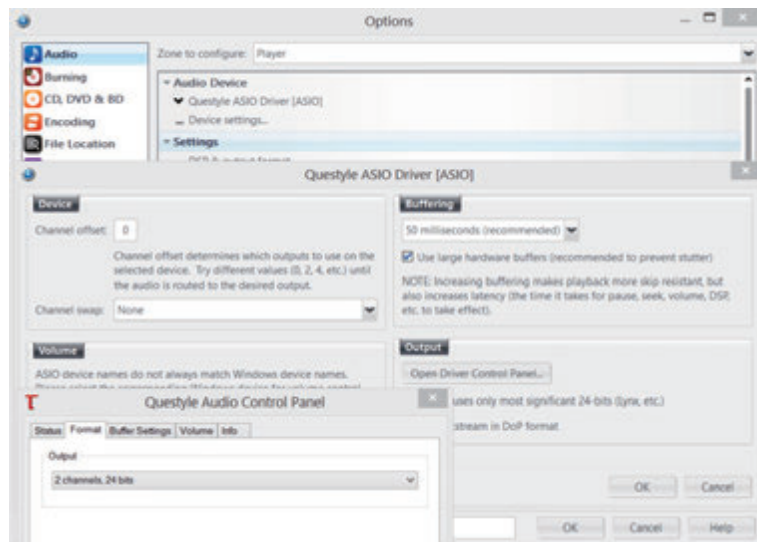


Setup DSD on JRiver Media Center

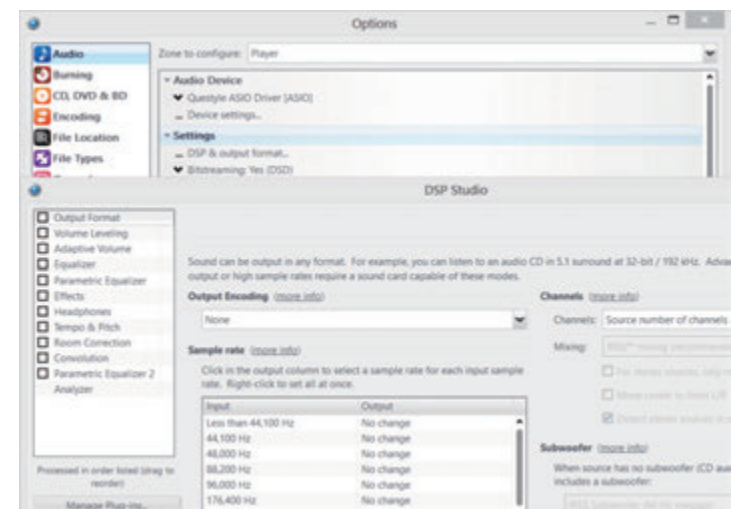
- 1) Connect your CMA600i to its power supply and switch it on;
- 2) Connect your CMA600i to PC with a USB cable;
- 3) Open JRiver Media Center, click “Tools” and then select “Options”;
- 4) Select “Questyle ASIO Driver[ASIO]” under “Audio Device”;



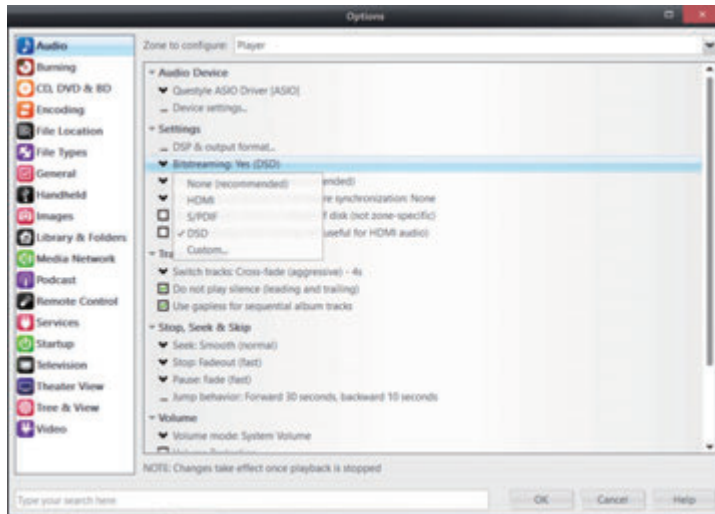
5) Select "Device Settings" under "Audio Device", and click "Open Driver Control Panel" under the ASIO, then select "Format"-**"2Channels,24Bits"**; select "Buffer Settings"-**"Safe","Auto"**; then close and click "OK" .



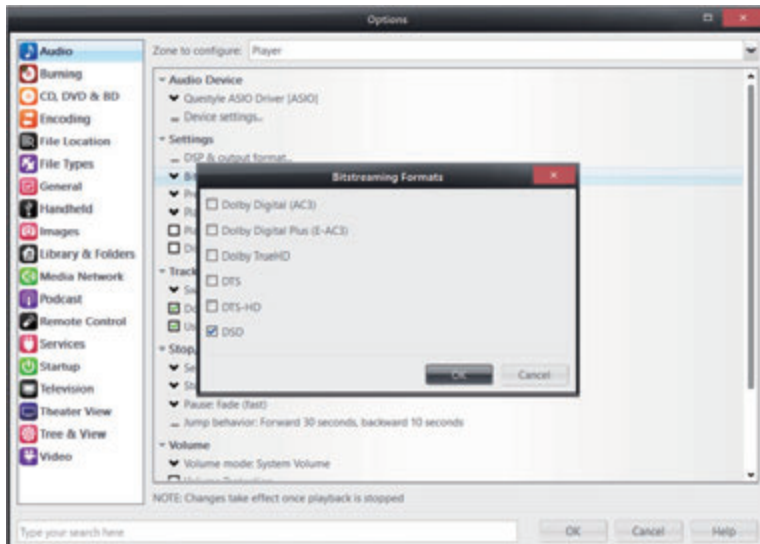
6) Click "DSP & output format" under "Settings". Make sure nothing on the left row is ticked. (To wit: without any processing to DSD data, ensuring original sound.)



7) Select “Custom” under “Bitstreaming: Yes(DSD)”

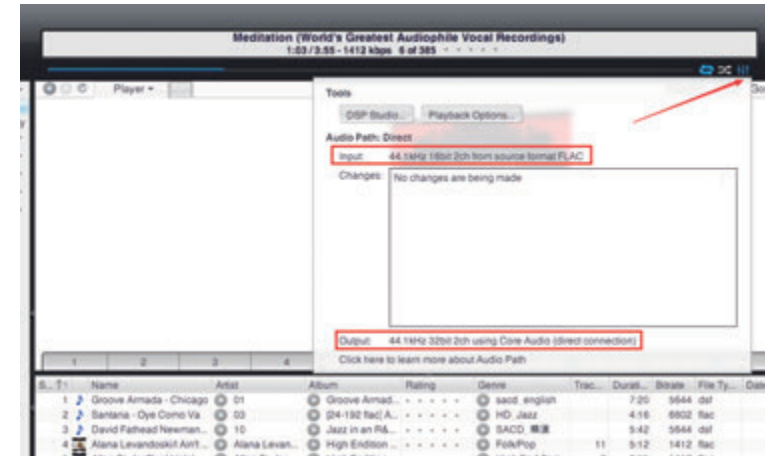


8) Tick “DSD” and then click “OK”.



Save and exit. The setup is completed.

9) With a song playing, put the mouse at where the arrow is pointing to view current input and output.



Install Foobar2000

Foobar2000 is a free and multifunctional audio player as well as a powerful tool for audio processing.

I Download the Following Software and Plugins

1. Take Foobar2000 V1.3.9 for an example

<http://www.foobar2000.org/download>

2. ASIO channel plugin

http://www.foobar2000.org/components/view/foo_out_asio

3. WASAPI channel plugin (no need for higher versions than WIN7)

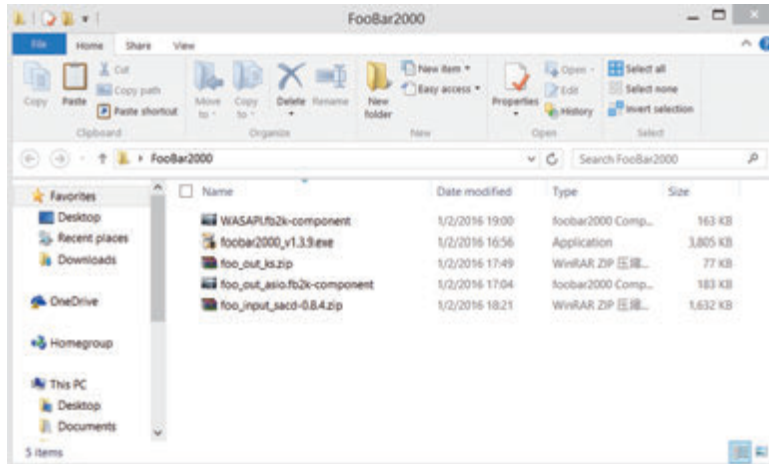
http://www.foobar2000.org/components/view/foo_out_wasapi

4. Core Audio Stream channel plugin (no need for WINDOWS XP)

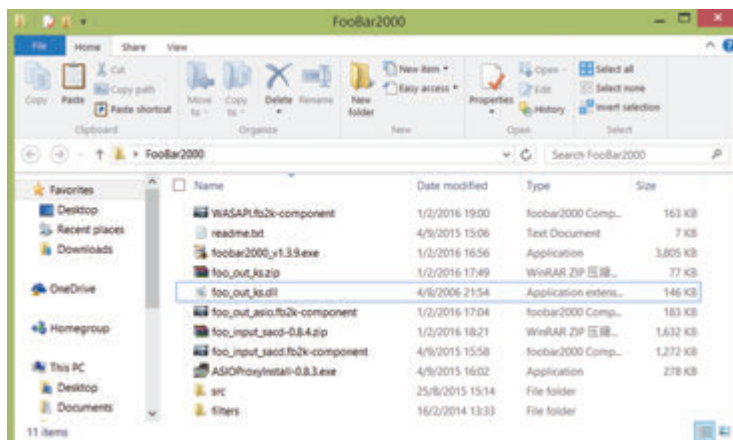
http://www.foobar2000.org/components/view/foo_out_ks

5. ASIO driver (take ASIOProxyInstall-0.8.4 for an example)
http://sourceforge.net/projects/sacddecoder/files/foo_input_sacd/


You will get 5 files after the above download (as shown below):



After the unzipping, you will see the following:



II Install Foobar2000 V1.3.9

1. Double click  **foobar2000_v1.3.9.exe** to install Foobar2000, and then click "Next".

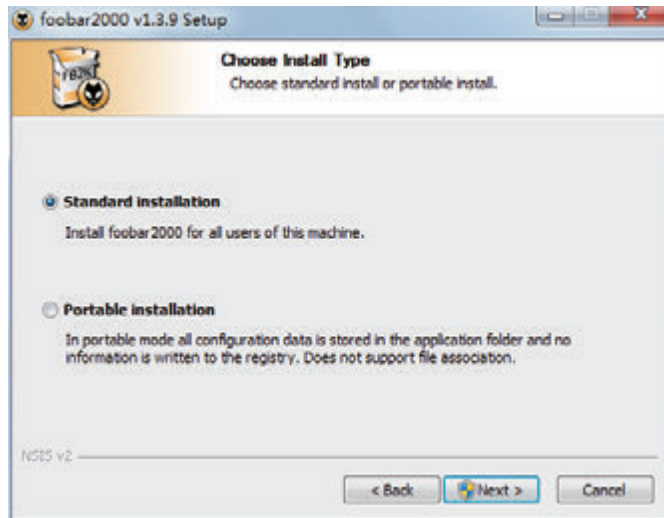


2. Click "I Agree".

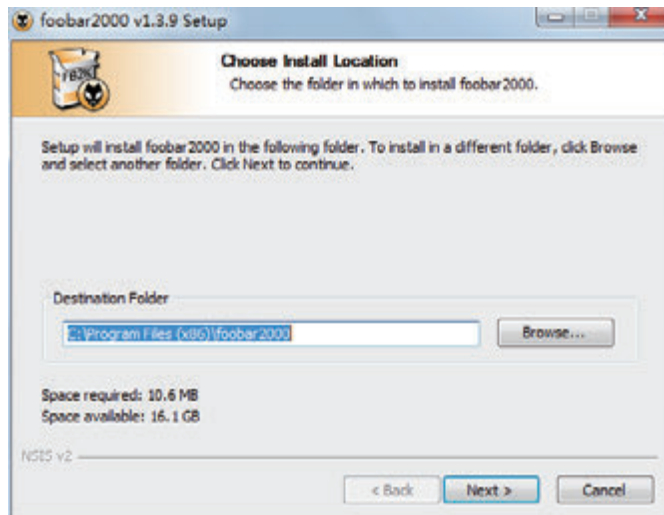


3. Select "Standard installation".

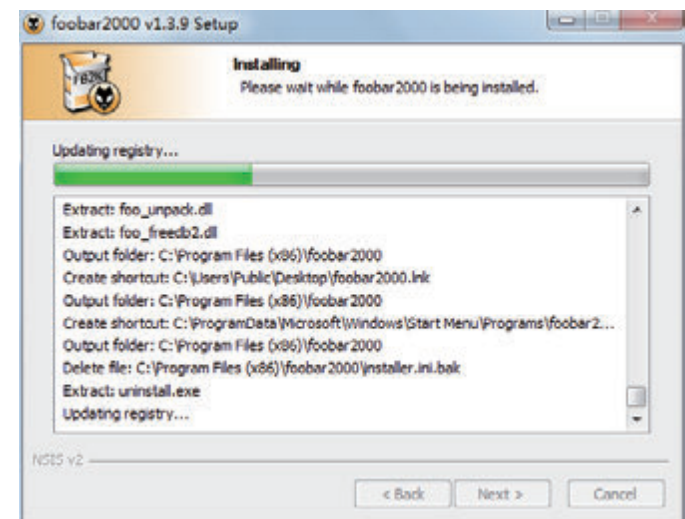
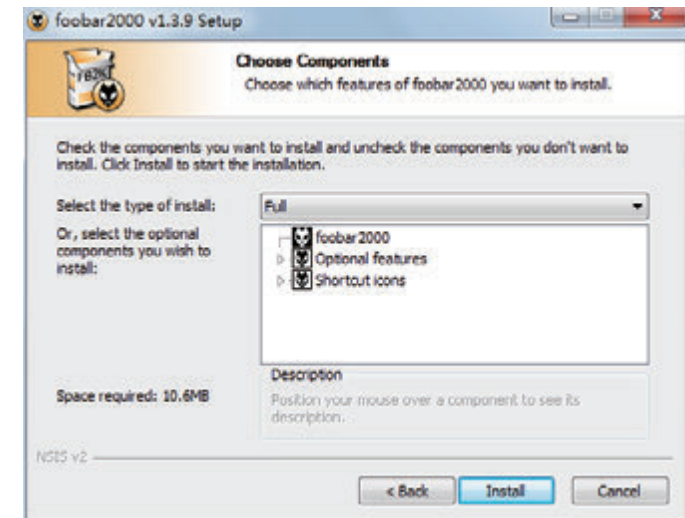
4. Click "Next" to choose Foobar2000 install location. (Default install location is C drive)



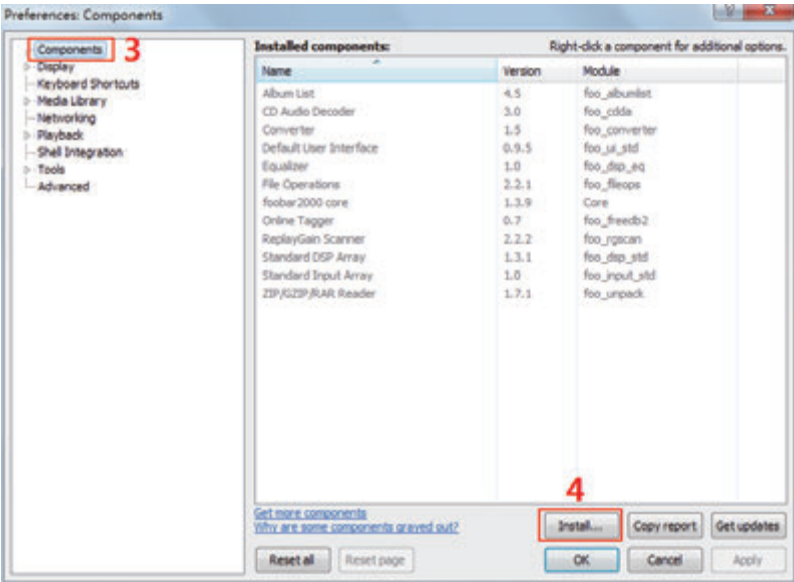
5. Click "Next".



6. Click "Install". (Default installation of all the components)

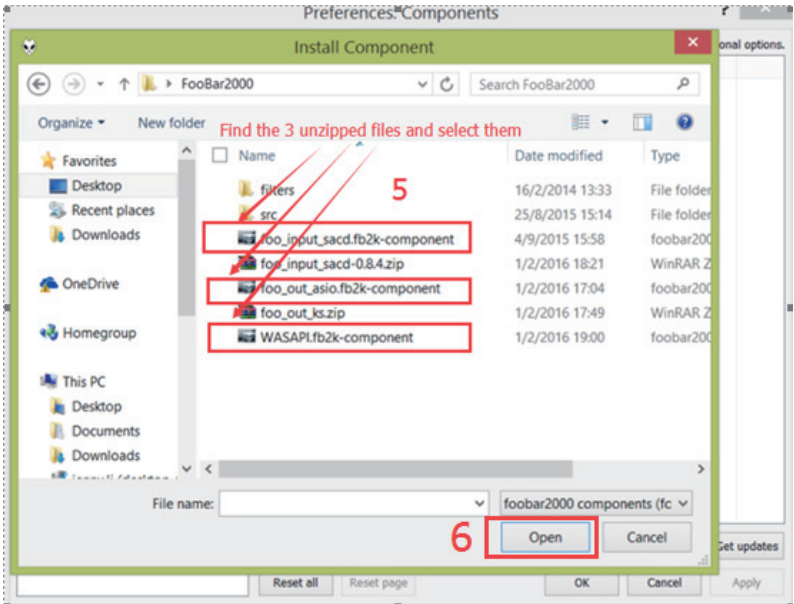
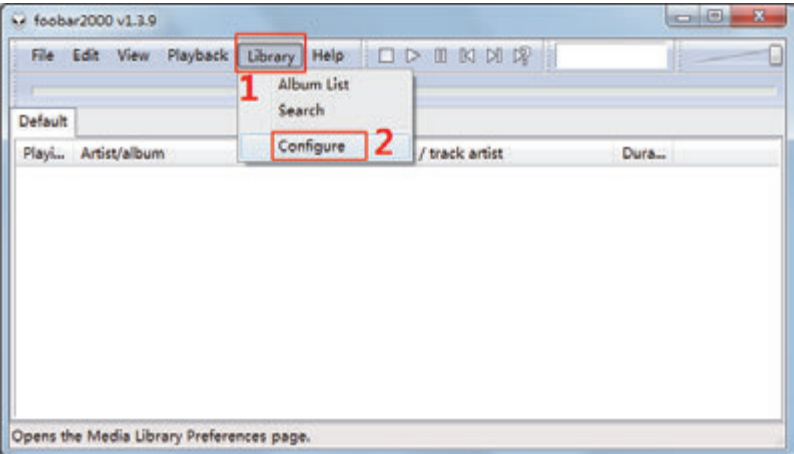


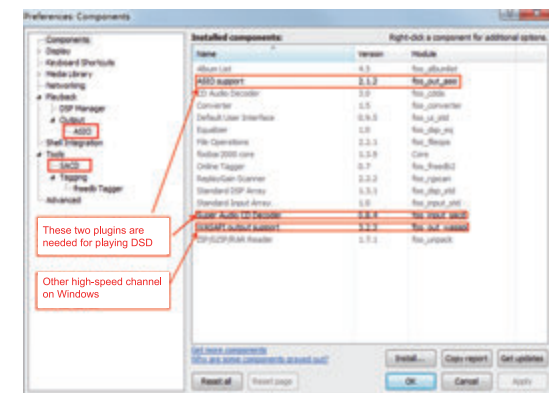
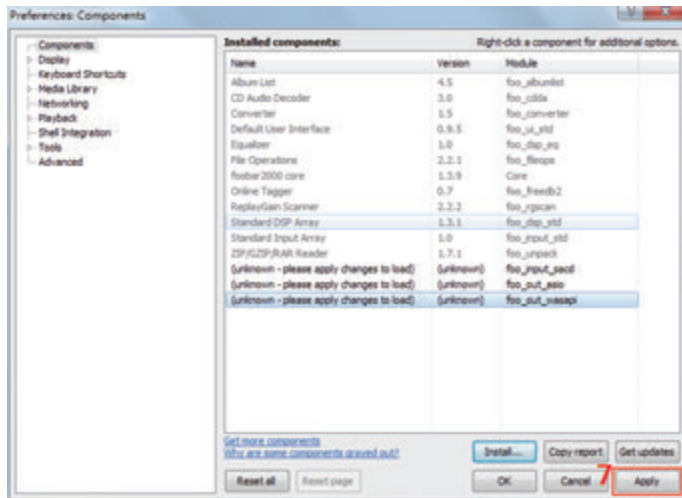
7. Click “Finish” and run Foobar2000.



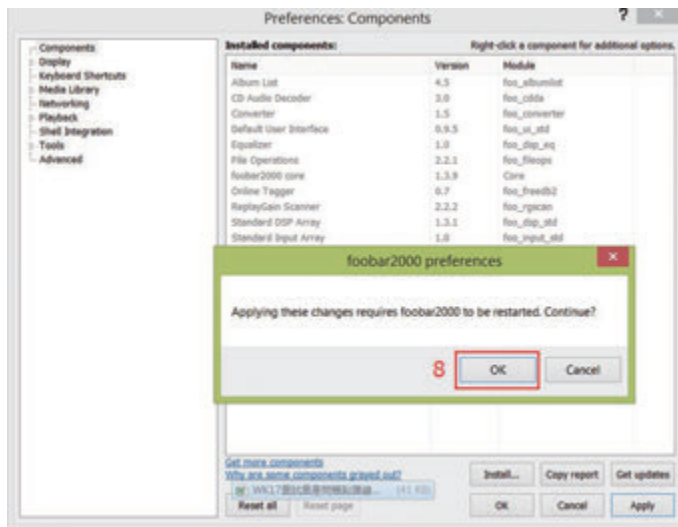
III Install Plugins

1. Install plugins according to the following steps highlighted from 1 to 8.

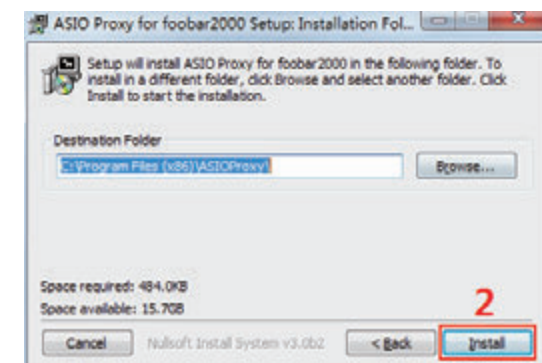
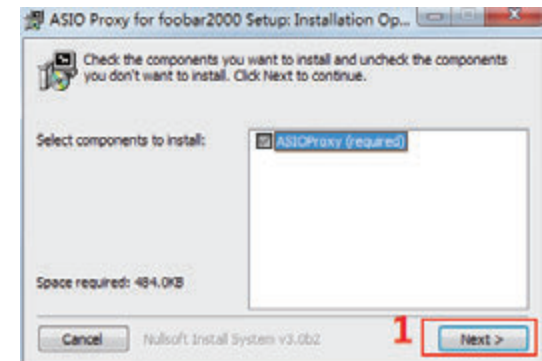




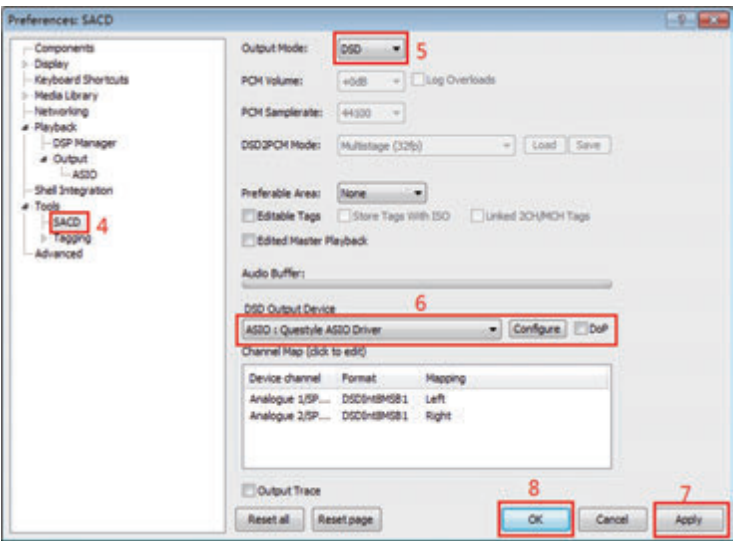
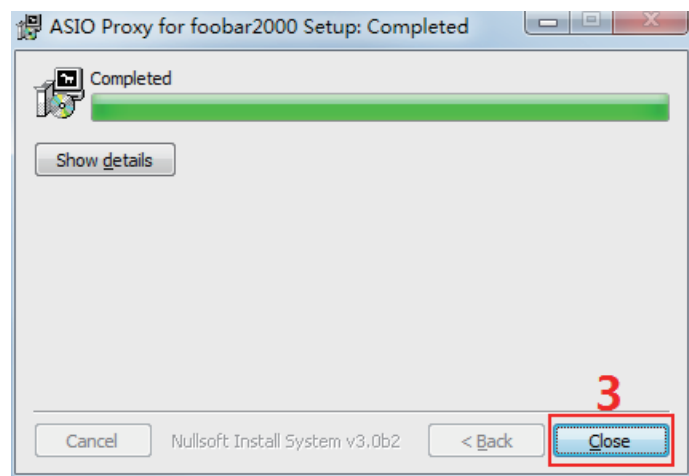
3. Install ASIO driver: double click ASIOProxyInstall-0.8.3.exe in the unzipped folder and then install the three components one by one.



2. Restart Foobar2000 and go to install location to confirm that the three plugins highlighted in the following figure are installed successfully. If so, you will see two more options on the left of the interface. (as shown in the figure below)



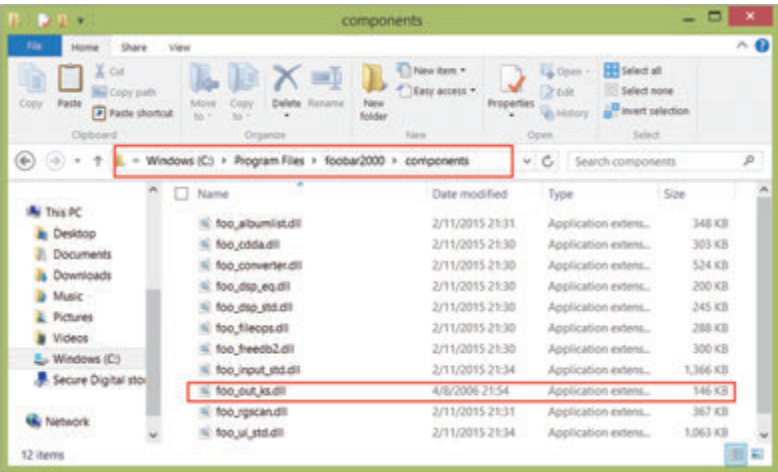
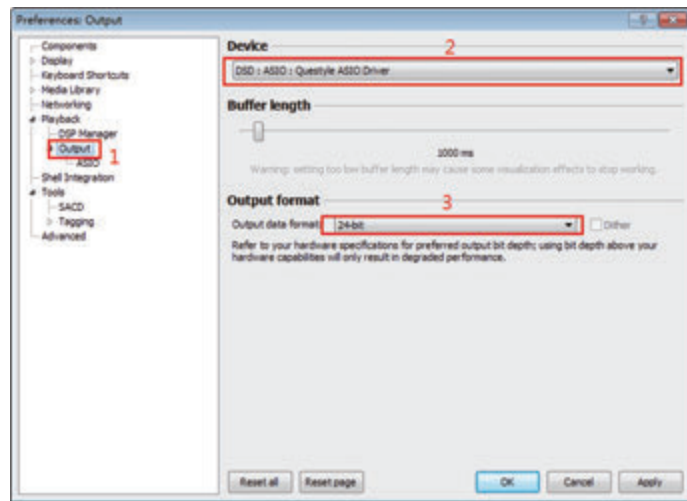
If you come to this step, you have completed all the preparations.



IV Setup the Software

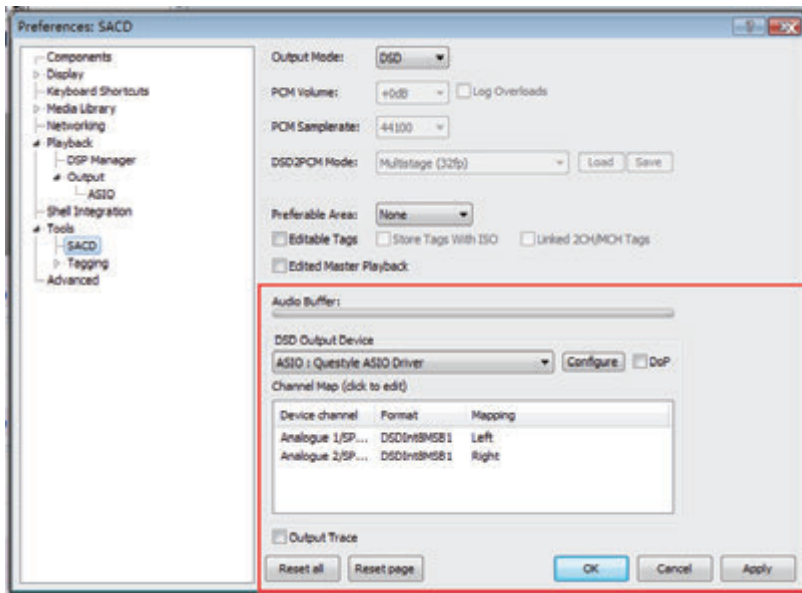
1. Connect your CMA600i to a PC with a USB cable and power it on. Finish the software settings according to the highlighted steps from 1 to 8, in the picture. Close and restart the software, then Foobar2000 is ready for playing PCM and DSD files.

2. In addition, installing plugins for Core Audio Stream channel requires copying the "foo_out_ks.dll" (highlighted in the figure below) to "components" under installation directory. Then restart the software and it is ready for playing files.



If the DSD files fail to play, please try the following:

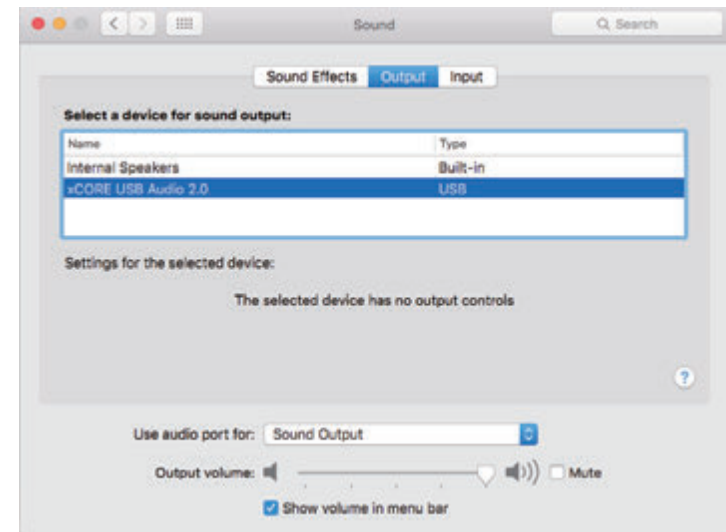
1. Exit the antivirus software and reinstall the CMA600i driver. Maybe the CMA600i program is mistakenly deleted by the antivirus software.
2. Every time you finish setting Foobar, please restart the Foobar software.
3. Foobar plugins have different versions and their compatibility is different with different PC operation system. When the DSD files fail to play, please download another version of the plugin on Foobar website, then repeat the above installation steps. The installation succeeds until you see the following options.



Setup on Mac OSX

For Mac OSX, no special drivers are needed for later versions than OS 10.5.7. The performance of CMA600i remains the same on Mac OS with the standard asynchronous transmission via USB.

Make sure your CMA600i is selected as the default output device in the system preferences. When you see the following interface after going to "System Preferences"->"Sound"(as shown below), your CMA600i is ready to work.



Specification	
Headphone Amp Section (Headphone Amplifier Only)	
Gain	13.4dB (4.7times)
Max Output Power(Po)	220mW@300Ω; 950mW@32Ω(6.35mm headphone jack) 630mW@300Ω;1900mW@32Ω(balanced headphone jack) To enhance the reliability of CMA600i, Questyle designed a power-limited circuit used for low impedance, the output power is limited to 620mW @32Ω (6.35mm headphone jack) 700mW @32Ω (balanced headphone jack)
THD+N	0.00057% @1kHz, Po=100mW, 300Ω
	0.0034% @1kHz, Po=50mW, 32Ω
SNR	113 dB, non-weighting
Frequency Response	DC-100kHz(+0, -0.7 dB); DC-600kHz(+0, -3dB)
Sensitivity	1.7Vrms
Input	Internal DAC output, or External unbalanced(RCA) input, switchable
Output	Dual 6.35mm standard stereo jacks and a balanced headphone jack
DAC and Pre-Amp Output Section	
Signal	SPDIF input and output: PCM 44.1-192K/16-24bit standard
	USB: 44.1K-384K/16-32bit PCM and DSD Native DSD64, DSD128, DSD256
PC OS to Match USB Input	Win XP,Vista,Win7,Win8,Win10 and MAC OS
Digital Input & Output	SPDIF input and output, Optical input, USB type B input
Core Audio Stream supported by USB	WASAPI, ASIO, KS
Analog Output	Balanced (XLR) and single ended unbalanced (RCA)
Max Analog Output Amplitude	Balanced (XLR): 8 Vrms; unbalanced (RCA): 4 Vrms
THD+N	RCA: < 0.00082%; XLR: < 0.00064%
SNR	RCA: >105dB; XLR: >121dB (non-weighting)
Whole Device	
Voltage	100-120V or 220-230V switchable
Power Consuming	18W
Dimension	330*200*55 mm

Note: Data listed above are collected from Audio Precision AP2722 testing.

- Cautions
- 1.Do not use your CMA600i in a hot or humid environment.
 - 2.Unplug your CMA600i in lightning weather or during a long period without using.
 3. Do not have your CMA600i covered by anything.
 4. Only the specified or manufacturer-supplied power cord can be used for your CMA600i.
 - 5.Clean your CMA600i with a piece of dry cloth or the special cleanser.
 6. If your CMA600i fails to work, please contact your dealer or manufacturer.

The information in this manual is subject to change without notice.
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- 安全注意事项
- 1、请勿在高温、潮湿的环境中使用本设备。
 - 2、在雷电天气或长时间不用时，请拔掉设备插头。
 - 3、请勿使用物体覆盖本设备。
 - 4、只能使用说明书中指定的电源线类型或制造商提供的电源线。
 - 5、请用干布或专用的清洁剂清洁。
 - 6、如机器出现故障，请联系代理商或制造商维修。

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