CD player, USB & S/PDIF DAC
Made by: Canor, spol. s r.o., Slovakia
Supplied by: Sound Fowndations, UK
Telephone: 01276 501392
Web: www.canor-audio.com; www.soundfowndations.co.uk
Price: £3295

Canor CD 1.10

Can this Slovakian-built CD player/DAC compete with its UK, US and Japanese rivals and does its tube-rectified power supply and valve output stage give it an edge?
Review: **Nick Tate** Lab: **Paul Miller**

If a modern CD player is to survive the cut-and-thrust of today's high resolution digital audio world, it needs to have DAC functionality as well as the ability to spin silver discs. Although compact disc hasn't quite yet gone the way of the proverbial flightless Mauritian bird, it is surely approaching the twilight of its years. For this reason, the new Canor CD1.10 presents itself as a digital hub rather than just a simple disc player – giving it utility beyond the end of CD, whenever that may be.

The Canor is a hybrid machine then, and, as it transpires, in more ways than one. For as well as possessing modern, powerful 24-bit/192kHz PCM and DSD-compatible digital conversion, it also uses vacuum tubes. And it's not just a case of buffering a conventional solid-state analogue output stage, because this section of the CD1.10 is all-valve, and the power supply is tube-rectified for good measure. Once again then, old meets new, and it is the combination of these things that makes this machine actually quite a rare device in the great scheme of things.

MATCH TO THE POWER AMP

Indeed, the more time you spend with the CD1.10, the more you realise it's something of an oddball. As we shall see, its fine sound will endear it to many, but some might be less enamoured of its looks and feel, which don't quite have the sophistication of some price rivals.

Two things dominate the Canor's front panel, the first being an unusually large dot-matrix display. This glows a pleasing pale amber colour which is very easy on the eye, while the actual size means it's exceptionally easy to read from a distance.

The second feature worthy of note is the unusually big rotary control knob. It's a neat visual match for Canor amplifiers, but viewed in isolation some will find it disproportionately large for the job it has to do. It certainly makes the play/pause and track forward/back functions easily accessible, although confusingly the related drawer open and close, stop and cue forward/back are tiny buttons set well below. The result is that the Canor requires a little more familarisation than usual before it becomes 'second nature' to use. The good quality remote control, with its aluminium frontispiece, goes some way to helping here though.

Being a hybrid tube and transistor design, the Canor has a warm-up cycle that users of conventional CD players won't be used to. Switch on the machine and it doesn't snap into life as if on a hair trigger. Instead, there's a period of apparent inactivity, save for a small red LED flashing on the fascia. Finally, after what seems an age, the whole shebang bursts into life and the vast display lights up like Blackpool on a dark night. To the uninitiated it is unclear just what the player is doing during its warm-up routine, which is why with this machine at least it's helpful to first read the instruction manual – the Canor isn't a typical CD player to use.

AN OVERALL SOLIDITY

Appearance is of course a matter of taste, but some will find its size excessive: simply because its height might demand the use of different shelf spacing on an equipment rack. In defence of the Canor, there is rather more inside it than with many machines – including the aforementioned valve complement which does need some air to circulate around it during operation.

Should you wish to site it outside a rack, then you might find the graphite grey powder coated steel case rather 'industrial'

RIGHT: A popular and proven StreamUnlimited CD mech feeds two Burr-Brown PCM1792 DACs that drive the tube analogue output stage. Note the valve-rectified (EZ81) power supply

looking. It isn't unattractive but it's fair to say that it lacks the visual sophistication of some price rivals. Canor obviously hasn't made this machine cheaply, but nor has it made it beautiful.

So the CD1.10 is quirky alright, but once you get used to all its foibles, one does appreciate its overall solidity. This extends to the inside, which sports a classy StreamUnlimited JPL-2580B disc mechanism, behind which sit the four valves (two 6922, two 12AX7LPS) that take care of analogue output duties. There are twin Burr-Brown PCM1792 192kHz/24-bit DACs, which incorporate fascia-switchable digital filtering (two settings only).

The printed circuit boards are specially milled to give a low level of dielectric loss throughout the circuit, Canor claims – this is a process the company has developed itself. The player also features a valve rectified power supply using a single EZ81.

Around the back, there's a choice of USB (2.0), coaxial and optical digital inputs, and coaxial and digital outs – so the machine can work as a transport as well as a DAC – and balanced XLR or RCA analogue phono outputs. My MacBook Pro running Audirvana immediately recognised the Canor as a USB output device, and worked faultlessly with a wide variety of hi-res files during the test period. The aluminium and ABS compound CD loading tray proved swift and smooth in action, and lacked the plasticky feel of some rivals, (even ones at the Canor's not inconsiderable price). It's nice to see that the company has taken some care here: a good quality CD drawer is an often overlooked aspect of the compact disc playing experience.

A SILKY SOUND

Whatever type of music file you feed this machine, or indeed whichever silver disc you can find in your 'legacy' collection, the Canor makes it tonally sweet and smooth in a way that few machines at any price are able to do.

> 'It was good at letting the notes decay into an inky blackness'

Indeed it is one of the 'nicest' sounding CD players I've heard in a good while, and this seems to come from a combination of excellent basic design allied to that triode valve output stage which gives a significantly richer and silkier sound than you often get from solid-state.

ABOVE: Fascia styling is big and bold. The large rotary knob gives basic transport controls, others are by very small buttons below. Disc drawer is smooth and the display easy to read

For example, drop Simple Minds' 'Someone, Somewhere, In Summertime' [*New Gold Dream*, Virgin CDV2230] into its CD tray, and you're greeted by an unexpectedly lush soundscape that seems to be warmer and wider than when you last listened to it. The Canor fills the space between the speakers in a bigger and bolder way than most – there's a satisfying 'thunk' to the kick drum, while bass guitar takes on a little more weight and warmth than is normal.

The midband is as inviting as a real fire on a cold winter's night, and is bathed in a 'yellowy' light rather than the bright white xenon given by some rival solid-state machines. Actually, it's surprisingly detailed: everything is tightly placed in the wide stereo soundstage, and finely etched in a delicate and sophisticated way.

Indeed, so propulsive is the sound that you find yourself tapping your foot more enthusiastically than perhaps expected. The Canor gets into the groove and holds your attention, giving an enjoyable and immersive experience. It's lovely on vocals too: Jim Kerr's dulcet tones come over as smooth yet expressive, and the hi-hat cymbal work is a pleasure too, as sweet as fine sparkling wine. The overall tonal balance is a wee bit on the warm side, but not excessively so. It's just enough to take the edge off shrill systems – or indeed less than lovely recordings – yet it never loses the energy of the musical event itself.

I found it gave excellent synergy with a good, crisp mid-priced transistor amp ⇨

A TUBE 'BIAS'

Canor is a name relatively new to Britain, but it is not a new company. Indeed, it has been designing and manufacturing good quality valve amplifiers for nearly two decades, although it's come relatively freshly to CD – with the CD1.10 being only its second model. Its Slovakian headquarters is a large, spacious building with extensive machinery and proprietary test gear – including specially designed tube-matching machines. It has a well equipped, acoustically optimised listening room which is as good as many UK factories'. Canor has set itself up as a tube 'specialist', and has made a number of fine sounding integrated amplifiers designed with the accent on ease of use and ruggedness – rather than anything wilfully avant-garde. The company also manufactures for other customers too, so is no stranger to higher volume output than its own brand requires. The company has its own tube optimisation and burn-in rig, and has developed a special printed circuit-board milling system, which is said to improve sound, too.

ABOVE: Rear panel has coaxial and optical digital inputs and outs plus USB digital in, and RCA and balanced XLR line outputs. IEC mains socket sits below power switch

like Exposure's 3010 S2 driving a range of loudspeakers.

Thomas Dolby's epic 'One Of Our Submarines Is Missing' [*Golden Age Of Wireless*, EMI CDP 7 46009 2] also proved a joy: the electronic percussion bumped and bleeped away in the background, set behind swathes of fat Fairlight synthesisers. The Canor was very good at letting the notes decay gently into an inky blackness, and at setting clear spaces between the beats.

This gave a powerful, explicit sense of progression to the song, and the machine was good at accenting on individual notes – it always spelled out the phrasing of the song well.

However, in absolute terms, the overall dynamics of the song did sound slightly compressed. For example, as the song built to a crescendo in the chorus section, the CD1.10 didn't quite signpost the full power of the occasion. Instead, it gave a slightly understated feel to the proceedings, rather missing the poignancy of the music here.

A SENSE OF PERSPECTIVE

A major part of the machine's appeal is its DAC functionality, so it was interesting to substitute a Cyrus CD Xt Signature transport for the Canor's own optical drive. I found the CD1.10's internal mech didn't quite have the clarity of the top-end Cyrus transport, seemingly clouding the finest detail.

This tells us that the DAC is the stronger of the two component parts of the CD1.10, so I fired up my computer and tried some hi-res with excellent results. Everything from Kate Bush's beautiful 'Snowflake' from *50 Words For Snow* at 96kHz/24-bit (WAV) to Alan Parson Project's *Eye In The Sky* at 192kHz/24-bit (FLAC) sounded superb, with a sweet, even and spacious feel.

The Canor's innately rich and verdant sound didn't change, in fact it sounded even more polished and luxurious. I was impressed by the accuracy of its wide stereo sound staging, and depth perspective was strong too – although it's fair to say that this machine sits you a little further back in the concert hall than some USB DACs. The result is a better sense of perspective, if at the expense of power and passion – regardless of file type.

Switching to the 'Dynamic' digital filter setting from standard (the 'Natural' setting) gave a fractionally more impactful sound, but the effect was subtle. Everything came across with consummate ease and a fine sense of flow but there was no additional edge or attack. Subtlety, rather than hi-fi fireworks, is this Canor's key.

HI-FI NEWS VERDICT

If sound quality is all, then this is a bargain, especially if your system already sounds rather forward and full-on. The Canor CD1.10 brings real sweetness and ease to everything it plays, and sophistication too. Better still, the built-in DAC is excellent, and shouldn't be regarded as a gimmick. However, not everyone will like its ergonomics or styling. It comes heartily recommended then, but do try before you buy!

Sound Quality: 81%

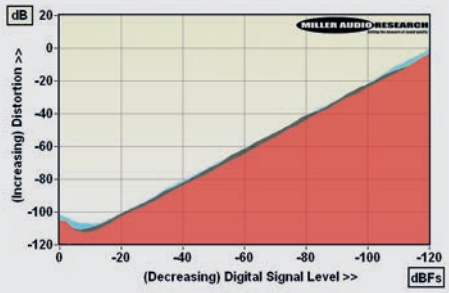
0 - - - - - - - - 100

LAB REPORT

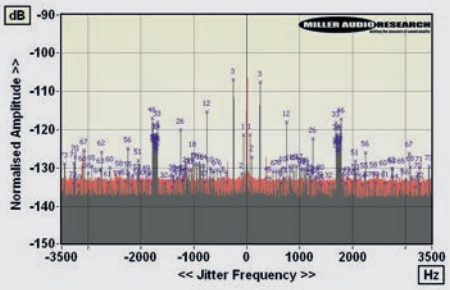
CANOR CD 1.10

Canor's use of a triode-based analogue output stage sets the tone for both distortion and noise performance, the 'character' of the player differing from typical PCM1792-based DAC implementations by virtue of its exceedingly well-matched THD vs. digital level vs. *frequency* trends [see Graph 1, below]. Neither is this achieved by simply increasing tube-distortion overall to deliver the same distortion at all frequencies! Indeed, distortion is very low through midrange frequencies, falling to a mere 0.00008% at –10dBFs and 0.0002% at –30dBFs, proving that tube line stages needn't be synonymous with moderate to high levels of THD. Our sample showed some slight difference in THD between L/R channels and in the 105dB/108dB A-wtd S/N ratio, but otherwise the output triodes were well matched.

The response(s) are mildly 'shaped' but not excessively so, its bass output down by –0.3dB/20Hz and treble by –0.8dB/20kHz, falling to –6.0dB/45kHz with 96kHz media and –17.6dB/90kHz with 192kHz media. Filter 2, the 'Dynamic' option, trades reduced pre/post-event ringing in the time domain for poorer stopband rejection in the frequency domain (just –7.8dB with 48kHz media) and a slightly more obvious HF roll-off (–9.7dB/45kHz and –21.3dB/90kHz). This filter really comes into its own with high-res 96/192kHz material. Jitter is lowest via the USB input at just 22psec and a little higher and 'untidier' via S/PDIF at 310psec [see black trace, Graph 2 below]. Readers may download full QC Suite test reports for the Canor CD 1.10's CD, S/PDIF and USB performance (and Filter 1/2 options) by navigating to *www.hifinews.co.uk* and clicking on the red 'download' button. **PM**



ABOVE: THD vs digital level – 1kHz at 24-bit/48kHz over S/PDIF and USB, red; 1kHz at 16-bit/44.1kHz, black; 20kHz at 16-bit/44.1kHz, blue, via CD



ABOVE: High resolution jitter plots using 24-bit/48kHz data (S/PDIF, black with markers; USB, red)

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	4.06Vrms at 6ohm-2.67kohm
A-wtd S/N Ratio (CD / S/PDIF in / USB in)	109.5dB/108.0dB/106.7dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00035% / 0.0002%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.00065% / 0.0007%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	–0.3dB to –0.78/–6.0/–17.6dB
Digital jitter (CD / S/PDIF in / USB in)	142psec / 310psec / 22psec
Resolution @ –100dB (CD / S/PDIF input)	±0.3dB / ±0.4dB
Power consumption	53W
Dimensions (WHD)	430x170x370mm