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Mark Levinson N°53

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A NEW BREED OF AMPLIFIER

Mark Levinson N°53 Monoblock Power Amplifier

Robert Harley
Photography by **Joel Salcido**

Amplifiers with switching output stages have not enjoyed much success in the high end. Although these so-called Class D amplifiers are revolutionizing mainstream audio because of their small size, cool operation, light weight, and high efficiency, audiophiles have had reservations about Class D's sound quality. The vast majority of "audiophile-grade" amplifiers sold today are conventional linear amplifiers, despite switching amplifiers' manifold operational merits.

But now Mark Levinson, as venerable a high-end company as you'll find, has introduced what it claims is the best-sounding amplifier in the company's long history—and it uses a switching output stage. However, the flagship N°53 reviewed here isn't just another switching amplifier; it's based on an entirely new and patented topology that reportedly eliminates the sonic shortcomings of previous Class D designs. Is the N°53 one more questionable attempt to bring Class D technology to high-quality music reproduction, or is it a breakthrough product that could usher in a new era in audio amplification?



You'd never guess that the \$50,000-per-pair N°53 is a switching amplifier from measuring its substantial dimensions, lifting its 135-pound (each) chassis, or feeling the heat emanating from the massive heat sinks that dominate both sides of the amplifier. The N°53 looks, runs, and feels more like a Class A amplifier. But no Class A amplifier of this size can deliver the N°53's 500W of output power into 8 ohms (1000W into 4 ohms). I suspect that the huge amount of heatsink area is overkill. Although the heatsinks ran much warmer than I expected from a switching amplifier, they never approached the temperature of nearly every Class A amplifier I've had in my home.

The N°53's styling is clearly based on the "skyscraper" form factor pioneered in the Mark Levinson N°33 from the mid-1990s. The N°33 was quite an amplifier in its day, weighing in at 435 pounds per monoblock side and delivering 300W into 8 ohms. By contrast, the N°53 is about two-thirds the size of the N°33 and a third the weight, yet delivers nearly twice the output power.

The tower chassis sports the Mark Levinson logo, illuminated in red when the amplifier is powered on via a front-panel button. A second power switch on the rear panel completely shuts off the amplifier, taking it out of standby mode. Four operational modes are possible: on, off, standby, and "power save," which turns off all amplifier circuits but maintains power to the communication functions. The standby mode actually keeps the amplifier fully powered up, but mutes its output. The communication ports include Ethernet, Mark Levinson's own Link2 input and output jacks, and a 12V trigger input and output. The Ethernet port allows connection to a network. Put a computer on that network and it displays the N°53's own Web page, which allows you to set the display brightness or check for operational errors. This feature also allows the N°53 to be part of the "ML Net" network for synchronizing operation with other ML Net-compatible Mark Levinson products. If you don't use this networking capability, the N°53 can still communicate with other Mark Levinson products through the Link2 ports, although you won't have access to diagnostic information. The rear panel also holds balanced XLR and unbalanced RCA inputs, two pairs of binding posts,



How the N°53 is Different from Other Switching Amplifiers

The N°53 is based on a new output-stage topology developed inside parent company Harman International. To understand the N°53, you need to know the basics of how a switching output stage works and its shortcomings.

A switching amplifier gets its name from the fact that the output transistors are switched fully on or fully off. This is contrasted with a conventional linear amplifier in which the output transistors are in a continuously variable state of conduction—the current flow through the output transistors is a replica of the musical waveform. But in a switching amplifier, the amount of time the transistors are fully turned on determines the waveform's amplitude. The transistors' output is a series of high-frequency pulses that are smoothed by a filter into a continuous analog waveform. The filter also removes the large amount of switching noise at the switching frequency. Switching amplifiers require a carefully designed output filter to completely remove this switching noise. In addition, the power supply design is crucial, because the DC that supplies the output transistors is switched directly to the loudspeaker load; any noise or ripple on the DC rails appears on the signal driving the loudspeaker.

But a more challenging problem with a switching output stage is the fact that the transistors that handle the positive-going half of the waveform and the transistors that handle the negative-going half of the waveform can never be perfectly synchronized. Transistors take a finite amount of time to turn on and off. As one transistor turns off at the zero-crossing point in the analog waveform to "hand off" the signal to its complementary transistor, there's a time lag before its complement in the pair turns on. This creates "dead bands" at the zero-crossing points where no transistor is amplifying the signal. Every cycle of the waveform has two dead bands where there is no output. It's like a relay race in which the first runner can't quite reach the second runner to pass the baton.

Keeping each transistor turned on a little longer to avoid these dead bands is not an option; if both transistors in the pair are on at the same time, even for microseconds, the amplifier will be instantly destroyed. The timing precision in turning the transistors on and off is crucial to both sound quality and reliability. Leave the transistors on too long and you risk catastrophic failure; leave a margin for error and sound quality suffers.

The N°53 solves the dead-band problem through a patented and proprietary technology called "Interleaved Power Technology" (IPT). The N°53 contains four separate

switching amplifiers that are time-interleaved so that the dead bands resulting from one stage are "filled in" by the other amplifiers that are conducting current at the moment the other amplifier is experiencing a dead band. There's never a time in which a transistor in one of the amplifiers isn't conducting. The problem of transistors destroying themselves if both transistors in a complementary pair are turned on at the same time is obviated because the transistors that are turned on simultaneously are in entirely separate amplifiers.

This time-interleaved switching output stage will likely become a core technology for Harman.

Each of these four amplifiers operates at a switching frequency (the speed at which the transistors are turned on and off) of 1MHz, which, when combined through the time-interleaving technique, results in an effective switching frequency of a whopping 4MHz. A side benefit of this interleaving trick is that the high switching frequency shifts the switching noise to a higher frequency which can be filtered more benignly. Indeed, the N°53 has a bandwidth of 100kHz, which is remarkable for a switching amplifier. In most switching amplifiers the analog output filter's cut-off frequency is an octave or so above the audioband.

This time-interleaved switching output stage will likely become a core technology for Harman that will find its way over the years into a wide range of products, particularly with the onset of the new European regulations regarding power consumption of electronic products.

In addition to this technical innovation, the N°53 has easily the most ambitious implementation of any switching amplifier I've encountered. The massive power supply, for example, would be at home in a linear amplifier. It features a 2.8kVA power transformer with nearly 200,000uF of filter capacitance. The power supply is isolated at the bottom of the chassis within its own shielded sub-enclosure. And then there are those massive slabs of heatsinks that cover the side panels. The large heatsinks will maintain a nearly constant operating temperature regardless of the output power of loudspeaker load. I suspect that this new switching output stage doesn't require anywhere near the chassis size or heatsink area of the N°53, but Harman likely wanted to introduce this new and potentially important switching technology by showcasing it in a cost-no-object implementation. **RH**

and an IEC AC jack for connecting a detachable power cord. (See the sidebar for technical details of the N°53's design and construction.)

THE SOUND

The N°53 had a distinctive sonic character that was different from every other amplifier I'd heard, and one that will greatly appeal to some listeners more than others. This was true on all three loudspeakers I drove with the N°53—the Vandersteen 7s, B&W 802Ds, and Rockport Altairs. First, the N°53's tonal balance was characterized by tremendous extension and grip in the deep bass, a very slightly lean (and highly articulate) midbass, and an upper midrange and treble that were immediate, vivid, and full of air and life.

The amplifier conveyed a sense of effortless dynamics and control in the low bass, imparting a powerful rhythmic drive, particularly on music with a strong kickdrum line. On the track "Blues Be Out" from Wishful Thinking's only album, drummer David Garabaldi's rock-solid funk groove never had more body-moving pulse than through the N°53. In fact, the N°53's dynamics were outstanding across the spectrum; transients such as snare drum pops fairly leaped from the soundstage with an immediacy, impact, and high "jump factor." I appreciated the N°53's dynamics when listening to the great *Nojima Plays Liszt* album on Reference Recordings, which the N°53 reproduced with an effortlessness and ease that were stunning. Correctly reproducing the percussive nature of the piano—the steep transient information—is a prerequisite to realism, and the N°53 exhibited this quality in spades.

Aside from the effortless dynamics and seemingly unlimited power reserves, the N°53's most salient characteristic was an immediacy, incisiveness, and vividness in the upper midrange and lower treble. This region was upfront and centerstage, bringing high-frequency detail to the fore and infusing timbres with palpable presence. Throughout the listening, I consistently heard a change in musical emphasis that favored low-level instruments and lines, and not just those rich in high frequencies. I'll give you two examples. I've been using "Hey Nineteen" from Steely Dan's *Gaucho* as an evaluation tool for decades, but have never been quite as aware of the hi-hat as I was when listening through the N°53. The instrument came forward in the mix, and I could hear precisely the mechanism by which the sound was made. It was also separated spatially from other instruments to an unprecedented degree. The other example is Anthony Wilson's delicate and spare guitar work on "Temptation" from Diana Krall's *The Girl in the Other Room* SACD. He weaves some tasteful, subtle lines around Krall's vocal phrasing that took on a more prominent musical role through the N°53. I was aware of this quality of bringing low-level information to the fore with just about every piece of music I listened to through the N°53.

The N°53's spatial presentation was remarkable; it had the most precise image focus and image outlines

I've heard from any power amplifier. The soundstage had a "sculpted" quality within which instruments were sharply defined, precisely located in space, and clearly separated from other images. This isn't something I had to listen carefully for, or compare with other amplifiers; the spatial accuracy was immediately obvious. Listen, for example, to tom-tom fills, either pan-potted or naturally recorded with a coincident pair of microphones above the drummer (as in my recording of the CD *Confirmation* by the Chiz Harris Quartet). The location of each drum was perfectly defined as a point in space, even with huge kits and closely spaced toms. This spatial presentation created a vividness and palpability to the music that was unlike anything I've heard before. A consequence of the N°53's extraordinary resolution and spatial delineation was the ability to hear, with ease, the musical contribution of every instrument. It was as though the tapestry were unwound and presented as its constituent parts. This isn't to say that the sound lacked musical coherence, but rather that this sonic quality allowed me to easily focus on any instrument or section. Dense, large-scale orchestrations, in particular, benefitted from this delineation of individual musical lines. Although it might sound like this type of dissection might work against musical involvement, it actually allowed me to hear more of the composer's intention and deepen my appreciation for the work.

There were times when I put the N°53 amplifiers back into the system and thought that they set a new standard in clarity



and resolution. (By resolution I don't mean in the presentation of low-level information, but in a macro sense of separating instruments and sections and portraying them as separate and distinct from one another.) There were other times, however, when I thought the N°53 was preternaturally vivid and resolved, and felt a sense of relief when switching to the BAlabo BP-1 Mk.II and its utter ease, grace, and subtle refinement. If I can draw a parallel between these two amplifiers, the N°53 was Oscar Peterson, the BAlabo Bill Evans. Another parallel with pianists comes to mind; the N°53 is the sonic equivalent of the musical performance of Minoru Nojima on *Nojima Plays Liszt*—an almost super-human precision and technical perfection.

If you think of a continuum of sonic signatures, with a single-ended triode amplifier anchoring one end, the N°53 would surely represent the opposite end-point of the spectrum. This character is a distinct departure from the Mark Levinson “house sound” that for decades favored ease and relaxation over a “ruthlessly revealing” presentation (which led some wags to call the brand “Dark Levinson”). This vividness will likely polarize listeners either for or against the N°53. Indeed, I found *myself* polarized by the N°53's unique musical interpretation, depending on the music.

The N°53's overall spatial presentation was more immediate than that of the BAlabo BP-1 Mk.II, tending to project images slightly in front of the loudspeaker plane. The N°53 was also somewhat drier sounding, with less resolution of the lush reverberation surrounding the piano on *Nojima Plays Liszt*. Similarly, orchestral performances sounded as though the hall were slightly smaller through the N°53 than through the BP-1 Mk.II. The N°53's greater immediacy and slight reduction of depth and width fostered the impression of sitting in the first few rows, in contrast with the BAlabo's mid-hall perspective.

In comparison with the BAlabo, the N°53 was not quite as pure of timbre. The upper mids had a trace of glare and “clangy” sound to upper-register piano transients. The midrange and treble didn't have the textural liquidity and natural ease that I've heard from other world-class amplifiers. Strings, either massed or solo, were overlaid with a trace of grain. The combination of the grain and forward treble presentation combined to emphasize vocal sibilance. Conversely, the N°53 had absolutely stunning bass articulation, with precise pitch articulation, superb rendering of dynamic detail, and an exquisitely detailed presentation of bass timbres. Ray Brown's bass on the 45-rpm reissue of Bill Evans' *Quintessence* never sounded so real, so tangible, as through the N°53. The Levinson amplifier combined weight and power and clarity in the bass, which I found greatly rewarding.

Discerning the N°53's sonic signature was quite simple; making an aesthetic judgment as to that signature's musical value was significantly more challenging. When going back and forth between these mega-amplifiers, there were times when dropping the N°53 in the system resulted in an immediate sense of hearing greater clarity and resolution. At other times switching to the N°53 caused me to yearn for the BAlabo's timbral richness, warmth, and sense of ease.

CONCLUSION

The Mark Levinson N°53 is an intriguing product that represents a new direction for this venerable company. As the company's first switching amplifier and current flagship at \$50k per pair, the N°53 shatters the stereotype of the switching amplifier as the technology of sonic compromise. The N°53 is a pivotal product for Mark Levinson, and one that says much about the brand and the company's direction. The fact that it uses such a radically different topology is a daring move.

But it's a move that has paid off, in my view. The N°53 has some remarkable—even stunning—sonic qualities. These include dynamics, bass grip, midbass articulation and expression, and the ability to present music as separate instruments rather than as slightly homogenized. In these areas, the N°53 was world-class.

The N°53's somewhat forward spatial perspective, slight emphasis on the upper-midrange and treble, and vivid soundstaging will suit some listeners more than others. If you lean toward the warm, forgiving, and rounded presentation of a single-ended triode amplifier, the N°53 will likely not be your cup of tea. For those listeners who want to hear, with great precision and vivid clarity, every last detail on a recording, the Mark Levinson N°53 will likely be a revelation. **tas**

SPECS & PRICING

Output power: 500W into 8 ohms, 1000W into 4 ohms

Connections: Balanced on XLR jacks, unbalanced on RCA; Ethernet; trigger input and trigger output, Link2 port input, Link2 port output

Frequency response: 10Hz-100kHz +/-0.1dB

Input impedance: 100k ohms balanced, 50k ohms unbalanced

Signal-to-noise ratio: 85dB referenced to 1W into 8 ohms

Dimensions: 8.5" x 20.5" x 20.5"

Weight: 135 lbs. each (net)

Pricing: \$50,000/pair

ASSOCIATED COMPONENTS
Vandersteen Model 7, B&W 802D, and Rockport Altair loudspeakers; Meridian 808.3

and Meridian Sooloos system, dCS Puccini/U-Clock, and Berkeley Audio Design Alpha DAC, custom fanless and driveless PC server with Lynx AES16 card digital front-ends; Basis Inspiration turntable with Basis Vector 4 tonearm, Air Tight PC-1 Supreme cartridge; Aesthetix Rhea Signature phonostage; Shunyata V-Ray V2 and Audience aR6t power conditioners; Shunyata CX-series AC cords; AudioQuest WEL Signature and Wild interconnects, Transparent XL Reference interconnects; AudioQuest Wild and Transparent XL Reference loudspeaker cables; Billy Bags equipment racks. ASC 16" Full-Round Tube Traps