Glorious App-ening

Martin Pipe sings the praises of Cambridge's potent CXN streamer

Last year, I clapped my ears on the Cambridge Stream Magic 6 v2 – a versatile digital source component that combined the roles of network streamer, Spotify client, DAC and Internet radio tuner. It has since been supplanted by the CXN, a similarly-priced unit that spearheads Cambridge's elegantly-styled CX series – claimed, in the firm's own words, to combine "effortless compatibility with your digital music with beautiful design".

And although the common heritage of the two is evident – buttons ranged around the information screen, a USB port for 'local' media playback and a large multifunction knob – there are some obvious physical differences between the Stream Magic 6 v2 and the CXN. Gone is the button that gives you control over the digital filtering; with the CXN you're stuck with the characteristic that Cambridge's engineering team plumped for.

Offset against this omission is a major revision of the front panel screen. It's in full colour and will display radio station logos, album artwork and so on.

In terms of basic functionality, little has changed; no bad thing! In addition to Internet radio, you get the ability to stream (and, via USB, play locally) a wide range of audio files ranging from MP3 to 192/24-bit FLAC and convert external digital sources to analogue. One of these could be Cambridge's matching CXC, a CD transport with no analogue capability.

The only significant additions are compatibility with AirPlay – something that should please Apple devotees – and streaming DSD64 compatibility. The latter, added via a firmware update during the review period, addresses a concern of some would-be buyers. Its inclusion is interesting, considering that the DACs employed – as in the Stream Magic 6 v2, each stereo channel is served by a Wolfson WM8740 operating in dual-differential mode – only accept PCM data and cannot, unlike some other chips, operate natively in DSP mode. In other words, conversion between DSD and PCM has to take place inside the CXN.

This is fulfilled within the CXN's Analog Devices Sharc 32-

bit DSP chip – using code written by the Cambridge team. Other features they worked on during the CXN development stage included Cambridge's proprietary ATF2 upsampling technology and the Zander audio streaming module. We should not forget the volume control, which is active when the unit's 'digital preamp' feature is engaged. This implemented digitally, and although there's theoretical loss of resolution at low levels it worked very well if my experiences are anything to go by.

I tried turning it down, compensating for the change in level by adjusting my amplifier's volume control and I got none of the expected 'roughness'. But then again, the work is being done at a resolution of at least 24 bits. Owners of power amps and active speakers can couple the CXN with confidence. Another advantage of digital control is its freedom from future 'pot crackle'.

The CXN is easy enough to use, after getting over an initial misconception that its screen was a 'touch' variant! It's easy to assign specific radio stations as 'presets', but it's a shame you can't do the same with networked folders. There are only eight presets, which can be accessed directly via buttons on the remote.

Also worth mentioning is the excellent 'Connect' app, which is a much speedier proposition than the front panel when it comes to selecting new radio stations or networked music for playback. For the latter, you're given a folder view. Swiping through them to find what you're after – tracks can, out of interest, be added to a playback 'queue' – is a doddle! Given that the app makes the front panel redundant, I can't help wondering if Cambridge could make a cheaper 'black box' version.

In connectivity terms, the CXN is similar to the Stream Magic 6 v2. You get optical and coaxial digital inputs, plus an asynchronous Type B USB port (with 'ground lift' facility, which may be useful in the event of an audible hum). This will enable the CXN to be used as a USB Audio 'Class 2' computer DAC with support for DSD64 and PCM all the way to 24/192. To take full advantage of the USB interface, you may need to change (via a menu) from the default 'lowest common denominator' driverless 'Class 1' mode. Windows drivers for Class 2 mode are available from the Cambridge website.

Cambridge also takes pride in the internal layouts of its products. The CXN's analogue electronics – note the two Wolfson DAC chips, high-quality capacitors and muting relays – is at the opposite end of the enclosure to the switch-mode power supply. The green sub-board is the Zander streaming module.

There are also rear (and front) panel USB ports for playing local media and a third port for a Wi-Fi dongle that provides an alternative to wired Ethernet. The supplied unit is 2.4GHz but I hope that Cambridge introduces a model for the less-crowded 5GHz band. On the subject of wireless connectivity, I should point out that Bluetooth is a €99 option. This 'BT100' device plugs into one of the USB ports.

The reliance on extra hardware is unexpected, considering that lesser units provide this feature as 'standard'. (Re)compressing your music so it can be squeezed down a Bluetooth link isn't good news for sound but it works well in practice, and countless music collections are held on smartphones.

But then Cambridge offers a superior solution. Use the Connect app (which, by the way, is also compatible with the Stream Magic 6 v2) and you can 'push' music to the CXN app via a Wi-fi connection. Simply select the relevant folder on your device, and click on the tracks you want. The files are streamed 'as-is', and so there's no needless music-mangling.

OK, that's how you can get music into the player. In terms of outputs, you get balanced XLRs and unbalanced phonos for analogue – optical and coaxial outputs are provided too. No headphone socket, though.

> "The CXN is incredibly versatile. It was able to play every track I threw at it and convey their sound quality accurately"

SOUND QUALITY

For most of the listening, I coupled the CXN to a Benchmark DAC2 HGC DAC/preamp/headphone amp (via analogue), AHB2 power amp and SMS1 speakers. The first thing I tried was radio. Radio 4, that only gets a

128kbps MP3 stream, demonstrated a neutral tonal balance. The speech programmes that constitute the bulk of its output are presented naturally with no untoward sibilance or throatiness.

Furthermore the only artifacting, glitches and hiss that posed an audible problem were from the BBC's own outside-broadcast links!

6 Music, also carried at 128kbps MP3, performed better than expected with a surprisingly-convincing musicality – especially with the live session recordings that the broadcaster does so well. Compared to album tracks, though, I noted an increase in congestion. Hardly unexpected – and not the CXN's fault.

That it makes these low-bitrate services so listenable is itself a remarkable accomplishment! The CXN's streaming potential is perhaps better realised via Radio 3's 320kbps stream – which is available here. Again, you get an engaging and full-bodied performance.

Then there's the atmosphere. The ambient drone of A Winged Victory for the Sullen's eponymous album fared particularly well here; you're enveloped within the music. Piano attack and decay convince, and on occasions I could pick out individual contributions within the strings.

Still on the subject of strings, I derived much pleasure indulging myself in parts of ELO's back catalogue – in particular 'Out of the Blue' and 'Discovery'.

Take, for example, the former's 'Concerto for a Rainy Day', which culminates in the instantly-recognisable 'Mr. Blue Sky'. There was a tremendously 'big' sound and a wide variety of musical textures on offer here; the CXN meets their challenge. Subtler details were evident too, yet there was no hint of confusion when it all cranks up. Basslines were tight and well-defined, and rhythms impeccably-timed.

Hardly surprisingly, large-scale orchestral works also fared well with the CXN.

I then switched to something completely-different – a DSD of Keith Greeninger and Dayan Kai's minimalist 'Looking For A Home'. Every string-scrape, vocal breath and dobro twang of this stunningly-beautiful track was there to be heard.

The neat rear panel of the CXN, with all connections arranged into logical groups. Cambridge's painstaking attention to detail extends to the 'upside-down' labelling – which appears the correct way up when you're peering down with a bunch of cables to connect!

CONCLUSION

The CXN is an incredibly versatile piece of equipment. It was able to play every track I threw at it - AAC, MP3, FLAC, WMA, WAV, DSD and convey their sound quality accurately.
It is also supremely user-friendly, courtesy of the Connect app and colour front-panel display. The digital preamp mode, Spotify functionality and Internet radio tuner are merely the icing on a delicious cake.

MEASURED PERFORMANCE

Both the electrical and optical S/PDIF digital inputs of the CXN accepted up to 192kHz sample rate. Since many optical inputs manage 96kHz maximum, this is a good result, enabling the CXN to reproduce 192kHz digital from the optical output of Astell&Kern portable players for example, where others fall silent.

Dynamic range measured a high-ish 115dB from 24bit, and a respectable 103dB from 16bit (CD) digital inputs.

Dynamic range values were identical through both balanced XLR and unbalanced phono socket outputs, another plus point. However, 120dB is being achieved with 24bit nowadays by many DACs, so the Cambridge is behind the best in this important parameter.

Distortion was low at 0.04% from 24bit and 0.2% from CD, both excellent results.

Output from the XLR measured 4.2V and phono 2.1V, both normal figures.

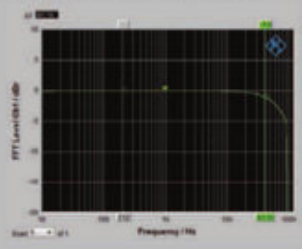
The USB B socket input for computer connection worked to 96kHz sample rate maximum, an unusual limitation since many USBs accept up to 384kHz. Yet from a USB key (memory stick) mass storage device the CXN read up to 192kHz sample rate. Both USB inputs gave 115dB Dynamic Range, like S/PDIF; there was no degradation here as sometimes occurs.

The upper frequency response limit was 41kHz our analysis shows, with 192kHz sample rate digital, with a slow roll off to the 96kHz analogue limit.

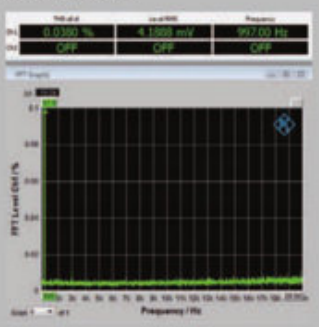
The CXN measured well all round. It isn't class leading in its figures but it is consistent in terms of dynamic range. NK

Frequency response (-1dB)	**4Hz-41kHz**
Distortion (%)	
0dB	**0.008**
-60dB	**0.04**
Separation (1kHz)	**96dB**
Noise (IEC A)	**-114dB**
Dynamic range	**115dB**
Output (phono/XLR)	**2.1 / 4.2V**

FREQUENCY RESPONSE



DISTORTION



CAMBRIDGE CXN STREAMER/DAC, €1099

OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT
One of the best streamers I've yet come across. I'll be sorry to see it go...

FOR
- punchy, dynamic and focused
- wonderfully versatile
- good-looking and easy to use

AGAINST
- no Bluetooth
- no 5GHz Wi-fi support

Cambridge Audio
www.cambridge-audio.com