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MUSIC MACHINE

**CEC's flagship CD Drive
– it's a belter!**



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Molotov'**

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UK £4.00 US \$9.99 Aus \$9.95



CEC TL0X/DA3N (£16,000/£3200)

This is the flagship dual-belt transport from the company that pioneered the belt-driven CD player in 1991, partnered here with its latest outboard USB DAC

Review: **John Bamford** Lab: **Paul Miller**

When the opportunity arises to test a piece of audio esoterica we're never shy in coming forward. And they certainly don't come much more exotic or rarefied than Japan's near-legendary CEC TL0X disc transport. If you're British and you own one then there's little doubt you're a member of a pretty exclusive club of audio aficionados who take music appreciation most seriously.

CEC's high-end audio components have long had an underground following among hi-fi cognoscenti, especially in Germany where CEC has its European distribution centre. But they were not readily available in the UK until Definitive Audio became an agent some five years ago. Definitive is also the UK importer of the equally esoteric Kondo range of electronics from the Far East. Says Definitive's Kevin Scott: 'CEC doesn't make a go-for-broke high-end DAC to accompany its flagship TL0X CD transport. Nor does Kondo make disc transports to partner its DACs. We've found the combination a wonderful marriage for those looking for the ultimate CD replay system.'

JUST WHO IS CEC?

Before we look at the TL0X and brand new DA3N DAC in closer detail, some of you might be asking, 'Who exactly is CEC?' According to a time line published on CEC's Japanese-language website [www.cec-web.co.jp] the Central Electric Company Ltd started life in 1954 making motors for 'phono record players' at the dawn of the consumer hi-fi industry. It grew over the decades to become a major OEM supplier of turntables to countless famous brands and was then acquired by Sanyo Optronics in 1996. Sanyo created a separate company – CEC Co Ltd – in 2000.

This is probably just as well, as CEC's published history fails to mention that

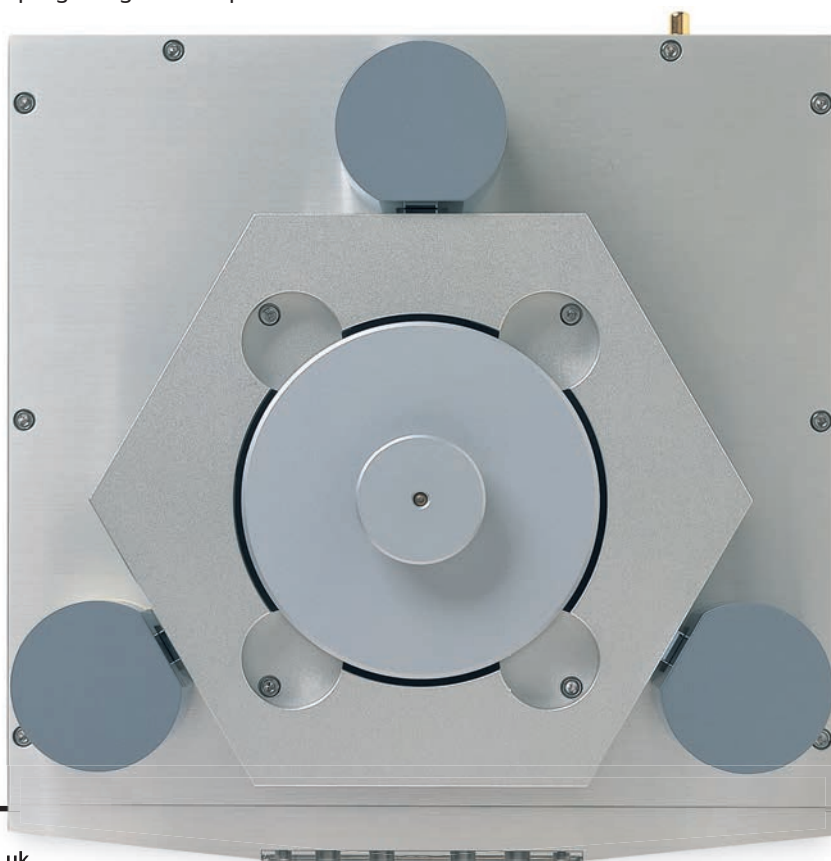
Panasonic bought out Sanyo lock, stock and barrel in June 2010. Sanyo no longer exists... but CEC has survived, its headquarters now in Oizumi, 50 miles north of Tokyo. Since 1971, CEC's President has been Kenichi ('Ken') Ishiwata. No, it's not *the* Ken Ishiwata of Marantz fame, although CEC's Ishiwata is similarly an audiophile of longstanding, and regarded something of a guru within Japan's high-end audio community.

INNOVATIVE BELT DRIVE

While its background was rooted in analogue disc replay, CEC was quick to embrace the CD format in the 1980s and created a worldwide 'audiophile sensation' in 1991 with its innovative belt-drive CD mechanism. Its philosophy was to isolate the drive and laser motors from the spindle and laser pickup assembly electronically, magnetically and mechanically, the only coupling being two compliant rubber drive

belts. CEC first introduced its mechanism in a high-end CD transport dubbed the TL1, the idea being quickly embraced by Germany's Burmester company and still used today in its Reference and Top Line CD players, including the £34k flagship 069 player/DAC [*HFN* Jan '12]. Until the turn of the century, CEC's distributor Stateside was Parasound of San Francisco – and it too chose to employ CEC's unique belt-drive mechanism in its own Parasound C/BD-2000 CD transport (which our Editor recalls testing back in the mid-1990s). Since 2003 CEC products have been distributed in North America by Mutine Inc, of Quebec [www.mutine.com].

It was around year 2000 that CEC replaced its flagship TL1 with a model dubbed TL0 that more closely resembles the TL0X featured here, employing an elaborate three-point suspension system to further isolate the delicate laser pickup from vibration.



RIGHT: The disc drive motor is a low torque, cog-free design that's 'inherently free of vibrations' while the 125mm 450g alloy disc stabiliser adds significant inertia



LEFT: Weighing in at a substantial 16kg (the outboard PSU weighs another 4kg), the TLOX's belt-driven transport is isolated in a chassis comprising a 20mm alloy/10mm brass sandwich and isolated by a three-point, rubber-damped suspension. The blue track/time display and basic track access controls are, by these standards, perfectly conventional!

More refinements emerged around 2003-4 when the first TLOX was finished in silver rather than black livery. Today's TLOX is, strictly speaking, a 'version 2'. Introduced in 2007 it is identical to the original TLOX save for having a larger outboard power supply that connects via a 1.5m umbilical cable [see boxout].

Exquisitely crafted in brushed aluminium, with chromed pillars housing the suspension springs, the transport's chassis rests on 'tiptoe' feet positioned underneath the suspension towers. Where many top-loaders employ a small puck to hold a disc in place the TLOX has a 125mm diameter stabiliser 'clamp' weighing 450g. CEC claims that its flywheel effect obviates

the constant electronic servo corrections required in 'regular' CD transports. Moreover the stabiliser covers the entire top and outer edge of the CD to prevent light scatter.

Criticisms? Well, the Philips-style display, located behind the mirrored fascia, is far too small to read from a distance. And the generic plastic remote controller is a bit of a letdown given the utter gorgeousness of the TLOX.

While CEC's DA3N digital-to-analogue converter featured in this review is an unlikely partner for the company's flagship

CD transport we grabbed the opportunity to audition it nonetheless, especially as it's the company's very latest DAC. It was launched just a few months ago as

a companion to the Japanese maker's 'cost-down' belt-driven TL3N CD transport (£2400) introduced in April 2011 to supersede the TL51X. As such it features a proprietary four-cable digital

interface dubbed 'Superlink' – in which clock and signal data are separated – that's relatively new to CEC transports and DACs. This is not something we could use in this ☞

'The suspension bounces gently in the manner of an Oracle turntable'

WHY BELT-DRIVE?

The transfer of belt-drive technology from turntable to CD transport is not as straightforward as you might think, not least because while LPs pass under a stylus with constant angular velocity (CAV), a CD spins over the laser pick-up at constant linear velocity (CLV). So while your turntable platter revolves at a steady 33.3rpm a CD spins anywhere from 495rpm at its innermost edge to 212rpm at the periphery, the fixed 1.2m/sec *linear* speed maintaining a constant bit-rate. It could be argued that a direct-drive mech is better able to accommodate the rapid changes in rpm required as you skip CD tracks (especially with a heavy 'stabiliser' in tow). CEC asserts that it's more important to decouple the laser pick-up and CD turntable with a belt-drive to 'suppress micro-vibrations and resonances that cause unwanted jitter in the data stream'. In practice, CEC attempts to physically isolate the CD from *all* sources of electromagnetic interference – hence the off-board PSU. PM



CD TRANSPORT/DAC



instance, as the sumptuous TL0X transport pre-dates CEC's deployment of its Superlink interface. A future test, perhaps...

CEC's latest DA3N DAC can't boast the meticulous build quality of the opulent TL0X, of course. Nevertheless its brushed aluminium fascia is of high quality and the power on/off button engages with a most satisfying 'clunk', redolent of classic Japanese gear from the late seventies. In the past CEC has mostly employed Sigma-Delta DACs from Burr-Brown, this DA3N being its first to employ ESS's Hyperstream ES9008 DAC chip.

Thanks to its volume control you can use the DA3N as a preamp in an all-digital system, with fixed level and variable outputs provided on both single-ended (RCA) and balanced (XLR) sockets. It's a headphone amplifier too, with a 1/4in jack fitted on the front panel. In addition to the suite of digital inputs at the rear [see photo below] the fascia sports two additional inputs on mini USB and mini optical sockets for convenient hook-up of a laptop. The VFD display is excellent, with large font graphics confirming input selection and incoming sampling frequency.

FLOATING DOWN

Before listening to the CEC duo as a combo I first auditioned the transport with T+A's DAC 8 converter that's been in residence these past few weeks [*HFN*, Oct '12]. Aaah... if you enjoy the ritual of choosing a disc and loading it in reverential fashion before settling into a favourite chair to appreciate its musical delights you'll simply

adore the TL0X. Placing the stabiliser over the CD causes the transport's suspension to bounce gently – in the manner of a perfectly set up Oracle or Avid heavyweight turntable – before the mechanism spins up automatically to read the disc's table of contents. It's deeply satisfying...

And so is its sound. Somehow the TL0X manages to appear squeaky-digital-clean while avoiding that over-etched, it's-too-good-to-be-true quality that digital replay often delivers. The super-clean-sounding T+A DAC can be criticised for this, although I'm in love with its absence of 'colour' and ultra-high resolution that allows forensic inspection of recordings. (Analogue diehards might describe it as 'digital' in a disparaging way.) Fed by the CEC transport, however, the DAC 8's presentation seemed less anodyne, more lyrical and flowing.

It was clear that the TL0X also has an ability to dig out the very finest of details from CDs. Spinning up the Ry Cooder/Juan de Marcos González *Buena Vista Social Club* album [World Circuit WCD050] showed explicit depiction of the recording's ambience, with palpable resonance around the musicians, the tone colours of the instruments vibrant and distinct. The performance was infectiously engaging. The shuffling Cuban rhythms of 'Chan Chan' and 'El Cuarto de Tula' were distinctively characterised thanks to the focus and control of frequency extremes.

'The TL0X transport digs out the very finest of details from CD'

ABOVE: One rotary encoder cycles through the DA3N DAC's inputs, the other governs volume but you'll need the optional RU211 remote to select between its 'Flat' and 'Pulse' digital filters

The TL0X has stellar bass depth and control. I couldn't resist winding up the gain of my Levinson amplifier when playing the 'torture test' CD *Discovery And Music For Christmas*, David Wilson's recording(s) of organist James Welch [Wilson Audiophile WCD-806/8419]. Of course, just about any silver-disc spinner will serve up the thunderous low frequencies captured on this CD, but – wow – the TL0X produced the Harris organ's very low fundamentals with immense authority, the creaking chairs and occasional coughs from the audience in the venue all adding to the sense of occasion.

Where the TL0X appears tonally ever-so-correct and precise, conversely CEC's DA3N DAC is rather colourful and euphonic. Playing out reference recordings from my computer audio setup (Mac Mini running Windows 7 and JRiver Media Center) and comparing the DA3N alongside the T+A DAC 8 showed the CEC converter to be a little soft-focused. It created a ➞

BELOW: CEC's TL1N and '3N transports have the four-BNC 'Superlink' connection seen on the DA3N DAC, but standard S/PDIF, AES/EBU (on XLR), Toslink optical and USB 1.0 are also fitted



CD TRANSPORT/DAC



ABOVE: CEC's outboard PSU connects to the TL0X transport, from a distance, via a proprietary umbilical while all three standard digital outputs – S/PDIF on coax (RCA), Toslink optical and AES/EBU (on XLR) are provided for connection to any DAC

cavernous soundstage that was more than charming, while its polite demeanour provided a soothing antidote to many screechy pop and rock recordings, thanks to its very smooth treble and warm midband. Even Elbow's raucous 'Grounds For Divorce' ripped from the band's 2008 CD *The Seldom Seen Kid* [Polydor 1764098] sounded moderately palatable. Where the song's shrill sound usually sees me hurriedly reducing the volume, I was actually wicking it up, such is the DAC's uncommon civility.

I dipped into Chick Corea's Andalusian-toned *Spanish Heart* album [Verve Master Edition 314 543 303-2] intending to listen for a few minutes to a section of 'Spanish Fantasy, Part I' – primarily to enjoy the delights of Stanley Clarke's acoustic bass accompaniment to Corea's piano. This recording from 1976 usually sounds dry and synthetic, but I became carried away by the richly-toned portrayal of the music and was soon playing through Parts II, III and IV to the suite's conclusion, forgetting why I'd chosen to 'dip in' in the first place.

CREAMY YET PUNGENT

The DA3N employs a Tenor USB interface that's compliant only with USB Audio Class 1.0 – so no special Windows drivers are required. The DAC's USB inputs *do* handle up to 24-bit/96kHz however, so you'll only need a 'full HD'-capable USB-to-S/PDIF converter if you want to play 176.4 and 192kHz hi-res downloads. The DA3N's coaxial S/PDIF and AES/EBU will accept data up to 24-bit/192kHz, which I confirmed using a Musical Fidelity V-LINK₁₉₂. I really

couldn't hear a marked difference when switching between the DAC's 'Flat' and 'Pulse' digital filters, the creamy and pungent sound character of the DA3N seemingly proving an overriding factor in the sonic presentation.

The TL0X and DA3N might not be natural partners, but I found the combination quite enchanting. Assessing the DA3N in isolation I craved a little more 'grip' and resolution, but the precision of CEC's flagship CD transport appeared to control nicely the slightly soft-focused, euphonic nature of the DAC. On more than one occasion I sat down to write a description of these products only to find myself getting lost in musical treasures from my CD collection. If you've a substantial investment in compact discs and are still searching for the most satisfying way to play them, you certainly need to experience the sublime musical qualities of CEC's unique designs. ☺

HI-FI NEWS VERDICT

As with hand-built Japanese high-end gear from the likes of Esoteric and TAD, these CEC components are something to savour. There's little not to like other than their price tags – but this is the price one pays for artisan craftsmanship. Forget any notion of 'digital hardness': the CEC sound is beguiling, with a lyrical, flowing quality that never fails to draw you into the musical event. A delicious encounter!

Sound Quality: 84%

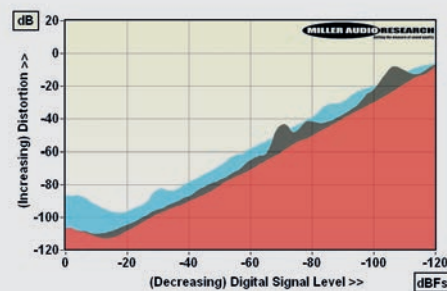


LAB REPORT

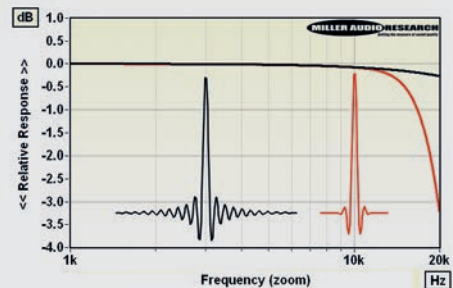
CEC TL0X/DA3N (£16,000/£3200)

The S/PDIF output of the TL0X transport delivered our dithered 16-bit test signals at the mathematical accuracy expected – jitter was reduced to the 113psec baseline of the 16-bit data pattern while the fundamental clock accuracy was superb at ± 0.1 ppm. The performance of the DA3N DAC was rather less illustrative of the ES9008 converter than CEC's own analogue stage while the surprisingly high 1034psec jitter may well be reduced if the 4-wire 'Superlink' connection is used with its natural partner, the TL3N transport. Distortion is very low at 0.0005% at its maximum 3.45V (balanced) output, even if far lower still may be achieved with the ES9008. While this is largely academic, the true performance of ESS's silicon is revealed at -30dBfs where distortion falls to 0.00025%, reflecting the reduced load on CEC's analogue output [see Graph 1, below]. The 1.6kohm output impedance is also very high indeed, so the DA3N may exhibit some cable sensitivity.

Frequency response is determined by choice of digital filter, 'Flat' revealing the familiar impulse with pre- and post-ringing artefacts. The response is flat to -0.27dB/20kHz (44.1/48kFs), -1.8dB/45kHz (96kFs) and -4.0dB/90kHz (192kFs) with a stopband rejection >67dB. The 'Pulse' filter trades reduced ringing [see red traces, Graph 2] for a poorer >5.6dB alias rejection while the response rolls away to -3.3dB/20kHz, -4.9dB/45kHz and -7.2dB/90kHz respectively. Depending on choice of amplifier, 'Pulse' may better suit higher sample rate media. Readers are invited to view QC Suite test reports for CEC's TL0X transport and DA3N DAC by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion vs. 24-bit/48kHz digital signal level over a 120dB dynamic range. S/PDIF input (1kHz, red) and USB input (1kHz, black; 20kHz, blue)



ABOVE: Zoomed frequency and impulse responses, 1kHz-20kHz, comparing 'Flat' (black trace) versus 'Pulse' (red trace) digital filter modes

HI-FI NEWS SPECIFICATIONS

Maximum output level (Fixed, balanced)	3.45Vrms at 1.6kohm
A-wtd S/N Ratio (S/PDIF in / USB in)	111.4dB / 111.3dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.00050% / 0.00025%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0005% / 0.0035%
Frequency response (20Hz-20kHz)	+0.0dB to -0.27dB (-3.26dB)
Digital jitter (S/PDIF in / USB in)	1034psec / 1010psec
Resolution @ -100dB (S/PDIF / USB)	± 0.2 dB / ± 0.3 dB
Power consumption	16W
Dimensions (WHD, TL0X/DA3N)	300x158x317/435x100x296mm