

BUDGET PRODUCTS OF THE YEAR



Orchard Audio Starkrimson Monoblock Power Amplifier

\$1500/pr.

While virtually all Class D amplifiers use off-the-shelf output modules, the diminutive Starkrimson is built from a proprietary circuit topology of Orchard Audio's own design. The Starkrimson features gallium nitride (GaN) transistors rather than silicon devices, which allow the switching stage to operate at a super-fast 800kHz, almost three times faster than conventional switching stages. This leads to fewer switching artifacts, lower THD, and higher SNR. With 150W into 8 ohms on tap, the Starkrimson yielded a remarkably transparent soundstage and a spacious presentation. The musical tapestry was vibrant with transients unleashed to their full dynamic potential. What also endeared it to reviewer Dick Olsher was its ability to scale dynamic peaks without changing its tonal character. This was coupled with stunning resolution of complex passages, which left DO thinking that this should not be happening with a \$1500-per-stereo-pair amplifier. The Starkrimson sounds like a high-definition Class A amplifier, and surely offers a glimpse into the future of Class D amplification. An absolute must-audition, and our Budget Product of the Year. (reviewed this issue)

Magnepan MG 1.7i Loudspeaker

\$2400

In Issue 107, JV selected Magnepan's tall, skinny, three-way, full-range, quasi-ribbon, dipole MG 1.7 floorstander as one of his favorite loudspeakers of the last 70 years. High in resolution, low in distortion, with enough bass and treble (of superlatively high quality) to satisfy anyone save a head-banger, and a midrange that reproduces well-recorded voices and acoustic instruments with jaw-dropping realism, it is one of those "sweet-spot" wonders that pops up every decade or two. The 1.7 gave you a generous taste of everything its bigger and more expensive Maggie brothers were capable of for a tiny fraction of what you'd pay for the same wonderment in a top-line dynamic speaker. In his review of Maggie's latest version of this classic, the 1.7i, long-time TAS reviewer John Nork (who purchased the review pair) was in complete agreement. This is a genuine Hall of Famer, and an easy pick for TAS' 2021 Budget Product of the Year. (313)

Equipment Report



Orchard Audio Starkrimson Monoblock Power Amplifier

Must-Audition

Dick Olsher

Met Leo Ayzenshtat, Orchard Audio's founder and a designer at the vanguard of Class D amplification. Since Orchard's inception in 2017, Leo has been focused on getting the best possible objective measurements, in the belief that they will translate into great subjective results. Although this is not always the case, it seems to have worked well for the Starkrimson. In case you're wondering, Starkrimson is a type of pear, and according to Leo, all Orchard Audio products are or will be named after things that grow in orchards.

Leo is quick to point out the "D" in Class D does not mean digital; rather, it denotes switching amplification, where the power transistors only have two states of operation, "on" and "off." The audio signal is typically embedded in a stream of square waves whose width is proportional to the signal's amplitude. The width of the square

wave determines the "on" time for the power transistors. The longer the "on" time, the closer the signal is pulled to the voltage rail of the amp. The Starkrimson is a purely analog amplifier, and unlike other designs which use digital techniques, pulse-width modulation is also performed in the analog domain. It does not use Hypex, NCore, or Ice technology, nor any off-the-shelf modulators. The proprietary circuit topology features a DC-coupled, balanced modulator stage, and a full-bridge differential power stage (both speaker terminals are "hot" when the amplifier is on). Such a design provides the advantages of reduced even-order distortion products, as well as no bass phase-shift. DC offset at the amplifier's output is said to be <math><5\text{mV}</math>. A critical design factor is the use of two feedback loops, one before and one after the filter, which serve to make the amp less sensitive to reactive speaker loads. Only XLR balanced inputs are provided, but the amps are shipped with XLR-to-RCA adapters.

Although known for decades, Class D amplification did not become practical for audio applications until the advent in the 1990s of fast silicon power MOSFETs. In the last several years, the state-of-the-art of fast-switching, low-resistance power transistors has advanced considerably with the commercialization of gallium nitride (GaN) transistors, and these devices are responsible for a massive leap in Class D amplifier performance. The Starkrimson GaN operates at a carrier frequency of 800kHz, almost three times faster than traditional Class D amplifiers using

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Specs & Pricing

Power output: 150Wrms (300W peak) into 8 ohms or lower

Frequency response: 0Hz–80kHz

Sensitivity: 5V for 150W into 8 ohms; 3.5V for 150W into 4 ohms

Input impedance (balanced): 44k ohms; 22k ohms (single-ended with adapter)

Damping factor: >550 @ 1kHz

SNR: 121dB (A-weighted)

Residual noise: 32uV (A-weighted)

THD: @150W <0.015% into 4 and 8 ohms (20Hz–20kHz)

Dimensions: 5.5" x 1.9" x 4.8"

Weight: 2.1 lbs. (amp); 2.25 lbs. (external power supply)

Price: \$1500 per stereo pair

ORCHARD AUDIO

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Associated Equipment

Speakers: Fyne Audio F1-8, Fleetwood Sound Company DeVille; Tannoy System 1000; Audiostatic ES-240; Innersound Isis 3.5

Preamplifier: Manley Labs Jumbo Shrimp, Wavebourn Audio Research Labs Preamp+, Blue Velvet DIY

Phono front end: Bang & Olufsen Beogram 8000 turntable w/MMC 20CL cartridge; Pentagon phono-stage; Revox B795 turntable; TPAD 1000 phono-stage; Sound Tradition MC-10 step-up transformer

Digital front end: Audirvana 3.5 software; Qobuz streaming; audiolab 6000CDT transport; Audio Note 2.1 Signature, Denafrips Terminator; Soekris dac1421 DACs; Matrix Audio X-SPDIF 2 USB bridge; Uptone Audio ISO REGEN; Alldaq ADQ-USB 3.0 isolator

Cable & interconnects: Acrotec, Mogami & Kimber KCAG interconnects; Acrotec 6N, Analysis Plus Oval 12, & Take Five Audio Cryo treated Mogami 3103 speaker cable

Accessories: Sound Application CF-X & TT-7 power line conditioners

silicon transistors. This super-fast switching frequency leads to fewer switching artifacts in the output and hence lower THD and higher signal-to-noise ratio. Measurement results documented on the Orchard Audio website support such performance enhancements. In addition, an elevated switching frequency allows the analog signal to be extracted from the output of the power transistors using a simple, single-pole LC filter network which attenuates the switching frequency by 40dB and maintains virtually no phase shift up to 30kHz. The filter network uses an oversized oxygen-free copper (OFC) inductor and a high-grade film capacitor. All components are mounted on an ultra-high-quality circuit board with Electroless Nickel Immersion Gold (ENIG) finish.

Each monoblock is spec'd at 150 watts into loads of 8 ohms and less, and is said to be stable down to 1 ohm. Each is powered by an outboard off-the-shelf

switching-mode power supply, which provides the 56V power rail and constitutes over half of the overall weight. The amp itself only weighs about two pounds, which makes it feasible to position it right behind the speaker's binding posts with very short speaker cables—an interesting possibility considering the cost of most audiophile speaker cables. That explains the motivation for the two minor variations that are offered—the small monoblock or the stereo unit in a more conventional chassis.

There is no power switch, so I initially cycled the amps on/off via my line conditioner. Leo told me that many of his customers have reported that the amps sounded much better after being warmed up for 20 to 30 minutes. This was also my finding, so I asked about running the amps continuously. His recommendation is, in fact, to leave the amps on all the time, which is basically how he intended them to operate absent

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a power switch, and in view of power consumption at idle being only around 4W. He admitted that he has tried but had been unable to measure any difference with his standard tests between a “cold” and a “warmed-up” amp. Normally, you would want to turn on the power amp last to avoid startup transients from the pre-amp. This could therefore be a potential problem in the case of a tube preamp that does not mute its outputs during startup.

This was not my first rodeo with Class D amplification, having lived with both the Wyred 4 Sound 1000R monoblocks and the Red Dragon Audio S500 for several years. Both of these amplifiers proved easy to listen to; in particular, I found the S500 to be quite competitive with the high-power, solid-state, Class AB amps in my collection. However, none of this prepared me for my first audition of the Starkrimson. It felt like an order-of-magnitude jump in sound quality. To begin with, driving an easy load such as the mighty fine Fyne

The Starkrimson performed flawlessly with excellent bass impact, transient clarity, and purity of tone.

Audio F1-8 (review in Issue 320), yielded a remarkably transparent soundstage and a spacious presentation. And this was coupled with stunning resolution of complex passages, which left me thinking that this should not be happening with a \$1500-per-stereo-pair amplifier.

Perhaps it was a case of serendipitous synergy, so I was determined to throw a much tougher load at the Starkrimson. The Innersound Isis 3.5, being a hybrid electrostatic, presents a capacitive load through the midrange and treble octaves. It proved to be the speaker load from hell during a recent audition of the AGD Productions Audion monoblock, GaN-based, Class D amplifier. The Audion completely choked on this speaker,

becoming so bright and unlistenable that I had to swiftly terminate the audition. I wondered just how the Starkrimson would manage in this setting. It turned out that it fared amazingly well.

For many years I've been using excerpts from Alberto Franchetti's opera *Cristoforo Colombo* [Koch Schwann CD 367392] in my listening tests. Chorus, orchestra, and soloists weave a complex and dynamic performance, which has proven to challenge many an amplifier. Here the Starkrimson performed flawlessly with excellent bass impact, transient clarity, and purity of tone. The Orchard was never boring or sterile sounding—quite the opposite. The musical tapestry was vibrant, with transients unleashed to their full dynamic potential. What also endeared it to me was its ability to scale dynamic peaks without changing its tonal character. THD measurements do show a steady increase in distortion products with power level, but even at 150 watts THD is still less than 0.015%. Perceptually, harmonic textures remained pure even as the amp was driven hard. That was not the case with my Krell KST-100, visually a case of David vs. Goliath. In contrast with the tiny Starkrimson, the massive Krell sounded coarse and confused through the upper midrange and treble when pushed hard into this load. Being a Class AB design, it may well have been that the transition from Class A to B became quite obvious. In its defense, the Krell was superior in bass authority, but sadly lacked the Starkrimson's enticing purity of expression.

I should mention that I paired the Starkrimson with several tube preamps and discovered that it took on the sonic character of each preamp. Its inherent character was essentially neutral, allowing each preamp's flavor to shine through. There were significant virtues to be had with a tube preamp at the helm, such as enhanced image focus and spatiality and, more importantly, a sweeter upper midrange that did justice to violin overtones.

I know that Starkrimson is supposed to be a pear, but to my mind it is a peach of an amplifier, sweet and dynamic, at a delicious price point. To my ears, it sounds like a high-definition Class A amplifier and surely offers a glimpse into the future of Class D amplification. An absolute must-audition. **tas**

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