

hi-fi news

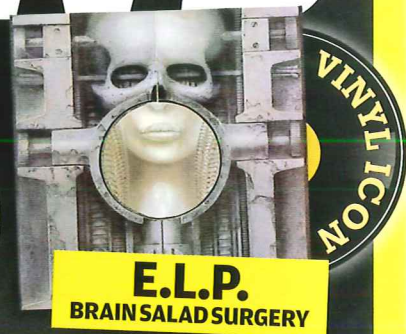
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& Record Review

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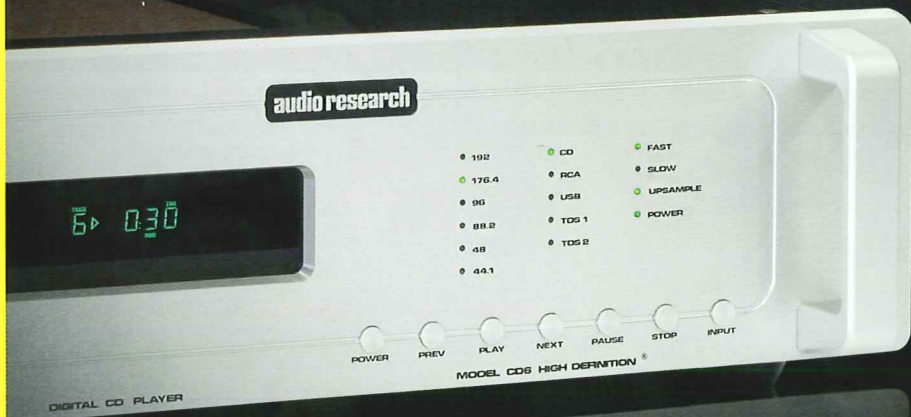
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GROUP TEST

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Budget Esoterica
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'You can't go to Garrard now!'
Vintage restorers, p14

Audio Research CD6
CD player/DAC - but no tubes!

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Audio Research CD6

Audio Research replaces the solid-state CD5 CD player/DAC with the CD6, and it just may be the company's most unlikely digital bargain – especially if you use USB
 Review: **Ken Kessler** Lab: **Paul Miller**

Having reviewed the Audio Research REF9 CD player/DAC [HFN May '13], assessing the new CD6 was, as the line goes, 'déjà vu all over again'. Aside from the word 'Reference' on the CD9's fascia, and the addition of an IR input on the back of the CD6, the latter is externally identical to its £4000-dearer forebear. The other, crucial, difference is an absence of valves.

Producing a solid-state version of a valve CD player is nothing new for the Minnesota-based company. I will admit that my initial reaction was 'Why bother?', the £4000 savings notwithstanding, because for many, 'Audio Research' means valves. But one mustn't ignore non-sonic niceties including brand loyalty, and that someone with an all-ARC system might prefer matching components, right down to the handles. There's another bonus that hadn't occurred to me: the CD6 can be sited in a cabinet or other enclosure with doors, whereas the CD9 needs ventilation.

Whatever your motivation for considering – or ARC's for manufacturing – a solid-state player/DAC, the not-inconsiderable price difference, allied to the distinct sonic nature of the CD6 ensure that the two are not quite mutually exclusive. So, while this could have been a boilerplate review in which I just changed 'CD9' to 'CD6' throughout my earlier article, that would apply mainly to its physical description. From there on, they are subtly different, like two vintages of the same wine. (Anyway, my notes from last year's review of the REFCD9 were not totally applicable because then I was using Sophia 3s. The Alexias add a lot more down below, so the bass is not comparable, and the soundstage is bigger.)

Both players confront the current need for a plethora of digital inputs and sampling rates with a full complement. In some ways, it seems as if the CD playing

element is a public service, because downloads, streaming, *et al*, are improving, as 'high res' starts to mean something: the use of this appended to a computer is not as 'shock! horror!' an intrusion as it once might have seemed to purists.

SELECTABLE FILTERS

CD6's four digital inputs comprise asynchronous USB 2.0 (ARC supplies a CD with the drivers for Windows and Mac), coaxial RCA, and Toslink – I tried the latter with transports from Marantz and Musical Fidelity. Although all inputs offer 192kHz/24-bit resolution, certain settings are proscribed, yet there is ample freedom in what rates you opt to use with each source, for fine-tuning the sound.

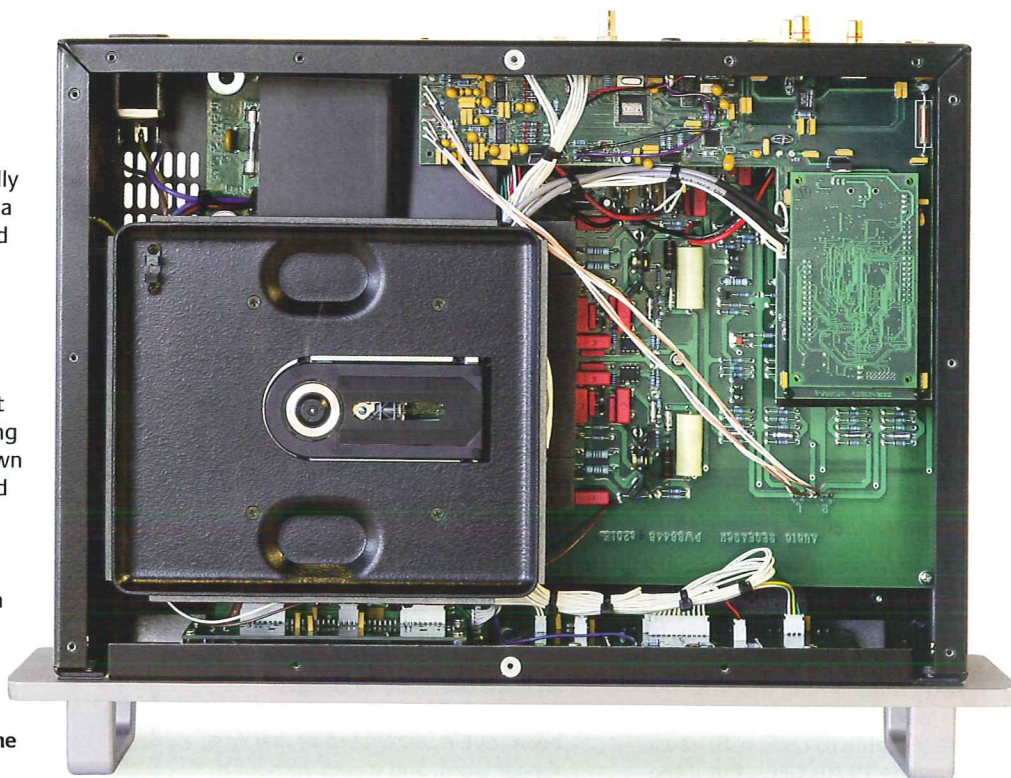
Another boon, for those who feel somehow 'helpless' with digital playback systems that do not allow fine-tuning, are selectable 'Fast' and 'Slow' digital filters, the former being a standard brickwall type.

Selecting 'Slow' accesses 'a low-order filter with reduced ringing (lower time domain distortion) but higher conventional and aliasing distortions', according to editor PM, who also proffered that, 'this option is better suited to 96kHz+ digital inputs'.

For CD playback, ARC has fitted the Philips PRO2R transport, which they say is 'still the best dedicated CD mechanism available'. Access is through a sliding door on the top, and the CD is held in place by a magnetic puck. The player won't operate if this door is open, so no fears of flying CDs.

Enjoying trickle-down technology from the REF DAC and REF CD9, the CD6 employs quad 24-bit DACs running in mono mode, with dual master oscillators. One DAC handles 44.1/88.2/176.4kHz sample rates, the other 48/96/192kHz, indicated by green LEDs on the front panel – as are the inputs and the selected digital filters.

As noted, the front panel is identical to the REF CD9's fascia, with a dimmable



RIGHT: Philips' CD mechanism is configured here as a top-loader. The digital processing is handled via daughter board (far right) while the DAC PCB is hard up against the rear panel



display on the left side; the display is just for the CD. It shows time in track elapsed, CD elapsed and CD remaining. On the right side there are three vertical LED displays indicating the aforementioned sample rates, the middle column for input chosen, with CD at the top, and a column extreme right for Fast-Slow-Upsample-Power.

COMPARISONS VIA THE REMOTE

Below the LEDs are seven buttons for Power, Previous, Play, Next, Pause, Stop and Input. More extensive control can be found on the all-metal remote, which takes care of all the button functions as well as scrolling through sources and sample rates, filter selection, numeric entry for programming and display dimming. Thanks to the remote, you can A/B settings from the listening seat. As the filter and sampling rate differences are audible but subtle, this facility is useful.

Aside from the IR input, the back, too, is a direct lift from the REF CD9. The four digital inputs are accompanied by AES/EBU and BNC digital outputs; I would have liked Toslink, too. ARC supplies a BNC-to-RCA adapter for use with coaxial 75ohm cables. Analogue outputs are RCA phono and

balanced XLR. Also at the back is an IEC connector for the mains.

Paul Miller explained that 44.1kHz (as in 'red book' CDs) and 88.2kHz are upsampled to 174.6kHz while 48kHz and 96kHz are upsampled to 192kHz. When 'Upsample' is switched off, the incoming rate is maintained, so a CD stays at 44.1kHz, 96kHz sources stay at 96kHz. What this does for the user is allow one to hear the differences rather than hear only a default value, *eg*, machines that upsample regardless.

I have my reference system set up with two amplifiers of differing character: the Audio Research REF75 and the D'Agostino Momentum Stereo, both fed by the Audio Research REF5SE preamplifier, and taking turns driving Wilson Alexias. What was revealed with no uncertainty was that the CD6's purported ability to tame a lush system proved to be a boon. With the D'Agostino, the sound errs toward the clinical; with the REF75, it's almost old-school tube. I experimented with the settings and found

ABOVE: Top-loading allows plenty of real estate for a conventional display and row of transport controls. A full 15 LEDs show sampling rate, chosen input and digital filter choices (as CD9)

that they even had their use with different CDs, and certainly with the music fed by computer. *She & Him, Volume One*

[Domino DS009CDS] is a sweet-sounding, gentle set featuring the characterful voice of Zoëy Deschanel: going from CD to download, and varying the upsampling could rob her voice of a

'Tweakers will have a field day with the various settings options'

certain liquid character, or turn it sibilant. Tweakers will have a field day with the various settings.

MAKES YOUR HAIR STAND UP

What we have here are two components in one, and I dealt with the CD6 first as a CD player. While obviously not quite as rich-sounding (in the tube sense) as the REF CD9, neither was it screechy solid-state in its overall behaviour. But then, what is, circa 2014? It was my first indication that this is closer to the CD9 than just missing valves might suggest.

It is important from the outset to appreciate this, because it is all too easy to fall into the bad-old-days contrempts of tube-vs-tranny absolutes, of the extremism of the two 'camps' when it was necessary because valves were facing extinction. I think we can all agree that we're way beyond the era that had Naim at one extreme and vintage Quad IIs at the other.

I've been working my way through *Elvis - The Movie Soundtracks* [RCA] Sony Music 88430 16642], a 20CD box containing all of the songs from his feature films. Admittedly, they turn risible after *Roustabout*, as Col Parker ensured that

SUBTLE CHANGES

If you still need a convincing demo of the sound of tubes vs transistors, this does the trick. I was reminded of Tim De Paravicini's first-ever Yoshino amplifiers, offered in valve and transistor editions of the same fundamental circuit, and Musical Fidelity's DM25 Transport/DAC with selectable solid-state and valve output stages. I'm surprised that we still engage in such debates, the two technologies living side-by-side, often within the same system. Wise heads always opt for the best sound and if it means mixing the two, so be it. What this player does is offer the opportunity in an Audio Research dealer's showroom, if there's a CD9 in stock, to hear the two side-by-side. Pedro, Absolute Sounds' expert installer, has confirmed that the CD6 can be used to change the character of a system's overall sound if it errs too far on the side of the warm, lush or romantic. To suggest, however, that this is cold water poured to dampen one's ardour, is abuse of the analogy: the differences are audible - but subtle.

CD PLAYER/DAC

AUDIO RESEARCH CD6



ABOVE: Balanced (XLR) and single-ended (RCA) analogue outputs are joined by USB, optical and coaxial S/PDIF and one AES/EBU digital input. Digital outs are offered too

his charge was never allowed to flourish musically, all but inflicting career suicide after The Beatles became his biggest-ever threat. That aside, there are fine moments even from Presley's daftest appearances.

It was the 'redneck' slap bass on 'Return To Sender' from *Girls! Girls! Girls!* that made the hairs stand up, and which decreed that, tranny or tube, ARC's CD players are just gorgeous. The snap was precise, authentic, just what I'd heard at a live gig the week before. It didn't even need all the extension that the Alexias provided, because C&W-style electric bass ain't hip-hop bass. What it did do was flow, and maintain a level of substance and mass that proved irresistible.

STICKING WITH THE CD

It is, of course, a perfect production regardless, with instrumentation courtesy of the finest studio denizens of the era, with stunning background vocals, peerless production and Elvis in top form. His voice, via the CD6, was rich, mellifluous and with every nuance easily appreciated. The CD6 swings, lilts and lopes like a double-jointed hipster. And when the track goes briefly *a cappella* at 1m 33s, you sense air, space and, well, Elvis.

I then played the same through the USB input via two different levels of download. I hope the audio gods forgive me for saying this – and Editor Miller's learned discourse on 'truncated low-level resolution with USB in the CD6' doesn't quite trigger a light bulb of realisation over my head – the playback was 'OK' but nothing that would make me give up physical music carriers. CD simply sounded more visceral and convincing, USB a bit indistinct and grainy.

Because some of those early 1960s Elvis recordings were so clean and lean as to now merit 'audiophile' status, and because their origins are gloriously analogue, I turned to Caravan's latest, the just-released *Paradise Filter* [Caravan Records CPGJM1] for its complexity and modernity. The title track is a wash of ethereal textures that will charm the faithful, as prog-rocky as one would anticipate. If ever a band created 'soundscapes', it is Caravan. The CD6 does its Capability Brown schtick with aplomb.

'The Paradise Filter' elicits analogies of a fabric-like nature, gentle vocals, sweeping keyboards – then an interlude of tearing guitar, wispy flute and solid percussion. It's a challenge that the CD6 resolves in (can I really be saying this?) a most analogue fashion. The spread is seamless from side to side, nothing jars, it all coalesces. In fact, I was reminded of the CD9, which remains one of the finest-sounding CD players I've ever used. But here's a four-grand price cut – and all you lose is a hint of warmth. ☺

HI-FI NEWS VERDICT

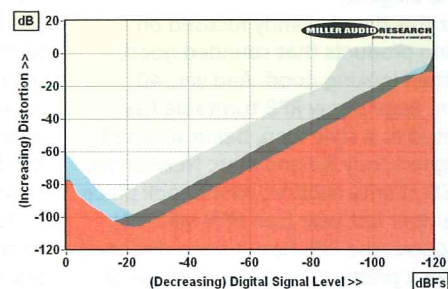
Whatever internal changes exist beside the removal of the valves, this really is a 'poor man's REF CD9' – 'poor' being a relative term. The main sonic differences are a sharper top-end, which can be used to tighten the sound of a soft system (eg, one using all tubes, or vintage kit), followed by a slight hygienic thinness that continues through the mid-band. That aside, I could live with this honey forever.

Sound Quality: 88%

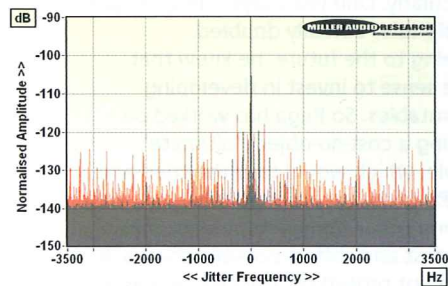


Once ARC's upsampling mode is engaged it over-rides the 'Fast' and 'Slow' filter modes (unless the input is already at 192kHz) and generally improves performance. The responses stretch out to -0.6dB/20kHz, -3.1dB/45kHz (96kHz media) and -6dB/90kHz (Fast filter) or -9.8dB/90kHz (Slow filter) with 192kHz media. Distortion is slightly lower in upsampled mode (0.075% vs. 0.093% at 20kHz/0dBFS) although there's little effect on jitter (165psec with CD, 180psec with 24-bit/48kHz data over S/PDIF and a far cleaner 40psec over USB – see Graph 2 below). The peak 6.4V balanced output is higher than the typical 4V but the 110-111dB A-wtd S/N ratio is no wider. In fact our CD6 exhibited rather more PSU noise on its right channel, regardless of input, limiting its S/N to 105dB here.

Possibly due to the high output levels stressing its analogue stage, distortion is higher than might be expected from the PCM1792 DACs at 0.022-0.0035% over the top 10dB of the player's dynamic range, but this falls to a minimum of 0.0004% at -20dBFS (1kHz) and 0.0007% (20kHz). This trend is clear enough from Graph 1, below, as is the +15dB increase in distortion at 20kHz via the USB input [grey trace, Graph 1]. We've seen this before with ARC's USB mode [REF CD9, *HFN* May '13] and the CD6 follows the same trend right down to -90dBFS whereupon the signal is truncated (a limitation of the USB driver), squeezing its resolution to about 15-bits. This may also explain why the jitter spectrum looks so much cleaner... Readers may download full QC Suite test reports for the ARC CD6's CD, S/PDIF and USB performance by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: THD vs decreasing digital level at 24-bit/48kHz (1kHz, S/PDIF = red; 20kHz, USB = grey) vs 16-bit CD (1kHz = black, 20kHz = blue)



ABOVE: High resolution jitter plots, 24-bit/48kHz inputs (red = S/PDIF, 180psec; black = USB, 40psec)

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	6.42Vrms at 242ohm
A-wtd S/N Ratio (CD / S/PDIF in / USB in)	109.5dB/110.2dB/110.9dB
Distortion (1kHz, 0dBFS/-30dBFS)	0.022% / 0.00036%
Distortion & Noise (20kHz, 0dBFS/-30dBFS)	0.074% / 0.00077%
Freq. resp. (20Hz-20kHz Fast/Slow filter)	+0.0dB to -0.65dB
Digital jitter (CD / S/PDIF in / USB in)	165psec / 180psec / 40psec
Resolution @ -100dB (CD / S/PDIF input)	±0.1dB / ±0.1dB
Power consumption	20W
Dimensions (WHD)	480x134x310mm