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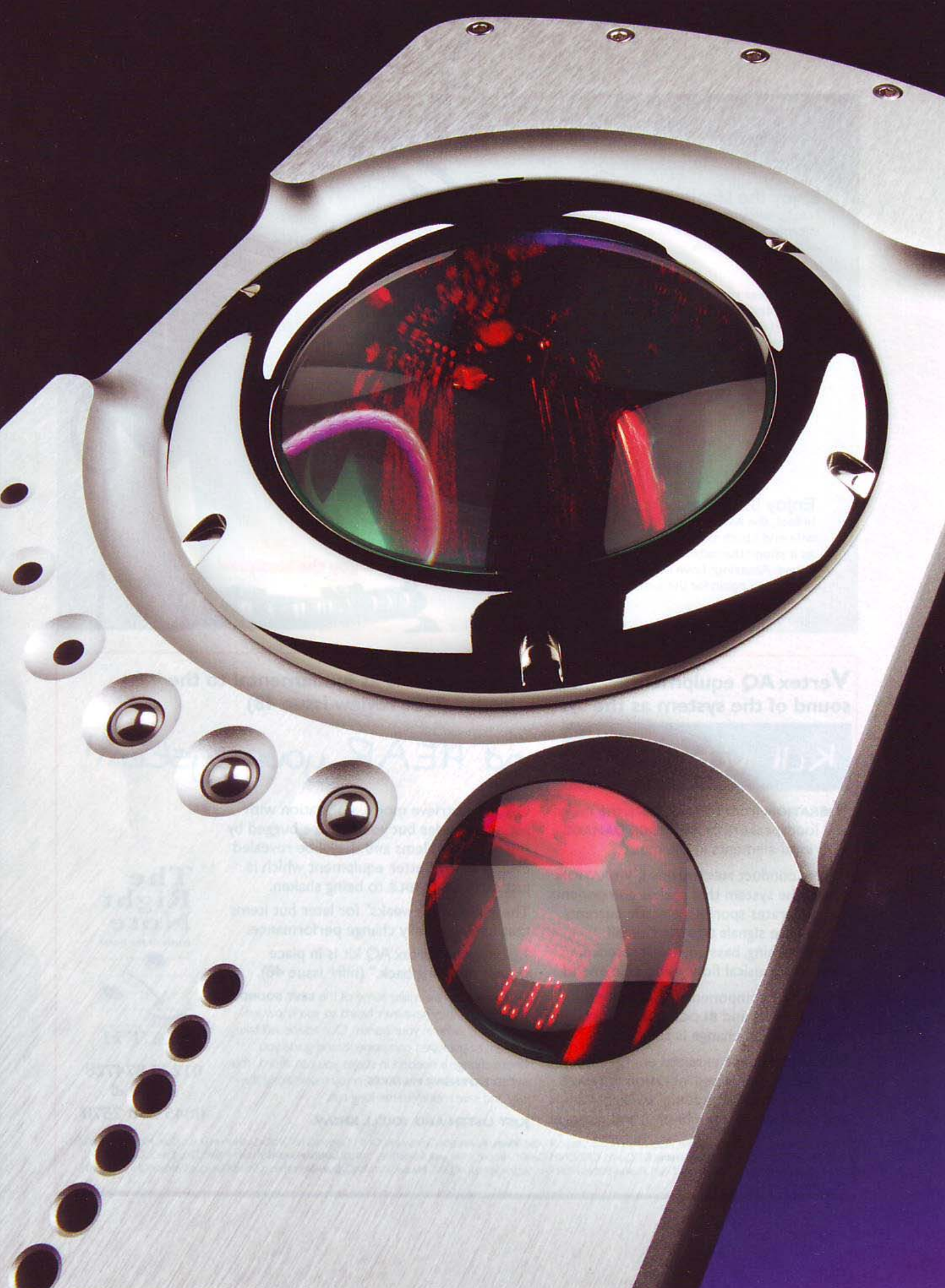
### DACs That Deliver

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# All Change!

## The Chord QBD-76 DAC

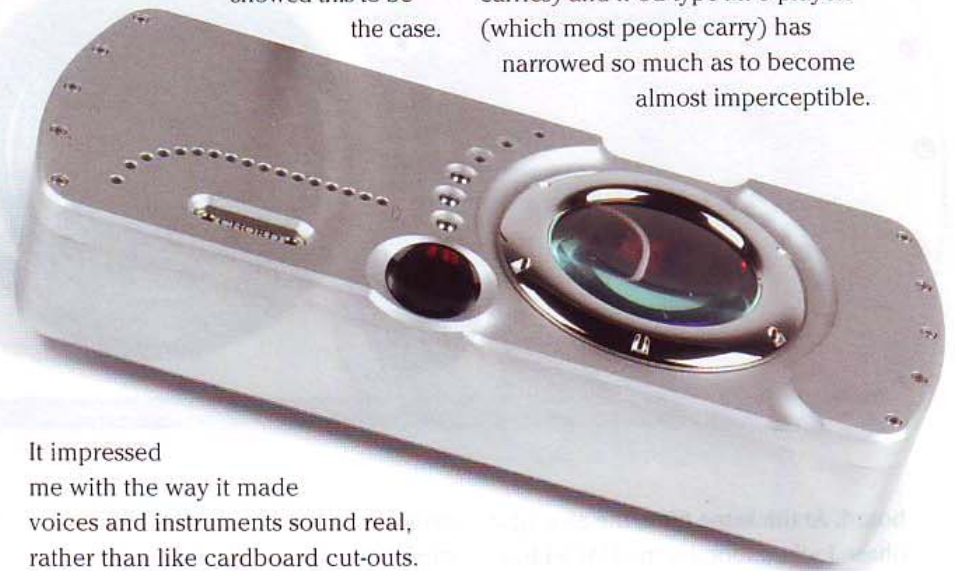
by Jimmy Hughes

Readers with long memories may remember my original review of Chord's DAC-64 in these pages – way back in November 2001. I was profoundly impressed. For me, it was a landmark product – the missing link – the component that finally confirmed CD had come of age. I really thought it was that good. Up until the DAC-64's arrival, every time a new CD player or DAC came my way, I always asked – is this the component that will finally make CD sound equal to good analogue? Always, the answer was – no. Then I experienced the DAC-64, and at last felt able to give an affirmative answer.

Since the original DAC-64, there's been a Mk II version with twin digital inputs to enable it to work with Chord's Blu CD transport. I had the pleasure of reviewing that combination, and found it produced fantastic results – delivering the sort of big, dimensional soundstage you rarely encounter with CD. The DAC 64's 'secret' was its exceptional timing accuracy and the elimination of jitter. As timing in the digital domain improves, the music sounds more detailed and articulate, while at the same time becoming subtler and more finely shaded. Deep bass performance improves too.

As we all know, CD (for all its superficial sharpness and immediacy) can often sound rather 'flat' and lacking in presence. There's a lack of dimensionality. CD often produces a uniform range of tone colours that lack subtlety and range. During climaxes, the music gets loud

but doesn't really expand to fill the room. Originally, most of us put this down to the limitations of 16bit and 44.1kHz sampling. But, LPs cut from digital master tapes have a degree of 'dimensionality' and far greater subtlety than CD. So maybe the reason lay elsewhere. Perhaps CD's limitations were not to do with its spec. The DAC-64 showed this to be the case.



It impressed me with the way it made voices and instruments sound real, rather than like cardboard cut-outs. Suddenly, there seemed to be a degree of individuality and separation that had never been apparent before. Even some early CDs that hadn't been mastered properly were transformed.

However, no product goes on forever. And after a decade or so in production, Chord finally decided to 'retire' the DAC-64, bringing out the QBD-76 to replace it, QBD standing for Quarter Back DAC. The new product might be the same size and shape as the DAC-64, employing the same, chunky milled from solid casework as the rest of the Chorale series, but it's entirely different inside, offers

a number of new features, and is said to give improved performance. Perhaps the most newsworthy feature is the ability to receive music from A2DP Bluetooth mobile phones via a removable aerial on the back of the unit. Why? Because with increasing digital convergence, the gap between mobile phones (which everybody carries) and iPod type MP3 players (which most people carry) has narrowed so much as to become almost imperceptible.

So the iPhone is a phone, a PDA and a music player – along with an increasing number of the competition. Use a QBD-76 in your system and you (or anyone visiting the house) can route music directly from their portable player/phone through the main hi-fi. Which opens a world of opportunity, not just for continuity between home and portable music listening, but for kids and their friends too, finally engaging that elusive next generation of hi-fi listeners... The changes to the internal technology are just as profound. The original DAC-64 used four gate array chips ▶



► to provide 1024 filter taps. Increase in component performance across the intervening years means that the QBD-76 can now offer 4096 taps, with 8th order noise shaping and 2608 times over-sampling. Whereas the rear mounted pulse array in the DAC-64 constituted a single entity, the new design provides each of the four chips with its own power supply and ground plane, separating each phase, left and right to improve intermodulation distortion – literally quartering the back section of the circuit

surprisingly, there's also a USB input to interface with PC or server based sources. Add the changes in layout to the DAC's increased ability to cope with a wider range of sources and that name starts to make sense.

Initially, I hooked the QBD-76 to Arcam's DV135 CD/SACD player. There was an immediate improvement. The sound was bigger and more three-dimensional, sounding slightly louder and more dynamic. The music had greater presence and fine detail, with increased

there was a difference between Max buffer and switching the buffer off, but it wasn't huge. However, when I tried the same comparison using a Bluetooth mobile phone, the improvement was absolutely massive. Indeed, between Low and Max, the sound went from distinctly 'lo-fi', to extremely good. Using the phone with the buffer off, the music sounded a bit diffuse and messy, with no bass. Setting the buffer to Min improved things, but set to Max the sound was transformed. All of a sudden there was a bass line, and a soundstage with depth, space, and dimensionality.

All in all it was a remarkable improvement, making the phone a credible source component

Because of the QBD-76's buffer, it should have a distinct sonic advantage over other DACs offering Bluetooth facilities. No matter

how good the DAC is, if the source is full of jitter you'll hear it as poor sound. Clean up the jitter and the sound will be much closer to its original pristine state. For some reason, music from the mobile phone sounded quieter than CD. I didn't switch all my listening to the portable phone, but those tracks I played sounded very listenable providing you had the buffer set to maximum. It might not sound quite as good as CD at its best, but it wasn't too far off.

The four second buffer on the QBD-76 makes your choice of CD transport and connecting cable less critical, as any jitter issues are largely dealt with. However, a ►



board. At the same time, the analogue phase locked loop on the DAC64 has been replaced by an all-digital design, further reducing jitter. These changes have required an upgrade in the PCB from a four to a six-layer design, allowing the use of interleaving ground planes, which has had a critical impact on both technical and sonic performance. All of which amounts to a pretty thorough overhaul of the circuit components and topology.

Practically speaking, the optical, BNC and AES/EBU inputs are all now doubled up and able to operate individually, or as twin inputs with a transport like the Blu. Not

projection. Just like the DAC-64, there's the option of a two-stage 'buffer' that re-clocks the digital signal to reduce jitter. Set to Max, this results in a delay of about four seconds before you hear the music. Set to Min, this delay reduces to about one second. I found the four second setting gave the cleanest sound.

However, any difference you hear depends on the quality of your CD transport and the cable connecting it to the DAC. If you compared the Max buffer setting with Off, and found little or no difference, that indicates your transport has very low jitter. If the difference is big, it demonstrates that jitter is high. With the Arcam,



► dedicated transport like Chord's Blu (which actually performs best with the buffer switched off) provides a further improvement. The DAC is able to play a wide range of digital media, being able to sample at 44.1, 48, 88.2, 96, 176, and 192kHz. As noted above, there are two unbalanced coaxial digital inputs using BNC plugs, an optical input, plus a balanced digital input via XLR and the USB, giving plenty of connectivity options. Analogue outputs are unbalanced (3v) and balanced (6v) which are, if anything, a little too healthy for some systems. For the most part I listened via the unbalanced outputs, but if your amplifier has balanced inputs you'll get a significant improvement by using the QBD-76's balanced XLR outputs.

The sound will be bigger and more dynamic, yet subtler too, with greater finesse and delicacy.

The original DAC-64 had a phase-inverted analogue output – something that concerned a few users. The new QBD-76 offers a choice of 'correct' or reversed absolute phase. However, I have to say I preferred the sound with phase reversed. The sound has greater depth and space, and seems more coherent somehow.

Chord claim the new QBD-76 sounds better than the DAC-64. I still have my original Mk I DAC-64, albeit without firmware updates. Comparing the two, I definitely felt the QBD-76 sounded sweeter, cleaner, and more detailed. There was no loss of detail or presence, yet the overall presentation was much nicer. Some listeners found the original DAC-64 a touch cold and 'hard' tonally. While the QBD-76 is recognisably from the same stock, it definitely

sounds sweeter and warmer. There's no loss of clarity or bite, but the music has an extra degree of spaciousness and warmth that wasn't quite so apparent with the DAC-64. The QBD-76 produces a more fluid musical presentation; it sounds effortless and relaxed, despite being more tactile than the DAC-64. Comparing it to the Arcam on a recording of a string quartet, there was a heightened sense of bows

effectively future proof it as well as making it an upgrade that (almost) can't fail. Your CD player would have to be pretty amazing not to benefit from the QBD-76. The ability to use it with a Bluetooth mobile phone is very useful and will doubtless



get the headlines, a harbinger of things to come. But it in the end it's the most basic of hi-fi abilities, the fundamental sound quality that really impressed me. ►+

being drawn across strings – a greater feeling of musical tension.

While the Arcam sounded excellent, listening via the QBD-76 you were more in touch with the music. It felt as though subtle changes of tone colour and dynamics were more apparent. Even when the music was quiet with not much happening, the playing had real tension and presence. The Arcam felt slightly bland in comparison.

The QBD-76 offers exceptionally deep powerful bass. You notice this on music, but also on low frequency noise (traffic rumble) which has a very 'real' quality. On several discs, I heard noises that almost sounded as though they were coming from outside the room. I never realised how much LF air my speakers could move!

The QBD-76 left me deeply impressed. Even more so than the original DAC-64, its carefully executed engineering and increased versatility

#### TECHNICAL SPECIFICATIONS

Type:	Standalone DAC
Digital Inputs:	1x BNC 2x optical 2x AES/EBU XLR 1x USB 1x Bluetooth
Sample Rates Accepted:	44.1 – 192kHz
Analogue Outputs:	1pr single-ended RCA/phono 1pr balanced XLR
Output Levels:	3V (single-ended) 6V (balanced)
Dimensions (WxHxD):	338 x 60 x 145mm
Weight:	7kg
Finishes:	Black or silver, brushed or polished
Price:	From £2990

#### Manufacturer:

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Net. [www.chordelectronics.co.uk](http://www.chordelectronics.co.uk)