

Prepare to be astonished

by Paul Seydor / Photos by Phil Kline

NAD C 328 HYBRID DIGITAL DAC AMPLIFIER AND C 546BEE CD PLAYER

FEW THINGS IN HIGH-END AUDIO GIVE ME GREATER PLEASURE OR TEMPT ME TO MORE PRIDE IN OUR PURSUIT OF THE ABSOLUTE SOUND THAN AUDIO EQUIPMENT THAT IS BOTH SANELY PRICED AND HIGH PERFORMANCE.

UNDER REVIEW HERE ARE TWO COMPONENTS, ECONOMICALLY PRICED YET BOASTING EXCELLENT, EVEN IN ONE AREA QUITE OUTSTANDING, PERFORMANCE THAT SHOULD PUT PAID TO REPEATED COMPLAINTS THAT TAS CARES ONLY ABOUT PRODUCTS PRICED FOR CEOS, OIL BARONS, AND HEDGE-FUND MANAGERS. THESE ARE A HYBRID DIGITAL INTEGRATED AMP AND A COMPACT DISC PLAYER FROM NAD, A COMPANY THAT HAS FEW EQUALS AND NO SUPERIORS WHEN IT COMES TO VALUE-DRIVEN PRODUCTS WITH MINIMAL COMPROMISE.

Ten years ago I reviewed NAD's C 326BEE integrated amplifier and judged it not only a superb bargain but also a superb amplifier, period. It was a traditional design in the good sense, offering a built-in phono stage, several line-level inputs, balance, bass, and treble controls, a headphone amp, and 50 watts per channel of NAD power, which means that it was capable of rather large short-term voltage swings, which in turn translated into a pretty impressive dynamic range that belied its nominal power. This unit, I am happy to discover, remains in the NAD line, albeit with a V2 designation, and is still retailing for \$549.

As its rather lengthy moniker suggests, the C 328, also priced at \$549, is primarily addressed to audiophiles who are dedicated to all things digital, especially streaming. Despite its plain-Jane fascia and slim chassis—the C 546BEE CD player (see sidebar) is actually larger than the C 328—it offers a lot of connectivity and sophisticated circuitry with considerable engineering expertise behind them. There are three pairs of analog inputs: one curiously labeled “TV”; another “Streaming,” evidently meant for the analog outputs of a music server, though both will accept any line-level analog signal; and the third for a built-in moving-magnet phono stage.

The remaining four inputs are digital: two coaxial and two optical, plus an antenna that offers Bluetooth connectivity for any suitably equipped device, including cellphones, tablets, and personal computers. The Bluetooth connection is not hi-res, but as I currently have no tuner it was nice to be able to pull up *All Things Considered*, *TED Talks*, *Fresh Air*, *Film Week*, and other NPR shows in the music room. Speaker terminals are five-way binding posts that, while hardly heavy-duty, are far more substantial than what is typical at this price point. There is also an output for a subwoofer.

Most previous NAD integrated amplifiers, including the C 326BEE, allow the amp and preamp sections to be operated independently and have balance, bass, and treble controls. These features are banished from the C 328—the loss of the balance control especially egregious (though to judge from its absence on many control units all up and down the price spectrum, this seems to bother me a lot more than it does many audiophiles). But the C 328 does sport a button called “bass boost.” NAD's designers figured that most customers for an amplifier of this price would likely be using it with speakers that don't exactly

plumb the depths. Engaging this button boosts bass about 6–7dB at 80Hz, adding some pleasing oomph while rolling off below that frequency so as not to tax either the amplifier or the speakers with really deep bass. Though I have no use for bass boost with my speakers, the feature did provide effective loudness compensation for low-level listening.

Consistent with its digital orientation, the C 328 also contains a built-in DAC that can accept a signal from any digital component with a coaxial or optical port, including televisions, CD players, and music servers. Greg Stidsen, NAD's Director of Technology and Product Planning, told me that the Cirrus Logic CS42528 DAC constitutes the heart of the DAC section: an eight-channel circuit that NAD implements in a “dual-differential configuration, whereby the extra six-channels are used for noise reduction and improving linearity.” Among other things, claims Stidsen, NAD is able to get approximately 10dB more dynamic range out of the Cirrus than other manufacturers who use it. Although I did most of my evaluations using the analog inputs, if your CD player is a few or more years old and has a digital output, there's a good chance you'll get better reproduction running it through the C 328's DAC



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(see sidebar for more on this). And if you listen to your television through your stereo, as I do, and if the set has an optical output, play it through the onboard DAC for better sound as well. It should be noted that all the digital inputs are 24/192 capable.

At just under 11 pounds, the C 328 is so compact and lightweight that when I first opened the box I wondered if NAD hadn't mistakenly sent me something other than an amplifier. The weight alone clues you that this is Class D, but that's not the whole story. NAD calls it a hybrid amp because it licenses UcD technology from the Dutch company Hypex Electronics in such a way that the performance is claimed to come very close to that of the nCore technology, also licensed from Hypex, in NAD's flagship amplifier, the Masters Series M22 (see Neil Gader's review). While the Hypex technology is licensed, the output stage, designed in-house by NAD, uses different FETs and reconstruction filters for higher current levels. Rated at 50 watts per channel, the design does not permit the implementation of NAD's time-proven soft-clipping circuit, by which its conventional amps could squeeze out somewhat more dynamic range (by in effect relaxing power-supply regulation and allowing the amplifier to distort a bit more), but Stidsen says the power supply can generate 100 watts if needed and will clip gracefully. The circuit is load invariant (hence its identical power output into four or eight ohms), and claimed to be capable of better than Class AB performance (with much lower power consumption) because the eight active discrete devices greatly reduce crossover distortion.

The principal *bête noire* of Class D amplifiers is the 500kHz switching frequency, which must be eliminated with a reconstruction filter. According to Stidsen, “Much like the output transformer of a tube amplifier, it can limit damping factor and cause uneven frequency response based on interaction with the impedance of the speaker being driven.” NAD locates the filter inside the feedback loop, which “gives a very high damping factor and flat response into different impedances.” More on this anon.

Of course, little of this new technology would matter if the performance didn't justify it. Before I get to that, allow me to point out that I evaluated this unit exclusively in the kind of high-end system it would almost certainly never be used with in the so-called real world. The reference electronics consist of a Pass Labs X150.8 (sliding Class A, 150 watts per channel) and a Quad Stereo current dumper (140 watts per channel), the preamplifier my McIntosh C52, all feeding my reference loudspeakers, Harbeth Monitor 40.2 (\$15k/pair) and Quad 2805

ESLs (\$12k/pair). While neither is particularly difficult to drive, the Harbeth in fact famously benign, both are still of no more than moderate efficiency yet extremely high in resolution.

That said, I find myself in something of the same quandary as when I recently reviewed the relatively inexpensive Audio-Technica moving-magnet pickups, i.e., wondering whether I should restrain my enthusiasm if only for the sake of my credibility with the boys in the more-expensive-is-always-better club. But the truth must out: The C 328 astonished me the day I first turned it on, and astonished I remained day in, day out during the evaluation period right up to the present moment when I am writing this, not long after being bowled over by Andris Nelsons' spectacular new recording of Shostakovich's gigantic Fourth Symphony [DG, CD]. This sliver of an amplifier is super clean, exceptionally transparent, highly detailed, extremely low in perceived distortion and noise, and so disproportionately dynamic and stable under very demanding conditions that its size and power rating, paradoxically, soon disappeared from my mind.

Ten years ago when I reviewed the C 326BEE, one of the biggest challenges I threw at it was the third scene from Act One of Wagner's *Siegfried* [Decca, CD]. This act includes the business of Siegfried chasing the dwarf Mime around the soundstage and then singing the “Forging Sword” in full-throated hellenoid mode while pounding the sword Nothing into shape. The producer John Culshaw went to the trouble of obtaining an anvil and sledgehammer (as noted in the score), while the percussionist strikes in tempo while the full complement of the Vienna Philharmonic blazes all around. The sheer grip and control that this little shrimp of an amplifier, with its measly 50 watts per channel of Class D power, evinced is almost insolent. On even some really good systems, the loudest anvil strikes can for a split second obliterate the orchestra, but not with the C 328. Some audio reviewers like to make much of a component's “timing,” that is, its ability to keep everything together. This little amplifier certainly has it. Elsewhere in the scene, the chasing about the soundstage is tracked with exemplary precision. And, no, I made no attempt during this or any of the evaluations to pamper it with levels lower than those I would normally listen at, and very often I pushed them way beyond just to hear how it would react.

As any audiophile knows, a piano is a very demanding instrument to reproduce, and the coda of the “Waldstein,” where Beethoven taxed the limits of the pianofortes of his day to actual destruction, finds the composer at his most heaven-stormingly virtuosic both as to tempo and dynamics. I put the C 328

Specs & Pricing

C 328 Hybrid Digital DAC/Amplifier
Power: 50Wpc, 20Hz–20kHz at rated THD, both channels driven
THD: 0.005% at 1V output
Analog inputs: Three line level on RCA jacks, one mm phono
Digital inputs: Coaxial (x2), Toslink optical (x2), Bluetooth
Line-level output: Subwoofer out on RCA jack
Dimensions: 17 1/8" x 21 3/16" x 11 1/4"
Weight: 10.8 lbs.
Price: \$549

NAD C 546BEE Compact Disc Player
Frequency response: ±0.3dB 20Hz–1kHz ±0.5dB
Dimensions: 17 1/8" x 3 9/16" x 12 1/16"
Weight: 10.1 lbs.
Price: \$549

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through its paces with the Richard Goode recording [None-such], and again the grip and control were little short of amazing. I also played a more recent recording of the same piece performed by Valentina Lisitsa [Naxos], hardly known for her restraint, and the C 328 once more rose to the occasion (this recording is really powerful). On the same disc is her hair-raising rendition of Liszt's *Totentanz*, which the NAD dispatched with nary a hitch or hiccup.

Now I don't necessarily evaluate an amplifier only on the strength of what it can do with the big stuff, but let's face it, that's typically one of the first things, if not the first thing, we want to know if we're buying on a tight budget. And in this day and age when excellent power is cheap, 50 watts certainly qualifies as low. So once I satisfied myself on that account, I next put on Jacintha's lovely new recording of James Taylor songs [Groove Note], and was instantly seduced, the vocal reproduction impossible to fault: seductive, rounded, dimensional, nuanced, likewise the light instrumental backups. More voices: on Joel Coen's *Sing We Noel*, the choir enters from the rear and

of *Gaspard de la Nuit* and you can hear her fingernails clicking on the keys (to the consternation of her recording engineers), while Glenn Gould's vocalizing on his many recordings is there to annoy or be savored, according to one's tastes. And in the coda to Bernstein's recording of the Beethoven Ninth in Vienna [DG], you can clearly hear his foot stamping out the rhythm on the podium despite the fact that full orchestra and chorus are sounding above it.

Regarding tonal balance, NAD amplifiers have come a long way since the original and much-loved 3020, which made a decidedly romantic sound, warm and dark, and a little soft but always musical. A trace of this Yin character remains even in the otherwise very neutral C 326BEE, but only a trace. None of it is to be heard in the wholly neutral C 328, though I should add that on kick and driving jazz it certainly displayed a lot of punch, kick, drive, and swing. Subjectively, noise and distortion are extremely low, the presentation notable for its clarity and articulation yet without appearing in the least analytical. If this sort of hybridization is the future of Class D amplification, then

I for one look forward to a time when state-of-the-art high power does not have to be housed in back-tweaking, hernia-producing chassis.

Given the potential compromises I referenced earlier as regards damping factor and thus bass control owing to the reconstruction filter, I should point out that bass response in all respects evinced no limitations that to my ears could be attributed to this filter, and once again completely belied the amplifier's

modest power output. Registration of detail, delineation of lines, clarification of textures, and sheer extension are all excellent. I was astonished—that word again!—by how powerfully the C 328 delineated the tubas in one of the more thickly scored moments in the first movement of the Shostakovich Fourth Symphony.

Before concluding, there are three aspects of this unit that I don't like. The first is the operation of its volume control. Please note that I wrote “operation,” because the control itself is excellent, with superb tracking and a range of 120dB in 0.5dB increments, thus capable of very fine resolutions of level. The penalty is that since the volume defaults to –20dB upon turnoff (if the volume was higher than –20dB; if set lower it defaults to the previous volume setting), it takes several moments to go from very quiet to normal or louder. Second, in common with current green concerns, the unit goes into standby mode when no signal is present (I didn't measure it, but I think the time constant is around 20 minutes). Trouble is, it takes several seconds to wake back up again and once it does, the volume remains attenuated. In either standby or turnoff, if you put in a CD and hit play, you'll miss a few seconds of music as the level ramps up. These quirks are, however, the C 328's default settings; fortunately, you can turn off the auto standby feature.



Both these recordings, by the way, are on vinyl, so I can verify that this phono stage is no tossed-in, let's-give-'em-a-little-something-extra afterthought. According to Stidsen, Bjorn Erik Edvardsen, NAD's resident genius (not too strong a word), took special pains to make the RIAA equalization very precise with a generous overload margin. I spent several pleasurable hours listening to LPs and never did the C 328 disappoint—the sound notably open, unconstructed, wide in dynamics, and extraordinarily low in noise. I suspect most buyers of this unit are into streaming and digital downloads, but this phono stage is more than good enough to cater to any users with LP collections lying dormant, or to newcomers who may want to introduce themselves to the by no means outmoded pleasures of vinyl.

The C 328 acquires itself excellently in the areas of detail, nuance, and resolution. A favorite album of mine is *Gloryland* [Harmonia Mundi USA], the four women of the Anonymous Four are recorded with exceptional presence and lifelikeness. Consistent with their name, the four singers like to blend so completely as to sound effectively indistinguishable, but good systems will readily reveal the individuality of each voice, and so it was with the C 328 in place. In the Arnold Steinhardt recording of Bernstein's sonata for clarinet [Naxos/DG], at the end of the first movement the violinist tapers off to silence. The recording is close up and vivid, and you can hear the bow moving across the strings, barely touching and then tentatively letting go. Put on Martha Argerich's stunning recording

of *Gaspard de la Nuit* and you can hear her fingernails clicking on the keys (to the consternation of her recording engineers), while Glenn Gould's vocalizing on his many recordings is there to annoy or be savored, according to one's tastes. And in the coda to Bernstein's recording of the Beethoven Ninth in Vienna [DG], you can clearly hear his foot stamping out the rhythm on the podium despite the fact that full orchestra and chorus are sounding above it.

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C 546BEE COMPACT DISC PLAYER

Given how fast music servers have taken over the world of high-end audio, there seems to be something almost quaint, even Luddite, in reviewing a mere compact disc player. Yet truth be told, the vast majority of my listening—and that of colleagues whom I've queried on the matter—remains hard media, i.e., CDs, SACDs, and vinyl. When I reviewed NAD's C 326 amplifier ten years ago I also reviewed this new CD player's predecessor, the C 545, about which I was as lukewarm as I was enthusiastic about the amplifier, finding it “merely a very good \$500 CD player” with a personality “polite, even cautious,” one that “doesn't quite fully excite, engage, or enliven.”

Well, this new C 546BEE is anything but a wallflower—it's lively, engaging, dynamic, and fully involving. Hardly a surprise, as the C 546 represents a completely new circuit, including the use of the 24-bit, high-resolution Wolfson digital-to-analog converter chip. There's not much need for me to describe the sound further inasmuch as I used the C 546 for over half the evaluations of the C 328, so much of my description in effect folds in my response to the player. Of course, I also evaluated the player on its own through my reference system and compared it to the Marantz SA8004 SACD that I've used as my principal source for digital since I reviewed it (and awarded it a Golden Ear) in 2011 (Issue 211). If you figure that at \$999 the Marantz can play SACDs, then it's hardly unfair to compare it to the C 546 at \$549 sans SACD capability.

As I pointed out in my review, while the Marantz is basically neutral, it does have a personality that emphasizes musically natural values rather than hi-fi ones as such [our British friends are unlikely to haul out an adjective like “pacey” to describe it]. But it certainly isn't deficient when it comes to detail or dynamics and never does it fail to be involving. So I am happy to report that this new NAD sounds uncommonly similar except for an ever so slightly crisper overall presentation, and a bit more detail (especially when it comes to matters like ambience retrieval), and somewhat blacker backgrounds. This last is to be expected given how much more advanced DACs have become in the years since.

Of course, as far as my usage goes, this is all academic since I use the Marantz almost exclusively for SACD playback. For Red Book it's strictly a reference feeder, a Benchmark DAC 1 or the onboard DAC of my McIntosh C52 preamplifier. I used the C 546 in the same capacity, its performance as transparent indistinguishable from that of the Marantz. Indeed, this is one of the great things about inexpensive CD players with digital-output jacks: excellent and better DACs have come down so much in price that unless more other player has specific features that you want, there's no need to get rid of the one you already have if you're after better decoding. Not all of my colleagues agree with the statement I'm about to make, but in my experience so long as the DAC reclocks the signal, the quality of the transport itself should not matter so long as it works. As I've suggested in the main review, if you find the C 328 an attractive proposition, you can feed the output of your old one into the 328's DAC and be virtually guaranteed superior sound. I did this with the digital outputs of both my Marantz and the C 546 directly into the C 328 with predictably excellent results.

It remains only to be pointed out that if you buy these two products together, know that the CD player is in the older, larger chassis with styling that doesn't quite match the new look of the amplifier with its rounded corners. If you want them to match up, your choices are the C 538 player at \$299, or the C 568 at player \$699. I've auditioned neither of these—they weren't available when NAD sent the amp—but if you're planning to use the C 328's onboard DAC, I can't imagine what improvements in performance the more expensive model would bring.