Table of Contents

In May 2014 the Munich High-end Audio show, CMA800i is officially launched to international market. Since design stage, CMA800i is set as an integrated DAC, Headphone Amp and Pre-amplifier questing for most Hi-end sound quality.

CMA800i headphone amplifier section follows Questyle flagship headphone amp CMA800R current mode amplification patent design, most components used are same. Ultra low distortion as to 0.00026%, ultra wide bandwidth up to 850KHz (+0, -3dB), working in pure Class A status under Super-current, all these features enables CMA800i amplification be most outstanding among all the all-in-one models.

CMA800i DAC section, PCM version it adopts USB Asynchronous transmission 3X Clock structure design, support 192KHz/24bit both USB and SPDIF input/SPDIF output, more important is it support True DSD format digital to analog converting. Different from current DoP (DSD over PCM) format, CMA800i drive program will send DSD source code directly to DAC section for digital to analog converting, its hardware is specially designed with DSD channel to process DSD signal in its original format ,strictly comply with standard SACD format. Same as CAS192D, CMA800i adopts Wolfson WM8741 DAC chipset with 4 levels of digital filters and power regulation. In PCM version it's designed with IIR(MP) digital filters to eliminates pre-ring, while in True DSD version all digital filters are invalid.

Pre-Amplifier output is one more specific feature for CMA800i. Many brands, when they design a all-in-one model, they use the headphone amplifier circuit loop to support pre-amplifier function in the meanwhile, on the sake of cost. But CMA800i, only care how to achieve best sound performance, is designed with totally independent pre-amplifier, even the power supplier supporting pre-amplifier circuit is total independent located. Volume control adopts a ALPS27 potentiometer working in pure analog format, supporting remote control, as well more suit for supporting active speakers.

A good sound performance require Hi-end components to support. CMA800i is assembled with suitable Hi-end components like DALE military resistors, WIMA capacitors, Nichicon FG capacitors, customized Plitron Toroidal transformer, Neutrik connectors...etc. Aluminum chassis is specially CNC tooled into "mutual-bit" structure, 10mm thickness cover, reduce the CMA800i natural resonance to lowest level. Even the feet is pure aluminum material, tooled by CNC machine, it can be switched to 3-feet triangle structure or 4-feet quad structure as per user's favorite.

Check List

- CMA800i   x1pc
- Power Cord   x1pc
- CD-ROM   x1pc
- User Manual x1pc
- Warranty Card x1pc

Front View
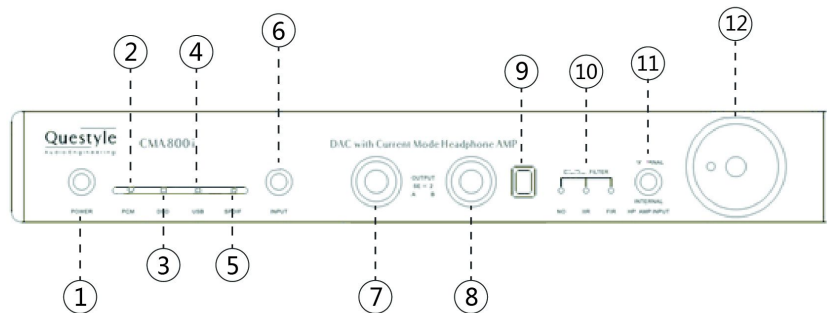
① Standby button.
② PCM mode indicator
③ DSD mode indicator
④ USB input indicator
⑤ SPDIF input indicator
⑥ USB/SPDIF input switch.
⑦ 6.35mm Jack plug A
⑧ 6.35mm Jack plug B
⑨ Remote Control Sensor
⑩ Digital filters. In PCM mode, digital filters are switchable by remote control. In DSD mode, digital filter says "NO".
⑪ Internal &External switch. When the switch bar is moved to "External", CMA800i is used a pure headphone amplifier; when it's moved to "Internal", CMA800i internal DAC works and becomes an all-in-one model.
⑫ Volume control

Rear View
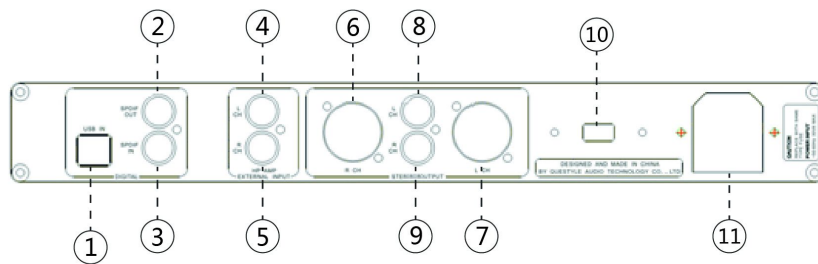
① USB input (type B)

② SPDIF output

③ SPDIF input

④ Left channel RCA input in "External" mode

⑤ Right channel RCA input in "External" mode

⑥ Pre-amp XLR output for Right channel

⑦ Pre-amp XLR output for Left channel

⑧ Pre-amp RCA output for Left channel

⑨ Pre-amp RCA output for Right channel

⑩ 230V/115V voltage switch button

⑪ AC power supply

Current Mode Amplification Technology

Current Mode Amplification, means the amplification is processed in Current version, instead of Voltage version.

Current Mode Amplification, same as Voltage mode, also take transistors as amplification components. But the amplification circuit loop is totally different from that in voltage mode, in the whole closed-loop all the capacitors in between those transistors which affects speed and bandwidth are working under ultra-low impedance, so it can easily achieve large bandwidth and ultra low distortion.

Low distortion and large bandwidth is what all amplifiers want to achieve. Only with ultra large bandwidth and high speed processing can an amplifier wonderfully process sudden pulse wave signal, and achieve real playback of music signal speed and transparency.

Traditional Voltage mode amplifiers always cause a Transient Intermodulation Distortion (TIMD), which brings a harsh "metallic sound", badly destroyed the sound.To eliminate TIMD, designers usually adopts feedback circuit loop (low feedback, partial feedback or negative feedback) in hardware but these don't totally settle the problem, and cost is very high.
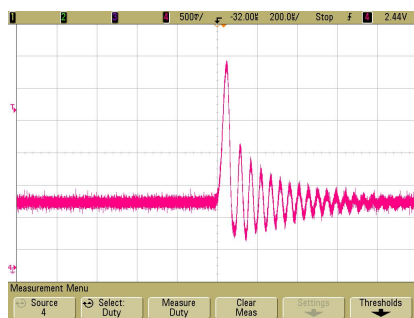
While Questyle gives up the traditional voltage mode format, designed with a "Current Mode" amplification. When the components is working in Current mode, amplifier Slew Rate (SR) achieves a linear increase as input signal amplitude increases, it is in proportion to input signal amplitude. When it's input with large amplitude signal, Current Mode amplifier SR is much larger than traditional Voltage mode devices, it can totally eliminate TIMD and ensures large amplitude signal and low distortion real playback.

PCM version Digital Filters

Generated signals from piano, percussion and guitar contain a large amount pulse wave. Studies of the sound psychology indicate that our ears are very sensitive to the pre-ring of impulse wave. It makes music incoherent and unnatural. The pre-ring, brought by FIR (finite impulse response) digital filters used in traditional digital to analog conversion, can be tested and heard very easily. The Questyle Audio CAS192D has the most advanced IIR digital filter, which completely eliminates the pre-ring from the impulse wave and brings the most natural sound. dCS is an example of a company using IIR digital filter technology.

Different digital filters have different impulse responses and group delay, creating different subjective listening experiences. On the front panel of CAS192D, there is a DFR button providing 5 different digital filters for user to choose. Among the five digital filters, the pulse responses of IIR and FIR are totally different. Different FIR or IIR digital filters have different frequency responses. The digital filters are switchable based on user's favorite.

CAS192D IIR digital filter pulse response   CAS192D FIR digital filter pulse response
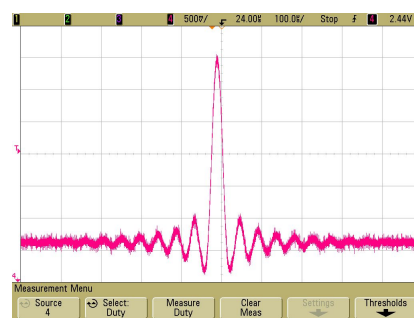
Vibrating objects in nature produce a sound wave which has similar features to the IIR digital filter. There is no pre-ring before the vibration and the vibration amplitude decreases gradually after the vibration.

PC system requirement

1)   Operation System

CMA800i Driver and hardware system support Win XP, Vista, Win 7 of 32Bit/64Bit, Win 8 of 32Bit/64Bit operating systems. For Apple Mac OS, later versions than the 10.5.7 are well matched, doesn't need to install driver.

2)   Media Player

CMA800i is not limited to any special media player, any PC compatible player is well matched. In Windows system, JRiver Media Center is recommended for good sound performance.

3)   Music Format

Music format is up to the media player. CMA800i doesn't require any special music format, it can decode any music format as long as the media player support it. For example, JRiver Media Player can wonderfully play formats like APE, FLAC, WAV, AIFF and MP3, etc.

4)   PC Configuration Requirements

Operating system of Win XP (SP2 or SP3), Vista, Win7 32bit/ 64bit, Win 8 32bit/64bit or later versions of the 10.5.7 Mac operating system. At least one USB port is required. An acceptable USB2.0 high-speed cable of type A plug to type 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 CMA800i.

Install Driver program on Windows OS

Your CMA800i can be connected directly to a computer via USB 2.0 for audio playback. Set-up is as follows:

1）Windows XP, Vista, 7, 8, 8.1

◆ Step 1

Connect a USB cable to the back of your CMA800i

◆ Step 2.

Insert the provided Driver disc into your PC and open the folder labeled "Questyle" and double click "Setup.exe".

◆ Step 3.

When the installer tells you to connect "Questyle Hi-end USB Audio", connect the USB coming from your CMA800i to the USB port on your PC and click "OK", then follow the instructions of the installer. (Note: the drive program will require your PC to restart.)

◆ Step 4.

Go to Control Panels/Hardware and Sound and open "Sound". "Questyle High-end USB Audio Device" should be set as default，highlight "Questyle High-end USB Audio Device" and select "Properties". Click on the "Advanced" tab and set "Default Format" to "24 bit, 192000 Hz (Studio Quality)", then click OK and OK again.

2）Mac OSX

No special drivers are needed for Mac OSX, it is simple plug and play. Make sure your CMA800i is selected as the default sound device in the system preferences of the Mac.

Core Audio Stream Introduction

Core Audio Stream is generally used by the HiFi audio workstations. It has formats of ASIO, KS and WASAPI, which all can be supported perfectly by CMA800i .

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, that is the core audio stream technology.

CMA800i supports ASIO and KS on Win 7, Win8, Vista, Win XP systems, supports WASAPI audio output on Win7 32Bit/64Bit, Win8 32Bit/64Bit operating system. For example, when you enable WASAPI + Exclusive Mode between CMA800i and player software (like JRiver), you can't control the volume through system controller, the sound from the system and other applications will not be heard at the CMA800i output, which is because the system has opened the core audio stream channel for CMA800i and the audio data directly get to the DAC of Q192 with high-speed.

If you don't set the output to be the core audio stream, you will find the sample rate shown on CMA800i is different from that of playing the original music, and it is locked at 48K or 44.1K. When you finish the following settings, you will find that the shown sample rate is the same as that of playing the original music, which is telling that PC can output the "bit-perfect" data now.

Setup Core Audio stream in Windows OS

Let's take JRiver Media Center player in Win7 32bit OS as example, to explain how to setup WASAPI .

1) Go to JRiver official website (http://www.jriver.com/download.html), click

DOWNLOAD MC18 to download JRiver Media Center 18;

2) Install JRiver Media Center ;

3) Open "JRiver Media Center", in "Tool" column there is a "Options", click "Options";

4) In "Options" menu, the right side shows "Audio output". In "Audio Output" sub-menu "output mode" choose "WASAPI". Then click "Output Mode Settings" to enter ;
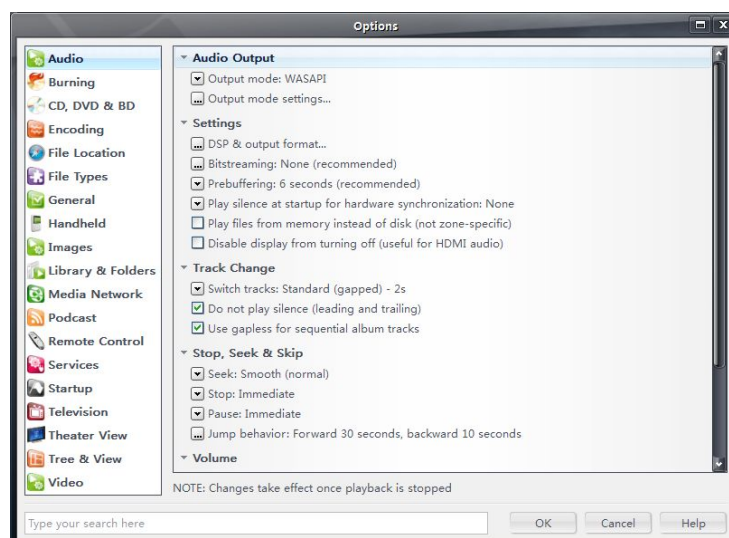
5）In "WASAPI settings", the "device" column choose " SPDIF Out (USB 2.0 High-Speed True HD Audio)", and click "Open device for exclusive access" and "Disable event style (required by older hardware)" ;
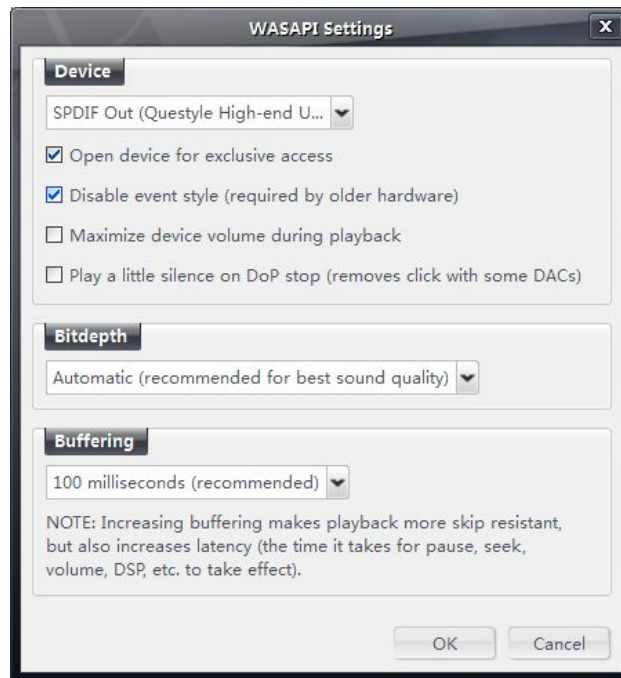
6）WASAPI settings is completed. In Win 8 OS the setting is the same.

True DSD

There are 2 ways in which DSD (Direct Stream Digital-SACD) files are played over USB (SPDIF) by the majority of USB DACs (Digital to Analog Converter), Conversion and DoP (DSD over PCM).

In the Conversion method, the player software (the program that converts the static DSD file to a bit-stream sent over your USB output) converts the DSD file to a PCM file which it puts out as a PCM data-stream over USB, and it tries with varying success to do this in real-time. The problem with doing this real time is that DSD operates at a frequency of 2.8224 MHz (for standard DSD, 5.6448 MHz for double DSD) and software based digital conversion is much less efficient thus requiring a very "state of the art" computer to perform. The other problem with Conversion is you are simply adding the negative properties of PCM to the negative properties of DSD producing a sound that is less than either format.

Setup DSD on JRiver MediaCenter

Launch JRiver MediaCenter. Click on "Tools" and select "Options". On the left side of the "Options" window "Audio" should be highlighted. On the right side of the "Options" window, under "Audio Device", click on "Default Audio Device" .Select "ASIO for C-Media USB Device [ASIO]". Under "Settings" click on "DSP & output format" and the "DSP Studio"window should pop up. Under "Sample rate", next to "176,400 Hz" click on the words "No change"and select "88,200 Hz". Close the "DSP Studio" window by click the "X" in the upper right corner. Click on "Bitstreaming" and select "Custom" check DSD then click "OK", and OK again.

Setup on Mac OSX system

No special drivers are needed for Mac OSX, it is simple plug and play. Make sure your CAS192D is selected as the default sound device in the system preferences of the Mac. Note: True DSD output is not currently available on the Mac.

Specification

Headphone Amp section (External Format)	
Gain	11.8dB (3.9times)
Max Output Power（Po）	180mW（7.5Vrms）@300Ω；1W@32Ω
THD+N	0.00026%@1kHz，Po=100mW，300Ω
	0.00050%@1kHz，Po=50mW，32Ω
SNR	118 dB，
Frequency	DC-200kHz(+0，-0.5 dB)；DC-850kHz(+0，-3 dB)
Sensitivity	2.2Vrms
Input	Internal DAC output, or External RCA input,switchable
Output	Dual 6.35mm Standard Stereo Jacks
DAC and Pre-Amp section	
Input	SPDIF input and output, USB Type B input
Signal	SPDIF input and output: Standard PCM 44.1-192K/16-24bit
	USB: PCM 44.1-192K/16-24bit and DSD Source Code following standard SACD format
PC OS to match USB input	Win XP,Vista,Win7,Win8 and MAC OS
Digital Filter	PCM Mode:Switchable IIR(MP) and FIR (LP)
	Ture DSD Mode: No filter
USB supported Kernal stream	WASAPI，ASIO，KS
Analog Output	Balanced (XLR) and unbalanced (RCA)
Nax output amplitude	XLR：8.6Vrms；RCA：4.3Vrms
THD+N	< 0.005% for both XLR and RCA
SNR	>107dB for both XLR and RCA
Whole device	
Voltage	100-120V or 220-230V switchable
Power Consuming	13W
Dimension	330*300*55 mm