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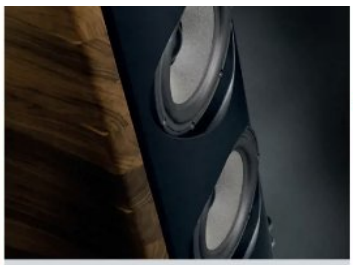

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CH Precision 10 Series
digital replay system

Alan Sircom

You know you've truly gone beyond audio's stratosphere when you need at least two explanations for what all the boxes do. This is the case with CH Precision's ultra-fi 10 Series digital replay system. And it's not just because there are so many boxes in that system.

This is because the modular design of the 10 Series digital platform offers significant flexibility and excellent upgradability, without ever needing to replace one product with its larger equivalent. CH Precision adopted this approach with the original 1 Series, and it continues to do so with the 10 Series. We will examine the technical details later; first, we need to provide some context.

Standards set

CH Precision's original, still-in-production 1 Series products not only set the standard for modular, upgradeable digital and analogue platforms but also reflect the 'no man left behind' ethos deeply rooted in the company's culture. The brand's first product was the D1 CD/SACD transport in 2010, followed shortly by the C1 DAC. Subsequently, the complete range of preamps, power amps, phono stages, power supplies, and clocks was introduced. Remarkably, only one of those original products—the A1 power amplifier—cannot be upgraded to the 2026 specification... and that's only because the more recent A1.5 version has a considerably larger chassis.

Why bring this up in relation to the brand's 10 Series? Because it shows that the company cares. Visiting the Swiss firm's factory is like walking into a component warehouse; it holds large quantities of parts for spares, repairs, and upgrades. Therefore, instead of investing in a system today only to find it is out of production in a few years, CH Precision is adopting a long-term approach. The same principle applies to the 10 Series.

Horizontal and vertical

Alongside the 'horizontal' upgrades (for example, when the D1 DAC becomes the D1.5 DAC), CH Precision excels in 'vertical' upgrades, and it's here that the naming conventions and number of CH Precision boxes can become a little 'hazy'.

However, two components remain consistent regardless of where the C10 begins or ends. These are the D10 Reference CD/SACD transport – along with its matching power supply – and the T10 Time Reference Clock. These three chassis can be added to any 10 Series digital system at any stage, but if you are starting from scratch, they will likely be included sooner rather than later. As for the rest, here goes...

The baseline is the 'C10 Reference DAC'. This is a two-box design, consisting of the main DAC with its own power supply. Unless powered on and the display is active, the only visual difference between the two from the front panel is that the C10 DAC has five buttons on its right front fascia. This is a stereo configuration in which the power supply supplies power to both the right and left channels.

The next step is to add a second power supply. This component is called the 'C10 Reference DAC Mono', with separate PSU units supplying power to both the left and right signal grounds.

Now, we move into Statement territory with the 'C10 Statement DAC'. Here, the digital and control functions are separated from the dedicated conversion/analogue stage, each housed in its own chassis with a separate PSU. This brings the total number of chassis to four.

No boxes are left behind in this upgrade process. The conversion and analogue stages are housed in one chassis (the C10 Master DAC), while the original unit (now called the C10 Conductor) contains digital and control functions. These two chassis (Master and Conductor) communicate via the proprietary CH-Link interface.

We're not finished yet, though. If you add an extra power supply box to the DAC, it becomes the 'C10 Statement DAC Mono'. From a wiring standpoint, this is identical to the C10 Statement DAC but includes an additional power supply for the Master DAC. This is the ultimate CH Precision digital front end; five CH Precision chassis house the DAC, plus two for the D10 Reference CD/SACD transport and its power supply, and one for the T10 Time Reference. Total box count: eight. Total weight: 194kg. Total price: £292,500!

TL; DR version: We're not in Kansas anymore… unless we're purchasing Kansas to create a listening room spacious enough to accommodate all those beautifully crafted Swiss boxes.

> Each time CH Precision makes a D10, one of those transports is lovingly dissected to find and use those impossible-to-find components.

The science bit

So, there are many boxes in the 10 Series digital platform. What does each of them do? Let's begin with the D10 Reference CD/SACD transport. This top loader is built to last a lifetime or two at least – one of the highlights of the last Munich High-End was watching this powered swing-arm lift, move, and lower like something out of a classic sci-fi movie.

Beneath that arm is the MORSE mechanism (Mechanically Optimised Reading & Stability Enhancement), which elevates the solidly-built 1.2kg transport of the company's D1.5 model to the next level. That next level weighs 13kg, features a lot of brass wrapped in aluminium, and sits on four Alpha Gel isolators. This helps to suppress vibration below 20Hz, an impressive and useful feat for a disc spinner.

As with any magneto-optical transport, it has to source a few components (such as the laser eye) elsewhere… and that's a testament to CH Precision's commitment. The source of those components has long since ceased production. No problem, says CH Precision, because it has a precisely temperature-controlled room full of complete OEM transport mechanisms. Each time CH Precision makes a D10, one of those transports is lovingly dissected to find and use those impossible-to-find components. Given the potential number of clients for the D10, there are enough transport mechanisms remaining to keep those players spinning discs for decades.

Mother/Daughter

The D10 is modular with a mother/daughter board design. It includes an optical and coaxial S/PDIF, AES, and CH Link »

output card as standard, with an option to add a second card. There is also a clock-sync board option that connects to its power supply via two multi-pin connectors.

Describing the C10's design in detail would fill most pages of this magazine, but simply put, it's the ultimate expression of a classic R-2R conversion system. CH Precision employs a dual-differential DSQ phase-array implementation built around multiple precision multi-bit DAC elements. It also utilises its proprietary PEtER (Polynomial Equations to Enhance Resolution) Upsampling Spline digital reconstruction/filtering; a 32-bit, fixed-point DSP system designed to prepare any type of digital data for 24-bit conversion.

The output stage then uses a gentle Bessel analogue filter instead of a high-order, aggressive design. This aims to reduce ultrasonic artifacts while preserving time-domain coherence and smooth group-delay behaviour. Since these artefacts are common criticisms of digital among analogue enthusiasts, this might be what record collectors refer to when praising the superior sound of vinyl, although 'vinyl-like' is definitely not in the CH Precision playbook.

Meticulous warehouse

The C10's chip choice also highlights CH Precision's careful approach to inventory management. R-2R circuits can be built either using large discrete resistor arrays or by employing the highly regarded Burr-Brown PCM1704 DAC chip. The issue with this chip is that Burr-Brown stopped manufacturing it in 2007 because of the high cost of laser-trimming the resistors on the silicon wafer.

CH Precision maintains a large stock of these chips in its temperature- and humidity-controlled warehouse because it needs many of them. The C10 has a total of 16 PCM1704 chips: four for the differential circuit in the positive phase, four for the same in the negative phase, and the same setup for the other channel.

The C10 converts incoming formats, including DSD, into the domain required by its proprietary conversion architecture. Since the C10's conversion already operates at PCM speeds natively, the circuit handles such files effortlessly.

This also offers a subtle advantage for the end user. CH Precision avoids a menu of conventional user-selectable digital filter voicings and instead adopts a single proprietary reconstruction strategy—PEtER Spline. Since going through filters can sometimes be like a trip to the optometrist ("which one's better, number one, or number two?"), removing all that is a welcome change. You still have global feedback options to experiment with, but that's more a 'set and forget' situation rather than an ongoing obsession.

Besides eventually splitting the DAC into two chassis, you can also specify the DAC with an additional HD input board, USB, streaming, and clock sync boards. It is complemented by a similarly sized power supply case, fed by two separate connectors for each channel from the start.

The T10 Time Reference is probably the easiest to explain. It's an ultra-stable oven-controlled crystal oscillator that provides a reliable 10MHz signal for CH and other digital brands. If that sounds similar to the company's T1 Time Reference, that's because they are essentially the same clock, just with a different faceplate depending on the series. And if you began with CH's 1-Series and wish to upgrade the clock, you can!

Many options

There's a lot to absorb and many options to consider. Fortunately, everything becomes clear when you sit back and listen. We followed a logical sequence starting with the D10/C10 Reference DAC, then added the T10, and gradually moved up to the top, playing through CH Precision's L10 preamp and M10 mono power amps into a pair of Wilson Audio Chronosonic XVX. This provided more than enough resolution to distinguish each step along the way and demonstrated just how high the standards are from the outset.

We tested both streaming and direct from the D10 transport. This was before companies like Aurender and Innuos announced CH Link connectivity, which enhances performance from local and online streamed sources, and the D10 really proved its quality. Listening to spinning discs quickly became the clear winner. In this context, there's no rival, and anyone considering top-tier disc replay… this is built to last and deliver textbook performance.

Starting with the C10 and a single power supply, you immediately understand why the brand has 'Precision' in its name. I noticed the word 'precise' appearing in the notes for each track I listened to. This was the recording in its purest form. Yet, it's not a performance that's 'nowhere to hide' or one that keeps you on the edge of your seat; nor an experience that eviscerates musically. It's like being in a recording session with a musicologist, but one more interested in 'show' rather than 'tell'. It didn't matter what you played; whether you played the most angular avant-garde pieces or refined dinner jazz, the results were the same: you grasped the music, the intent behind it, and what the engineers were doing. Nothing added or taken away.

» Climbing the ladder

As you ascend the CD Precision ladder, you come closer to achieving perfect sonic clarity. The soundstage becomes more precise (there's that word again), focused, and 'rooted'. There's also greater accuracy. Instruments feel more tangible and 'thereness'. You aren't in the studio, concert hall, or control room; you connect with the sound on a fundamental level.

A few listeners and I played some musical ping-pong, riffing off each track to find the next. And the musicology persisted. When you are jumping between Elvis, Duke Ellington, and Rizzo in a single session, and capturing the precise sound that allows each of them to perform at their best, you're onto something special.

Perhaps most notably, there is a distinct lack of audio exaggeration. There are no sensational dynamics or detailing that verge on being edgy. The staging is excellent but not overdone. The magic resides in the music, and the 10 Series digital platform's role is to transmit it without unnecessary adornment.

A precise system warrants a precise summary. CH Precision's 10 Series digital platform is a scalable system that begins at the highest level and consistently raises the already high standard. It is built not only to last for decades, but its inherently modular design – combined with CH Precision's reputation for keeping products current – ensures it will stay at the forefront of digital audio performance for a very long time.

We're living in a true golden age. A few years ago, a digital audio platform that cost as much as a good saloon car was almost unthinkable. Now we have ones that cost as much as a fleet of saloon cars. Each of these top-tier products offers something unique. And in CH Precision, the clue really is in the name; this is precision personified. +

Technical specifications

D10 Reference Transport

Type: Dual-chassis optical disc transport

Supported disc formats: CD, CD-R, CD-RW, MQA-CD: stereo PCM 16 bit / 44.1kHz (redbook). SACD: single layer and hybrid stereo, DSD 1 bit / 2.8224MHz (scarletbook)

Digital Output: 1x CH Link HD, 1x AES/EBU (XLR), 1x S/PDIF (RCA), 1x S/PDIF (TOSLINK) per Digital output board (1x standard)

Sampling rate: CH Link HD: PCM 44.1kHz to 88.2kHz, DSD 2.8224MHz. S/PDIF, AES/EBU: PCM 44.1kHz to 88.2kHz, DSD 2.8224MHz (DoP format)

Options: Additional digital output board, Clock sync board

Colour: Silver (standard), Anthracite or Champagne (option)

Dimensions (WxHxD): 44 x 44 x 13.3cm, both units (Transport + Power Supply)

Weight: 42kg (transport) + 23kg (power supply)

Price: £83,000, €100,000, $105,000

C10 Reference DAC

Type: Dual-chassis digital-to-analogue converter

Digital input: 1x CH Link HD, 1x AES/EBU (XLR), 1x S/PDIF (RCA), 1x S/PDIF (TOSLINK) per Digital input board (1x standard); 1x USB type B per USB input board (optional), 1x RJ-45 on Streaming HD input board (optional)

Options: Additional digital input HD board, USB audio board, Ethernet streaming HD board,; Clock sync board

Analogue Output: 1x Balanced XLR, 1x single-ended RCA per channel

Sampling rate: CH Link HD: PCM 44.1kHz to 768kHz, DSD 2.8224MHz to 22.5792MHz, S/PDIF, AES/EBU: PCM 44.1kHz to 192kHz, DSD 2.8224MHz (DoP format), Ethernet: PCM 44.1kHz to 768kHz, DSD 2.8224MHz to 22.5792MHz, USB: PCM 44.1kHz to 384kHz, DSD 2.8224MHz to 5.6448MHz (DoP format)

MQA: Full MQA decoding (unfolding and rendering) at 24bit/352.8-384kHz

File Format: PCM: WAV, AIFF, FLAC, ALAC, AAC and MP3. DSD: DSF and DFF

Services: Local: UpnP/DLNA, Roon ready, Audirvana compatible

Streaming: Qobuz connect, Tidal connect, Web radio

Bit depth: PCM 16 to 32 bit, DSD 1 bit

Total Harmonic Distortion + Noise: <0.003% (@ 20Hz-20kHz, A-weighted)

Bandwidth: DC to 155kHz (-3dB)

Signal-to-noise ratio (@ 20Hz-20kHz, A-weighted):

>121dB, High output level

>120dB, Mid output level

>117dB, Low output level

Noise (on XLR output):

<9µVRMS, High output level

<5µVRMS, Mid output level

<3µVRMS, Low output level

Colour: Silver (standard), Anthracite or Champagne (option)

Dimensions (WxHxD): 44 x 44 x 13.3cm, both units

Weight: 20kg (DAC, Conductor) + 23kg (power supply)

Price: C10 Reference DAC: £83,000, €100,000, $105,000

C10 Statement DAC: £154,000, €182,000, $187,000

C10 PSU: £32,500, €40,000, $39,500

T10 Time Reference

Type: Reference Clock

50Ω BNC input

Output: 6x BNC

Options: GPS synchronisation module

Impedance: 75Ω

Level: 500mVp-p or 1Vp-p, loaded with 75Ω

Waveform: Sine or Square wave

Colour: Silver (standard), Anthracite or Champagne (option)

Dimensions (WxHxD): 44 x 44 x 13.3cm

Weight: 20kg

Price: £23,000, €29,500, $27,500

Manufacturer CH Precision

ch-precision.com

> If a prototype does not meet expectations, it goes back to the measurement stage until an explanation is found.

measure all its aspects and get the most out of it. Like all manufacturers, we use scopes and audio analyzers, but since 2021, we have also had a dedicated EMI tent with an RF analyzer. The time spent at this stage is never wasted, as it helps prevent issues from arising later.

Then come the listening sessions, which normally validate the previous steps. If a prototype does not meet expectations, it goes back to the measurement stage until an explanation is found.

Another important step is to build a pre-series batch, in which we ensure that all units are perfectly consistent in their measurements. Only after all these steps does real production start.

As a side story, a real challenge between 2021 and 2024 was finding genuine electronic parts, as lead times were horrendous. Luckily, we were advised in early 2020 to stock components, which we did extensively, and that helped a lot.

What's next for CH Precision?

Now the 10 Series is complete, with a digital front end, a phono preamplifier, a line preamplifier, and a power amplifier. In line with our brand philosophy, all these products are modular and highly configurable via our dedicated apps or the user interface. Since these features can be added either at the time of purchase or later as the customer's needs change, our products offer a high degree of long-term flexibility.

We are also committed to a clear upgrade path that supports our clients' needs and growing ambitions.

On top of that, partnerships have now been established with audio server manufacturers that are about to release products compatible with our CH Link interface.

There are plenty of ongoing projects in our lab. Some of them are pure R&D trials, some are more fundamental research, while others are more focused on downscaling what has been learned from the 10 Series. Usually, product development takes three years from initial idea to release, and we plan to launch new products in 2026. +

Contact details

Manufacturer

CH Precision

ch-precision.com