

How Many Homeruns are Enough?

A casual review of the GaN400 Stereo Amplifier from Peachtree Audio

In 2019 I had the opportunity to demo a very cool new amplifier from Peachtree Audio. I was already familiar with their products having purchased the original Decco some 13 years ago. The Decco was (and is) a fun and inexpensive piece of gear, an integrated amp with a built-in DAC. It looked cool, sounded good and created a new niche uniting computer audio with equipment which was a big improvement over \$59 plastic desktop speakers. I plan to keep my Decco forever.

Fast forward 12 years and Peachtree Audio continues to innovate. They constantly strive to provide the customer with high-quality components at very reasonable prices. Their latest offerings in 2019 were the nova500 and the amp500. The nova500 being their latest and best integrated amp featuring a quality preamp and DAC mated to a newly designed 500-watt Class-D amplifier. The nova500 is a TON of bang for the buck. A homerun in the audio world. The nova500 and the amp500 were and still are revolutionary. Both feature the best sounding Class-D amplifier I had ever heard, suddenly placing Peachtree in contention with some of the best amplifiers available. The amp500 bested many well-known brands even at several times the price. Peachtree has always delivered products that punch above their weight class. The amp500 (and the comparable nova500 integrated) put them in the heavyweight division. I liked the amp500 enough to purchase one for myself and make it a permanent part of my system. In 2020 I mated the equally impressive preDAC (another homerun) to the amp500 and they have happily remained together on my media cabinet since.

Covid-19 made the remainder of 2020 a pretty quiet year in many ways. But credit Peachtree with continuing to pour themselves into R&D. Those folks never rest. After the amazing success of the nova500 and the amp500 I was a bit surprised to hear that Peachtree was working on bringing another new amplifier design to market. Naturally, I was curious about what might be coming. If you follow the audio world then you might know that many companies seem to introduce new/improved models every year or two. When you ask them what they changed the long and short of it is marketing spin. Or worse. Sometimes they just find ways to cut corners and save a few bucks without sacrificing too much performance. They couch cost-cutting steps in marketing speak like “we refined our manufacturing process in order to insure.....” Translation, “we found a cheaper source for circuit boards.”

That’s not how Peachtree thinks. They are constantly striving to make real improvements in their components. More bang for less buck. Or a leap forward in technology. It’s a constant process. I love companies that think like this! A couple of months ago they reached out to me and asked if I would be interested in a new amplifier they had developed. You bet I was. That’s when they told me that the name of the new amp is the “GaN400.” GaN. Gallium Nitride? Yes, Gallium Nitride. I’d heard about the potential for Gallium Nitride to dramatically change the world of efficient, high-power Class-D amplifiers. “Dramatically change” is an understatement. Revolutionize might be more accurate.

If you’re familiar with Class-D amplifiers you know that they offer some practical advantages over traditional Class-A and Class-A/B designs. Size, weight, efficiency, operating temperature, etc. are

all notable factors. However, there has always been a drawback to Class-D amplifiers. Most of them sound wretched. Class-D amps have improved over the years but engineers have always been hamstrung by the switching transistors used in Class-D amps. For over two decades designers have been using MOSFET switching transistors due to their efficiency. However, MOSFETs introduce some additional challenges. Noise/distortion is high, switching errors exacerbate the issue and a high storage charge (which has to be dissipated, generating more noise and distortion) have left many Class-D amps with an unpleasant, hard sound. Many audiophiles, myself included, looked at Class-D as a choice with some practical advantages but with an unpleasant trade-off in sound quality. Enter Gallium Nitride.

When I heard that Peachtree had a GaN amplifier I was pumped. Based on what I've read I knew this could be a game-changer. We will skip the detailed science lesson but suffice to say that GaN chipsets resolve all of the above issues experienced with MOSFET switching transistors. They are able to switch at a high frequency without the switching imperfections of MOSFET. And they hold NO charge, completely eliminating the ringing noise/distortion effect from MOSFETs. In short, GaN transistors represent a major leap forward for Class-D amplifier sonic performance. It turns out that the geniuses at Peachtree had been researching and testing this technology for some time and had looked for an opportunity to integrate GaN transistors into their designs. Earlier this year they arrived on a refined design which met the performance standards that the engineers at Peachtree Audio required.

I picked up my GaN400 demo unit and set about connecting it as soon as I had the chance. It felt a little odd to be disconnecting the amp500 which still seemed new. But time and technology march on. For my immediate listening I ran a Bluesound Node 2i into the preDAC via a coaxial cable. I connected the preDAC to the GaN400 via the XLR connectors. I then connected the amp to a pair of ERA Design 5 LCR speakers (designed by Michael Kelly of Aerial Acoustics and sold by Peachtree some years back) via Transparent Music Wave Super cables. The ERA speakers were quite good for the money in their day and I find them to be very competitive with current top-notch bookshelf designs. I listened casually to this setup for a few days and enjoyed every bit of it. The Design 5 LCR speakers offer a warm rich musical sound and I felt they might be a good choice for the break-in period of the GaN400. Speaking of which, there might have been some very slight improvements in focus during the first few hours of use but aside from that, the GaN400 needs no lengthy burn-in process. It sounded as good at hour 10 as it did 100 hours later.

I kicked back and fired up Qobuz with some of my favorite testing tunes. I wasn't sure what I was expecting but I was immediately impressed with how musical this new design sounded. For a moment I did a double take to see if I had mistakenly fired up the Mark Levinson No. 27 that lives in the same rack. I hadn't. But I knew that Class-D amps simply don't sound like this. Even the Peachtree amp500 which had impressed me so well just a short time ago didn't have the subtlety of this amplifier. Subtlety is one word. Another word would be "musical." Lush might be another. Liquid, another. I could go on with flowery, descriptive terms but any way you choose to describe the sound, it simply sounded GREAT! Music flowed like music should.

All of the positives of the amp500 were present. The GaN400 is dead quiet. Absolutely black background. Lots of power. Great dynamics. Large, 3-dimensional soundstage, detail. Spot-on imaging. Check, check, check. Just like the amp500. Only it sounded better than the amp500.

Even cold, fresh out of the box it caught my attention. Like the amp500, the GaN400 did all of the fundamental things right. But this was *more* right. The music was more natural, more analog, more like a flow than bits of discreet information. Voices sounded more human, more present. Perhaps a bit forward. But also, very natural. In some ways, it reminded me of a very, very good Class-A amplifier. Only with a whole lot more power behind it. I've heard similar sonic performances from some good single-ended triode tube amps. But the GaN400 is no 20-watt lightweight. Just like the amp500 the GaN400 has the power to handle difficult loads with authority. Is the Peachtree GaN400 the best of both worlds? Stay tuned.

I decided early on to put the GaN400 through a challenging variety of music and I made good use of Qobuz in selecting not only some of my favorites but also some recordings that would help reveal any shortcomings hiding in this new amplifier. I also decided to throw a number of different speakers at it to see if it was capable of handling different loads with the same ease that the amp500 had.

One of the first things I did was to swap in a pair of B&W DM 601 Series 3 I happened to have on hand. The 601s are very well-regarded bookshelf speakers. (*What Hi-Fi?* lists them as one of the top 30 B&W products of all time). They sound like a proper B&W speaker should sound. Slightly reserved and neutral. Competent in the mids. Airy and open highs. Perhaps a tiny bit light in the bass. The bass that is present is tight and solid, never sloppy. I have to say that they sounded as good as I've ever heard them sound. When paired with the preDAC, GaN400 and Qobuz streaming through a Bluesound Node 2i I heard a well-known bookshelf speaker deliver on all of its promises. As inexpensive speakers go, the 601s are not capable of showing off the Peachtree electronics to their fullest abilities. Conversely, the Peachtree electronics brought out everything that the B&W 601s have to offer. I would love to pair the GaN400 with a larger, more capable B&W at some point if the opportunity arises.

The next speaker I decided to pair with the Peachtree rig is the Klipsch Reference R-625FA Dolby Atmos enabled tower speakers. They retail for about \$1600 per pair. These are a mid-sized tower speaker with fairly high sensitivity (96db) and 8 ohms impedance. In other words, they should be pretty easy to drive and these should play very loudly. They are very popular sellers due to the Klipsch name and the fact that these are a mid-sized tower speaker with built-in capacity for Dolby Atmos (with drivers built into the top of the cabinet meant for reflecting off the ceiling). Reviews on these Klipsch are very positive with emphasis on innovation, ability to play loud, value and so on. They are rated to produce bass to 38Hz but that might be a bit optimistic. I suspect that Klipsch designed these mostly for home theater use and counted on buyers having an external subwoofer. That said, these speakers are not shy about mid and upper bass. Without a good amplifier they can be a little sloppy in the lower end. Without good control, bass can bloom and blur, ruining the sound. The GaN400 did a fine job of reigning in any loose bass. While there was a bias in the mid to upper bass, the GaN400 ensured that the bass was tight, fast and defined. The Klipsch proved that driven by a good amplifier, they could transform from party/rock speakers to something everyone in the family might enjoy and appreciate. Once again, I felt as if the GaN400 was giving me everything possible from these Klipsch towers. Highs were bright and powerful. Mids were generally good if somewhat overshadowed by the paunchy bass. The bass still had a hump but lower notes were tighter, better defined and displayed a better sense of pacing. The Klipsch

provide a lot sound for the money but, again, I felt that the GaN400 had room to run and needed a better speaker to show its full capability.

Next, I connected a pair of Aerial Acoustics Model 6T. The Aerials are well known for their characteristic sound which is rich, musical and full. They aren't necessarily easy to drive. The Model 6T speakers are rated at 6 ohms and their sensitivity is in the mid 80s. A far cry from the Klipsch that seem designed first and foremost to play loud. The Model 6T are the reference speaker in my 2-channel system. Their big brothers, the Model 7Ts, are the main speakers in my home theater. I have owned and enjoyed many different speakers over the years. Vandersteen, Magnepan, Linn, Canton, Paradigm, Mirage, PSB, JBL, Polk Audio and so on. However, since first hearing Michael Kelly's Aerial Acoustics, I have favored them over other brands. I find them to be incredibly accurate and a pleasure to listen to for extended periods. At \$7000 per pair, the 6Ts are a very capable speaker with the size and authority to fill most home listening rooms yet they retain the subtlety and detail to share the gentlest nuances in a recording. I felt certain that if the GaN400 was going to stumble, it would be with the 6Ts.

I had been listening to the GaN400 for several weeks with a variety of speakers to ensure that the amplifier was completely broken in and ready. In fact, looking back, I think the GaN400 hit its stride on day one. As I mentioned earlier, the GaN400 does not require a lengthy burn-in to reach top performance.

I shut everything down and carefully moved my Transparent Audio Super speaker cables over to the Aerial 6Ts. It's a bit of a challenge because at that level the cables are carrying some bulk and weight. Fortunately, the 6Ts have excellent binding posts and they are located with easy access at the bottom of the back of the speaker. I wish other speaker designers were this considerate. I double-checked the connection at the back of the GaN400 and the spades were still safe and snug in the binding posts with no hint of loosening or slipping. On a side note, I love the new binding posts Peachtree is using. They look and feel great. Moreover, simple hand tightening was plenty to secure some fairly heavy cables for the duration of my listening. On too many occasions I've seen amps let spades loosen up over the course of a week or two. I turned on the rear power switch of the GaN400 and then fired up both the preDAC and the amplifier. I returned to my seat and set the volume level to 4 LEDs lit before firing up my Qobuz demo playlist.

Ahhhh...the 6Ts came to life with the full rich sound I had always expected from them. I challenged the setup with a variety of different musical styles. My demo/test playlist is meant to bring out the best (or the worst) in a system by revealing shortcomings. Intimate jazz with subtle, smoky female vocals. Airy live acoustic performances. Hard driving rock and blues with deep bass underlying layer upon layer of instrumentation and voices. Classical, baroque, bluegrass and so on. In nearly 20 hours of listening the GaN400 delivered fantastic sound which was always pleasing and musical. I never experienced any sense of fatigue. Nor did I ever sense that I was missing anything from what I knew the Aerial 6Ts could deliver. Listening to Jackson Browne's Solo Acoustic I felt the immediacy of the live performances. Recorded at various tour locations this compilation sounds fantastic and is one of the best live albums I've had the pleasure of enjoying. I could go on praising the GaN400 by describing how lifelike and musical various selections from my playlist sounded, but it would become repetitive. In short, the GaN400 delivers power and performance that many of its more expensive competitors simply cannot. What about the elephant in the room?

As I mentioned at the beginning of this review, I've happily had an amp500 in my system since shortly after they debuted. The amp500 is a giant-killer! Especially so when paired with Peachtree's equally outstanding preDAC. The amp500 does so many things right and delivers enormous power at a bargain price. If I were building a home theater today, I would purchase a stack of the amp500s and not give it a second thought. Likewise, I wasted no time incorporating an amp500 into my dedicated 2-channel listening room. It's that good! So how does the new GaN400 compare to its slightly older brother?

Both amps have enormous power. The GaN400 is rated at 400 WPC. The amp500 at 500 WPC. I never identified one as significantly more powerful. Both amps are seriously quiet. Turn on any amp and you're likely to hear some kind of noise at the speakers. Call it a hum or a buzz or white noise it's there and it never goes away. Both the amp500 and GaN400 provide an absolutely deep black backdrop for the music. They are both dead quiet. Both present fantastic imaging. But this is where we start to see some separation between the two. The amp500 is very good. The GaN400 presents a cleaner, clearer and better-defined aural image. The music has greater focus and acuity without being too detailed. Likewise, both amps present an excellent soundstage. Tall, wide and deep. Again, however, the GaN400 edges out the amp500. The soundstage from the GaN400 has more depth giving the listener just a bit more of the feeling of the original performance. I also found that the GaN400 is slightly forward in its presentation. This provides a greater sense of immediacy and intimacy in some recordings.

There are other differences as well. I felt that the GaN400 provided better dynamics. In fact, the GaN400 carved up challenging dynamics the way a racecar carves up a twisty road, charging through turns and corners hungry for the next challenge. It never missed a beat and never broke a sweat. Pacing is another area in which I felt the GaN400 edged out the amp500. Music is a flow, a stream. Reproducing electrical impulses into sound requires the proper sense of pacing and is a partnership of all of the components. From source component to the listener's ear, pacing is critical. A 'slow' sounding amplifier leads to blurring of the sound and what should be articulate becomes smeared. An overly 'fast' or analytical amplifier can make the pacing too rigid or detailed sounding, often resulting in listener fatigue. In this sense, I found the GaN400 to be just right.

Perhaps the subtlest difference between the two amplifiers, and the most important for those of us who care, is something that frustrates those who want to measure and quantify everything about their system. Call it what you will but the GaN400 has a greater sense of musical realism. Human voices sound like human voices. Guitars and pianos sound like guitars and pianos. Amplifier performance is not just about the power, nor the distortion, nor the frequency response (all of which are outstanding with either amp). It's about the overall presentation. In this very subjective category, the GaN400 simply sounds better. More realism, more musical, more enjoyable. The amp500 is a fantastic piece of gear and a tremendous bargain. I call that a homerun!! It's a true Peachtree Audio piece through and through. The GaN400 is a Grand Slam. I still heartily endorse the amp500 and I think many listeners will find it is all the amp they will ever need and perhaps more. The GaN400 is everything that the amp500 is, and more. It represents a considerable step closer to musical perfection. If you're considering a top-shelf stereo amplifier you owe it to yourself to give the GaN400 some serious consideration.