

A DAC Called Henry

CHRIS BRYANT TRIES AN 'OPEN SOURCE' MAIL-ORDER DAC FROM NORWAY

CHRIS BRYANT

Henry Audio's €260 *USB DAC 128 mkII* is a USB-only DAC. It comes from Norway, is only available by mail order, and has been developed with the help of a group of online audio enthusiasts. It's an open source design, comes fully assembled and tested, and is intended to improve the sound of computer based audio. Hands-on enthusiasts are encouraged to further develop the design and share their knowledge within the open source community.

The DAC has no power supply of its own and is designed to draw its power from the computer USB port. It's plug and play with a Mac or a PC running Linux, but Windows-based machines will need to download the driver (open source C) from the Henry Audio website. While it will work with machines running *Windows XP*, high resolution audio will not always function and later releases of *Windows* are recommended. The only other part required to get started is a USB2.0 mini-B cable (recommended length less than 3m) to connect the computer to the DAC. It is recommended that the computer has a minimum specification of a Intel Core 2-duo processor with a 2GHz CPU or better.

This Henry only accepts data coming *via* a USB interface: USB Audio Class 2 (UAC2) for hi-res material, although CD quality will work with Audio Class 1 (UAC1) (and there is no reason why other interfaces such as S/PDIF should not be provided). The programme used in the 32 bit Atmel AVR32 MCU is written in C programming language and is 'open source' so all the design information is freely available – see the website for details. USB audio can be asynchronous, giving control of clock to the DAC, and precision crystal oscillators ensure low jitter and precise data timing. The ASIO driver for *Windows* is also programmed in 'open source' C, which I easily installed on my PC running *Windows 7*.

The well finished aluminium silver case is formed from two U sections, with composite front and back panels. A bi-coloured LED shows green for UAC1 and red for UAC2, and good parts, including quality film capacitors, are used inside. The DAC is an *AKM4430* with a 24-bit 8x FIR digital filter. It will work with sampling rates up to 192kHz, and the delta-sigma architecture can use a single 3.3V power supply.

Sound Quality

First experiments used the DAC in a UAC1 (green indicator) configuration. It locked on the digital signal straight away, and I tried a couple of tracks from *iTunes*, but found the reproduction very disappointing. I then discovered that my computer had defaulted to 48kHz, even though I was playing 44.1kHz material. When corrected the improvement was substantial, although the sound still wasn't exactly awe inspiring, with loose timing, stilted dynamics, some midrange and treble harshness and a softened bass.

Things started to improve when I switched to UAC2 (red indicator). I checked all the configurations and tried using *JPLAY* as suggested by Henry Audio, which brought a welcome lift in overall quality. The reproduction is altogether tighter and more coherent, with plenty of detail and a stronger bass with better punch and tactility. The midrange and treble are sweeter and more coherent, focus is considerably improved, the soundstage is larger and it certainly has far better dynamic expression and leading edge definition. In this mode it becomes competitive with similarly priced opposition, and also works well on high definition material using ASIO with both *JPLAY* and *Foobar* music players giving the usual improvement in quality over CD. Further listening showed that it was better suited to simple music, as complex material became edgier and less well focused, losing some precision and detail.

I have a working board with a multi-bit ladder DAC which is designed to accept an I2S input. With the Henry I2S bus connected it worked immediately, giving substantially better sound on complex material than that available from the inboard DAC. Past experience has shown that Henry can probably also be improved with its own dedicated high quality power supply.

Conclusions

Conceptually interesting, Henry Audio's *USB DAC 128 mkII* is also one of the best USB DACs I've tried. It can be purchased for around £200 (€260) tested and working, can greatly speed things up for those interested in developing their own DAC projects, and is definitely capable of giving endless hours of fun to hands-on enthusiasts. Used as a USB DAC it more than proved itself fit for purpose, so it deserves a recommendation, and may be further developed as a USB interface for any DAC that accepts an I2S input.

HIFICRITIC
RECOMMENDED



Manufacturer's Data

Input	Asynchronous USB Audio
Supports	44.1, 48, 88.2, 96, 176.4 and 192kHz sample rates
Output	RCA/phono stereo output
Size (WxHxD)	114.4x32.8x128mm
Price	£200

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