



NuPrime DAC-10H Digital to Analog Converter with Headphone Amp Page 2



I'll cut to the chase and say the DAC-10H is a very fine DAC. It's neutral, clean, and highly detailed, presenting a clear window into the music as only the best DACs can. While not having "smooth highs" in the manner of some NOS DACs or tubebased designs, the DAC10H does indeed sound "smooth" in the sense that it doesn't have a trace of digital glare. Poor recordings still sound, well, poor...if you primarily listen to lower quality material—and I don't mean that in an insulting way, as lots of great music fits this description—you should probably look for a more colored, forgiving source. But rest assured, if there's no artificial glare in the recording, the NuPrime won't add any of its own.

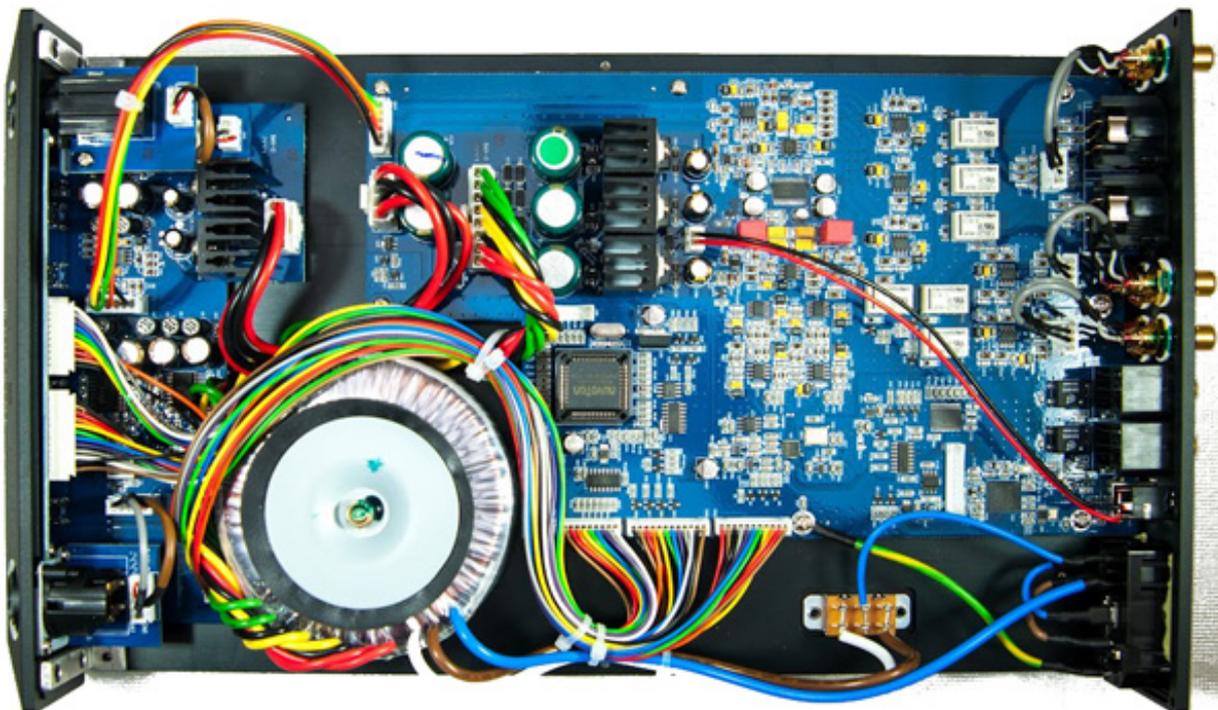
I could talk about the DAC and preamp capabilities of the DAC-10H all day—they're that good. But what I really want to focus on most is the headphone amplifier. It's really something special. Sure, lots of DACs have some type of headphone output on board, but many of them are little more than an afterthought. NuPrime's is the real deal—fully balanced design, with gobs of power, all routed through that sweet lossless volume control system. This headphone stage was clearly taken very seriously.

Maximum output is 4,000mW per channel into 32 ohm loads via the balanced output. It will do 3,200mW into 50 ohms and 1,600mW into 100 ohms, meaning every variety of planar magnetic headphone should theoretically be well served. And that's exactly how it played out in my testing. The notoriously difficult HiFiMAN HE-6, at just over 50 ohms, sounded better than I've ever heard from an integrated amp section. It didn't have that thin, bright character which comes from a lack of current. Low frequency performance was strong too, with excellent bass rumble and deep extension. I have heard the HE-6 sound better, but not without adding an expensive outboard amp. Other models from HiFiMAN and Audeze sounded great as well—I particularly enjoyed the LCD-2 Fazor which has a more refined, detail-oriented sound than its predecessors. The amp stage of the DAC-10H seems to focus more on dynamics than micro-detail, so pairing it with the smoother first gen LCD-2 models may be too much of a good thing. HiFiMAN's new HE-1000 flagship has impressive highs and also sounds quite good from the DAC-10H. That probably makes for my favorite combo of all, though I recognize the price discrepancy is fairly extreme. Folks running a \$3k headphone would almost certainly own a dedicated high-end headphone amp. Still, it's nice to hear what the NuPrime is capable of. Moving away from planar headphone designs, I brought out a variety of dynamic options. High impedance models like HD800 and T1 had plenty of drive—my ears gave out long before maximum volume was achieved. The slightly smoothed top-end of the amp made a great match for these particular cans, both of which can sometimes be considered overly bright.

Again the focus was more on a weighty, dynamic presentation than it was on detail retrieval. Subtle nuances were by no means glossed over—they just weren't as prominent as I've heard with some other amps. Whether this is a good thing or not will depend on the taste of each individual user. Note that I used the T1 only from the single ended jack, while all the other listening I've mentioned thus far was balanced. I do think the balanced option sounds superior and recommend using it whenever possible. The 1/4" jack is perfectly acceptable but in comparison sounds a little soft and "boxed in" for lack of a better term.

Low impedance, sensitive headphones were generally not a problem. The single-ended jack has an output impedance of 4.7 ohms, while the balanced out is double that. That's just high enough to potentially cause minor trouble at times—my Grado PS-500 seemed very slightly "off" in the midbass region, to use one example. Not nearly enough to ruin the experience, and honestly not really enough for me to even have a clear grasp of what seemed wrong. I doubt I'd even notice this had I not been spending a lot of time with this particular headphone on various other amps. I do think I'd have a bigger concern if my Grados were balanced though, as that would cause more significant issues with damping factor. In terms of sound signature I found the smooth top end to pair very well with Grado, Audio Technica, and AKG headphones in general. As with HD800 and T1, not everyone is looking for this type of "musical" presentation, and detail junkies may not be quite satisfied here. For me, it worked out very well with most music.

Another aspect worth mentioning is that even very sensitive headphones played well with this powerhouse amp. My AKG K812 is a good tool for tracking down hiss in amps, and in this case it showed none. I also appreciated having a very wide range of volume control with this sensitive headphone—I've encountered amps with too much gain, meaning the K812 got too loud, too fast. Even IEMs worked rather well—potential output impedance issues aside—with volume settings ranging from 1 to about 30 before it got too loud. That might not sound like a lot, yet I don't recall running into a situation where I found myself in need of an intermediate volume step. And remember we aren't throwing away bits at these very low volumes, as would be the case with most digital attenuation schemes. So, again with some caveats about output impedance, the amp section really does work with every type of headphone, just as NuPrime claims.



Opening the case for a closer look at the design, I found the DAC-10H headphone stage to be relatively simple yet also somewhat mysterious. Signals obviously come in from the preamp section with power coming in from the robust linear power supply on board. The headphone amplification stage is based around three relatively large chips which have custom NuPrime markings and are thus not identifiable by me. They don't appear to be any of the usual suspects like the TPA6120A2 or the LME49600. The amount of power on tap suggests a chip amp of the type normally enjoyed by the DIY speaker amp community. That's not an unprecedented move—Lake People uses a chip amp design for their G103 amp and it works rather well. I don't see the typical heatsink aspect here but perhaps the relatively low output mitigates that requirement. For their part, NuPrime will only tell me it is a rebrand of some existing chip, and their entire circuit is designed around its requirements. Fair enough. Since

the DAC is a fully balanced affair, the 1/4" headphone out uses an OP2134 opamp to generate a single-ended signal which then feeds into a single mystery chip. The balanced out gets two of the same mystery chips which explains its doubling of both current and output impedance. Bottom line—the amp section is satisfying to the point where it feels like a quality stand-alone amp rather than a mere add-on. It's so good that I believe NuPrime could release a dedicated headphone amp based on the same design and be quite successful. No sooner did I have that thought than I discovered NuPrime actually does have just such a device in the works, tentatively scheduled for an October release. If they can keep the price reasonable and perhaps lower the output impedance a bit, it could really be something.

NuPrime also sells a version of this device sans headphone amp, called the DAC-10. It goes for \$1,495 which is \$300 less than the DAC-10H. I have yet to hear a headphone amp costing \$300 that sounds this good, not to mention packing this much power or being a fully balanced design. The previously mentioned Lake People G103 doesn't match it, nor does the NuForce HA-200 (\$349) I covered last year. Therefore it seems reasonable to recommend the version with the integrated amp as the better value, considering what you get for the money. Even if one mainly uses speakers at the moment, there may come a time when headphones enter the picture...if/when that happens, won't it be nice to have a very solid headphone amp already available?

CONCLUSION

There's certainly no shortage of quality DACs in the popular 1,000 to \$2,000 price range. So how does the NuPrime DAC-10H stand out from the crowd? Let's recap: as a DAC, it equals anything I've heard in its class. Add in the exceptional preamp stage, the cutting edge format support, the very generous connectivity, and of course that killer balanced headphone amp, and it seems NuPrime is ahead of the game.

There's really not much it can't do. If you find yourself in the market for new DAC, NuPrime's DAC-10H is worthy of very serious consideration.