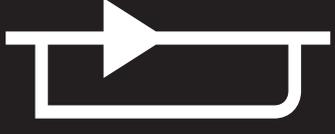


mark 
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Reviews Booklet

Mark Levinson N°519

This unusually comprehensive network player/preamplifier illustrates the benefits of a modular design approach – and proves both highly flexible and a pleasure to use
 Review: **Andrew Everard** Lab: **Paul Miller**

The start of every review for *HFN* is a commissioning email from editor PM, and in this case it contained the immortal line 'At £21k, what kind of competition is the N°519 up against?'. That's the kind of simple-sounding question likely to give anyone serious pause for thought. Yes, £21,000, which means it's by far the most expensive network playback device to pass through my listening room, and makes even my reference player, at around two-thirds the price complete with obligatory power supply, look like something of a snip.

Mind you, the N°519 is rather more than just a network audio player, as perhaps one might hope given the pricing. In practice it doubles as a highly flexible DAC, and has variable outputs to enable it to be used as a 'digital' preamp. It even packs a slot-loading disc transport, able to handle both standard Red Book CDs and CD-ROMs carrying MP3 files – though I'm not entirely sure who's likely to spend this amount of cash on such a device and then want to play low-bit-rate files...

STANDING TALL

In the best tradition of US-made high-end audio, the N°519 has what can only be described as 'serious kit-rack presence', exuding solidity and high quality build, with the choice of a black finish accented with natural metal buttons and 'iconic Mark Levinson twin-knob controls' doing that impression no harm whatsoever. Handbuilt in the USA, it's not as huge as the oversized shipping box might suggest – fortunately! – being a pretty standard 43.8cm wide, but it stands quite tall, not least to accommodate that disc drive and the large 5in TFT display, able to show everything from menu settings to album cover art.

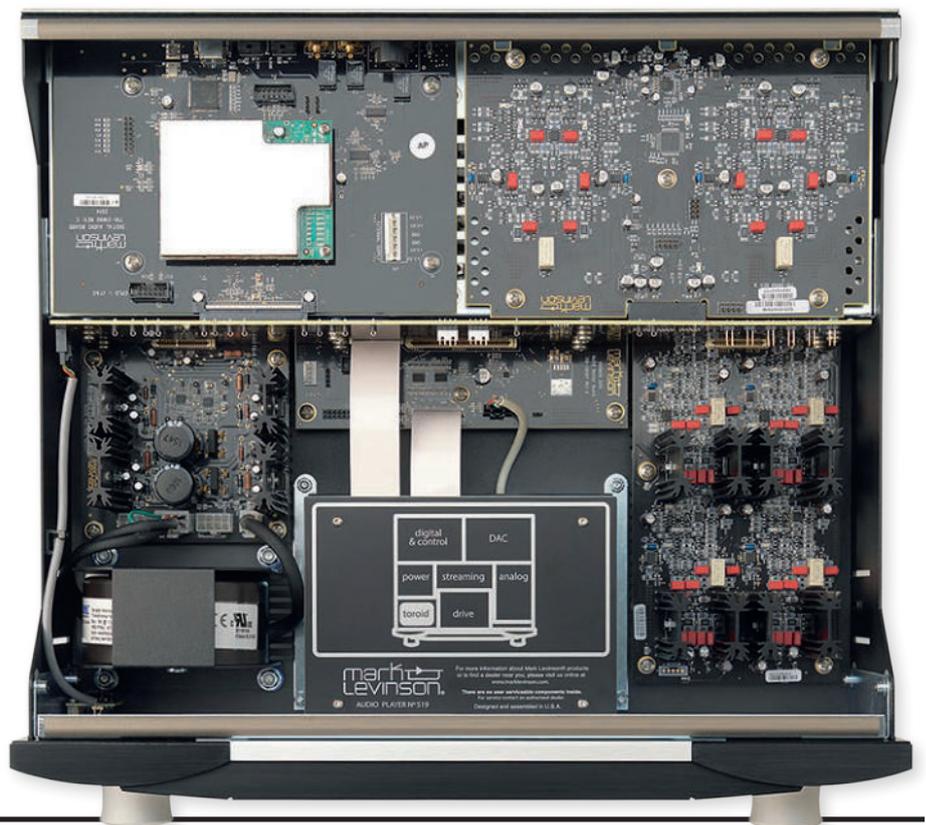
This also has the benefit of making the display easy to read, should you wish to use the N°519 directly using the remote

handset, but for the smoothest operation it's best to resort to the free ML Connect app running on a smartphone or tablet, as this enables not only control of all the various inputs and services on offer, but also detailed adjustment of the set-up of the unit itself. That's very welcome, as the menu structure as accessed via the front-panel controls seems rather obstructive – though I am pretty sure it would become less so with extended familiarisation.

The same goes for the start-up sequence, which is reminiscent of that encountered with early samples of the Musical Fidelity Encore player [*HFN* Dec '16] – in other words, you press the power button and nothing much seems to be happening for ages, tempting you to press again in case you made a mistake. With the MF product it was an automatic update search taking place, which meant

the unit would 'hang' if not connected to the Internet – since corrected, I believe. With the N°519, it's just a case of the unit being a bit on the slow side to fire up, with nothing to tell you anything's happening apart from a flashing standby light – it would be useful to have a progress bar or similar to show things are happening.

That aside, the N°519 seems to work very smoothly with the app, or via browsers, although I did have a slight hitch with getting it to recognise my music library, which is usually served via MinimServer. In this instance I had to switch to Asset UPnP in order to get my music to appear, but with that done all went swimmingly, apart from the occasional loss of contact with the music library on my NAS units, requiring the servers to be reconnected. Strangely, things seemed to work much more



RIGHT: Linear PSU [left] feeds digital input board [top left], CD drive and streaming board [centre], ESS Sabre-based DAC circuit [top right] and fully balanced analogue output [lower right]



smoothly when using the now-superseded Linn Kinsky app as the interface between library and player: it worked fine with both MinimServer and the N°519.

TAILORING TO SUIT

So, it plays network music, at up to 192kHz/32-bit as well as handling DSD2.8 and 5.6MHz in native form, and also has two optical digital inputs plus two coaxial and one AES/EBU, along with an asynchronous USB Type B for computer connection and a pair of USB-As able to accept storage devices. Bluetooth is also provided, supporting the aptX codec, along with both Wi-Fi 802.11b/g/n and gigabit Ethernet for networking.

As already mentioned the N°519 supports UPnP/DLNA streaming, and is also compatible with Internet radio, podcasts, Spotify Connect, Deezer, Tidal and Qobuz (with the appropriate subscriptions). All the inputs and services are accessed by large, clear 'buttons' on the app screen, and while the playback controls on the app are

a bit on the small side, even the fumble-fingered should find them easy to use.

Go into the settings menu and it's possible to switch between fixed and variable outputs, select filtering should you want to use a subwoofer with the unit, and set various volume parameters – such as start-up level, mute level, etc – change power-saving settings like auto-off and display blanking time,

and adjust a whole range of input settings.

For example, you can adjust the gain of an input to level up volume across your whole set-up and rename and disable inputs, and then you can

choose some more N°519-specific settings.

For a start there's a choice of 'Sharp', 'Slow' and 'Minimum Phase' digital filters for PCM content, the option to set normal or wide PLL bandwidth – wide being more forgiving of the quality of the incoming digital signal, but possibly having some quality implications – and set the DSD low-pass filter (on the network and USB inputs) to remove various levels of ultrasonic noise.

'The N°519's sound is typically big, bold and unrestrained'

MODULAR DESIGN

The change of pace at Mark Levinson's R&D department is rather reminiscent of that old saying about waiting for a bus – 'you stand for an age and then three turn up at once'. But we're not complaining here at *Hi-Fi News*, thanks to design director Todd Eichenbaum, ex-VP of product development at Krell Industries, an entirely re-imagined 500-series of separates has been released in the last two years. This began with the EISA Award-winning N°585 integrated amp [*HFN* Apr '15], followed by the N°536 monoblock power amp [*HFN* Sep '16], the N°526 preamp/DAC [*HFN* Dec '16] and now the N°519 'Digital Audio Player'.

While each product has its niche, there's still an overlap in some key features and enabling technologies. The Mark Levinson DAC board, for example, is a very refined implementation of the ESS Sabre 32-bit converter which, along with ML's 'Pure Path' analogue line stage, is re-worked into the N°585, N°526 and N°519. All offer USB inputs and a choice of 'Sharp', 'Slow' and 'Minimum Phase' digital filters for playback of PCM files [see Lab Report, p41]. However, only the N°585 includes an amplifier while the N°519 has a CD drive and streaming capability. The N°526 comes with a very versatile MM/MC stage – and with the announcement of a partnering N°515 turntable, now we know why! PM

ABOVE: Unmistakably 'Levinson', the elegant industrial design belies the N°519's flexibility, its features navigated via fascia controls, and 5in TFT display, or remotely via iOS/Android apps

The settings also give access to the Clari-Fi music restoration technology developed by ML parent company Harman, which 'analyses compressed digital audio files during playback and reconstructs what was lost in the compression process'. As with the DSD filter at the other extreme, there's no correct setting for the intensity of the Clari-Fi processing – it's very much a question of personal preference.

And as with all these parameters, it's possible to create an individual range of settings for each input. That's all possible as the N°519 runs on an embedded Linux computer, while the digital-to-analogue conversion is in the hands of Mark Levinson's ESS Sabre-based 'Precision Link DAC' circuit, which runs the DAC chip's outputs in current mode into a discrete and fully balanced current-to-voltage converter, thus suppressing common-mode noise and distortion. The Precision Link system also uses a complex power supply arrangement with multiple, separately regulated supplies for the DAC chip, plus individual linear supplies for each channel to power the I-to-V converter and filter circuits.

Add in quite a lot of talk of military-specification components and aircraft-grade materials, and it's clear there's a lot here to go towards justifying that towering price. But is the sound similarly imperious, especially in a market not exactly short of expensive network audio components?

COMPPELLING INSIGHTS

Well, having greatly enjoyed the N°526 preamplifier [*HFN* Dec '16] I was expecting great things of the N°519 and, I'm very pleased to say, I wasn't to be disappointed. Playing CDs, there's no denying – or ignoring – the N°519's big, bold and unrestrained sound, offering a mass of detail and a compelling insight into ➔

MARK LEVINSON N°519

Despite sharing the outline design of its ESS Sabre-based DAC stage and fully balanced 'Pure Path' analogue line stage with the N°585 [HFN Apr '15] and N°526 [HFN Dec '16] the N°519, free of high level amplifier or MM/MC phono options, carves its own niche as Levinson's purist 'Digital Audio Player'. At full volume (80 on the TFT display), the N°519 offers a full 13.7V output via its 73ohm balanced XLR outputs (12.7V at 0dBfs via CD) with an A-wtd S/N ratio of 118.4dB and distortion just 0.0005-0.0045% (20Hz-20kHz, re. 0dBfs). Harmonic distortion drops as low as 0.00015% at 1kHz over the top 30dB of the N°519's dynamic range and is only slightly higher at 0.0005-0.0008% at 20kHz. Note that this is with 24-bit source material – with 16-bit CD data distortion is 10-20dB higher at 1kHz below -5dBfs [see black trace, Graph 1 below]. Similarly, resolution is within a very tight ± 0.05 dB over a 100dB range with 24-bit inputs and within ± 0.2 dB with 16-bit CD.

With the 'Sharp' (standard FIR) digital filter engaged, the response is flat to within $-0.17/20$ kHz with CD and 48kHz digital inputs, extending to -1.2 dB/45kHz and -6.5 dB/90kHz with 96kHz and 192kHz digital inputs. The 'Slow' filter option offers a stronger -3.1 dB/20kHz cut than either the 'Fast' or 'Minimum Phase' filters (-0.19 dB/20kHz), and a poor 5.7dB rejection of stopband artefacts (26kHz re. 22kHz at 48kFs), but there's significantly less pre and post-ringing on transients. This will be a good choice with 96kHz/192kHz media. Jitter, meanwhile, is phenomenally low at <10 psec with 24-bit data at all sample rates across all S/PDIF and USB inputs and is at the 16-bit threshold of 115psec with CD [see Graph 2, below]. PM



ABOVE: Two coaxial/optical S/PDIF digital ins are joined by USB 2.0 and AES/EBU ins, two USB-A sockets and wired/wireless Ethernet. Coaxial/optical and AES digital outputs are included alongside single-ended (RCA) and balanced (XLR) analogue outs

every recording I tried. It's fast, deft and wide open, whether playing the driving rock of Blondie's *Pollinator* [BMG 538263402], where the powerful drumming and charging rhythms are tautly defined, or the close-focused but atmospheric choral singing of Ståle Kleiberg's affirmative *Mass For Modern Man* [2L 2L-136], in which the instrumental textures are richly delivered against an ethereal backdrop.

TOTAL SUREFOOTEDNESS

The 'block diagram' screen-printed under the lid [see inside shot, p38] shows the CD transport quite literally front and centre inside the N°519, and that's just how it sounds, for this is a do-it-all digital music source preamp that just happens also to be a very fine CD player. It may not quite be in the same league as, say, the Marantz SA-10 [HFN Mar '16] when auditioned purely as a CD player, the latter delivering a rather more vibrant view of the music, but then that's hardly the point, given the other abilities of the N°519.

And it displays those other abilities when used as a network player/preamp or from USB storage, delivering everything from hi-res quality Tidal and Qobuz streams all the way through to DSD with real power and impact, and total surefootedness. That's very much in evidence with the excellent recent Channel Classics release of Mahler's Symphony No 3 [Budapest Fest Orch/Iván Fischer; CCS SA 38817, DSD128 via *NativeDSD.com*], in which the ambience and presence of the recording is never in doubt.

When driven via my Mac computer through its asynchronous

USB input the N°519's sound was arguably lacking some warmth, although when the same files were replayed via an intermediate Mutec MC-3+ USB [HFN Feb '17], relocked and formatted for the N°519's S/PDIF input, the performance blossomed with far greater generosity.

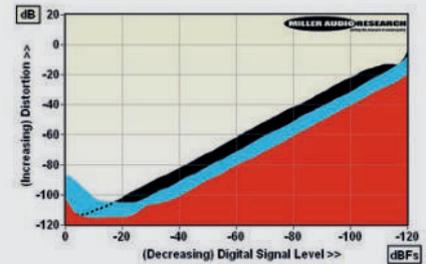
Via USB or S/PDIF, the N°519's performance is hugely impressive, although this looks like yet another example of the traditional S/PDIF connection delivering the goods with that bit more conviction, nailing the music's 'soul' a little more convincingly. Even if such differences may boil down to a matter of taste, and system configuration, for many audiophiles it's also worth remembering that you can further tune the sound using those digital filters and the PLL lock selection.

Opting for the 'slow' filter setting typically adds a smidge of warmth, and is technically better suited to higher (88.2kHz/96kHz) media, while choosing the 'wide' PLL position softens the sound marginally. But, again, adjusting those settings will be down to preference, and as the inherent sound of the N°519 is one of directness and maximum information, if that's what you want from your system you'll not go far wrong here. ☺

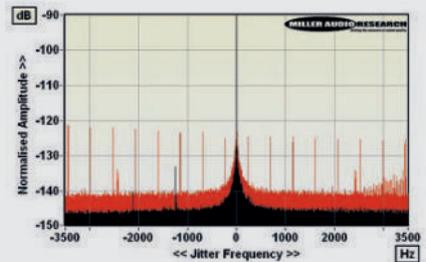
HI-FI NEWS VERDICT

Even if it's impossible to dismiss that eye-watering price from your thinking, the N°519 still delivers a hugely informative and powerful sound whatever you choose to play, and has absolute control over its sonic landscape. Some might argue for a tad more warmth or colour, but then the sound can be subtly tuned to suit personal tastes, and there's no gainsaying the impressive features and flexibility here.

Sound Quality: 87%



ABOVE: THD vs. digital level over a 120dB range. 48kHz/24-bit S/PDIF & USB at 1kHz (red) vs. 44.1kHz/16-bit CD at 1kHz (black, dashed) and 20kHz (blue)



ABOVE: High resolution jitter plots via S/PDIF & USB (48kHz/24-bit, black) and CD (44.1kHz/16-bit, red)

HI-FI NEWS SPECIFICATIONS

Maximum output level/Impedance	13.7Vrms / 73ohm (Balanced)
A-wtd S/N Ratio (CD / S/PDIF / USB)	118.2dB / 118.4dB / 118.4dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0005% / 0.00017%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0045% / 0.00035%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to -0.2dB/-1.2dB/-6.5dB
Digital jitter (CD / S/PDIF / USB)	115psec / <10psec / <10psec
Resolution @ -100dB (CD / S/PDIF / USB)	± 0.2 dB / ± 0.05 dB / ± 0.05 dB
Power consumption	33W (1W standby)
Dimensions (WHD) / Weight	438x146x406mm / 16.4kg



Mark Levinson N°526

Here we have a hefty preamp with a price-tag to match, and a remarkable level of flexibility – so can it impress as much with its sound as it does with its technology?

Review: **Andrew Everard** Lab: **Paul Miller**

Think audiophile preamplifier, and the chances are you'd imagine the archetypal product to be a model of minimalism – after all, it needs do no more than switch between sources and offer a volume control, right? Trouble is, the sheer diversity of sources available to today's listeners means things can't be that simple any more, what with listeners using everything from CDs and LPs through to computer-stored files at ever-greater sampling rates and/or file sizes.

Hence the latest preamp from Mark Levinson, the N°526. Don't let the prosaic model designation – the company's numbering system never gives you much of a clue as to what the product actually does – fool you into thinking it's in any way ordinary: this £20,000 preamp comes fully loaded. And then some.

HIGH-END POSTER CHILD

The company, for more than two decades owned by Harman International, and part of its Luxury Audio stable, describes the N°526 as a 'Dual-Monaural Pure Path Preamplifier with Precision Link DAC and Pure Phono', but even that only scratches the surface of what's going on here. For example, it has no fewer than 12 inputs – six analogue and six digital – and offers a level of configurability that requires the use of a computer browser interface connected via both USB and network. We're a very long way from a volume control and a handful of relay-switches here – but a version without the digital inputs, the N°523, is also available.

It's designed, like all Mark Levinson products, at a dedicated facility in Shelton, Connecticut – the 'Engineering Center of Excellence', no less – where Todd Eichenbaum, Director of Engineering at Harman Luxury Audio, leads a ten-strong team working on Lexicon, Mark Levinson and JBL Synthesis. Readers may be familiar

with Eichenbaum from his previous employment: he was at Krell for a total of 25 years, worked on more than 60 of that company's products as well as being instrumental in the development of some of its 'signature' technologies.

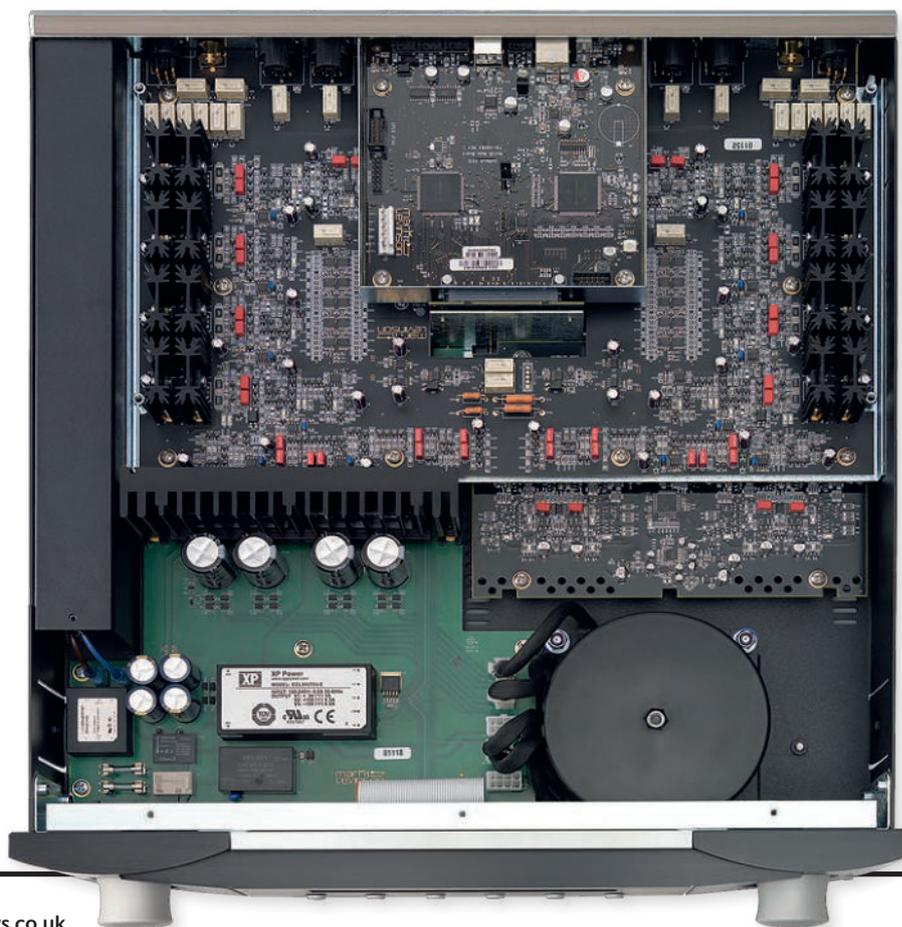
The N°526 is hand-built by contract assembly company Mack Technologies, which has a close partnership with the brand, at its facility in Westford, Massachusetts. And this preamp very much epitomises American high-end audio in both the quality of its construction and its sheer mass. It's a hefty beast, clad in a combination of cold-rolled steel and aluminium and weighing a not inconsiderable 17.7kg. Open the substantial shipping carton and you might be surprised to see an altogether more

sensibly sized box within... turns out it's just for the accessories.

CLEVER STUFF WITHIN

What's immediately clear from first acquaintance with the preamp is its dual-mono layout, with the analogue inputs and outputs arranged in a mirror-image across the rear panel, and with the phono inputs below them. There's also a headphone output on the front panel – a first for the brand – driven by the main Class A preamp stage, allowing it to power headphones down to 32ohm, rather than using a separate headphone amp (as is often the case in products of this kind).

There are two sets of balanced inputs and of course one set of balanced outs, plus three single-ended pairs of RCAs, while



RIGHT: Switchmode and linear PSUs feed digital and analogue preamp stages. Resistor-ladder volume control and configurable MM/MC phono stage are screened from interference



digital ins run to AES/EBU, two coaxial and two optical S/PDIFs, and an asynchronous USB Type-B for computer hook-up. There's also a standard USB-A and a micro USB socket, and an RJ45 Ethernet network connection. But before anyone gets too excited about the unlikely prospect of hooking up an iPod or – more likely, streaming music from NAS – hold your horses. In practice these are purely to facilitate product updates using a home computer or, with the USB-A, the loading of new firmware files from a USB thumb drive.

Other connections run to the usual range of home automation options, including in/out 12V triggers, an external infrared sensor for remote control, and RS232 on an RJ12 socket. The N°526 comes with a relatively compact and decidedly non-extravagant handset [see p43], which does the job but is unlikely to become a coffee-table conversation piece.

However, while the preamp presents a somewhat plain if purposeful face to the world, all the clever stuff behind that lofty price is, as you might hope, within. The proprietary 'Precision Link' DAC is based around ESS Sabre technology, has a choice of three filters, offers a selection

of 'Normal' or 'Wide' PLL digital input lock tolerances, uses seven separate power supplies and can handle file formats up to 192kHz/32-bit and DSD128/5.6MHz. There's also Harman's Clari-Fi 'music restoration' system, designed to put some life back into highly compressed file formats. Now one might wonder why anyone would want to play such files through a £20,000 preamp, but if you do you'll find you can adjust the amount of Clari-Fi processing to suit your taste.

'The sense of the solo instrument before me was almost palpable'

There's more on the N°526's remarkably versatile phono stage in editor PM's boxout [see below]. Other options, accessed from the front panel using a menu system, include a choice of display and power/standby options, the latter going from the factory default 'Green' mode, which is a conventional standby, to simply muting the output and turning off the display while keeping the audio circuits powered and ready for action.

It's also possible to switch the response of the resistor-ladder volume control. The default has the up/down volume respond to the speed at which the knob is turned, while there's the option of faster response in the lower stages of the volume range,

ABOVE: Modern and very elegant industrial design belies the complexity of the N°526's feature set – navigated via a two rotary encoders and row of buttons, or via a browser

slowing as higher levels are reached. I quite liked the default setting, which enables one to make a change quickly, then adjust things in very fine increments when the desired level is approached.

The balanced and single-ended outputs can be set to variable or fixed – the latter handy if you already have a good preamp and for some reason have chosen to buy the N°526 as a DAC/phono stage – and to activate a 24dB/octave 80Hz high-pass filter on the output should you be using an active subwoofer. Finally, a Surround Sound Processor mode allows one of the inputs to be configured to fixed unity gain for use when the N°526 is fed by the front left/right outputs of a surround processor.

FAST AND ASSURED

Without a doubt the N°526 is an extremely flexible control centre for a high-quality system, its fairly slender casework incorporating functions one might otherwise assign to three separate boxes – phono stage, DAC and preamp. How that sits with your views on future upgrading or putting all one's eggs in a single basket is a decision only the buyer can make, but the good news is that the N°526 fulfils all its functions to a very high standard, and never gives rise to any doubts about performance being sacrificed in the quest for convenience.

It sounds big, fast, dramatic and entirely assured across a wide range of musical genres, and if you put the old 'tingle factor' high on your list of priorities, it will certainly rise to the occasion. There's nothing false, artificial or overtly 'hi-fi' about the sound here: rather the music is given room to breathe and shine, constantly catching the ear not only with the level of detail on offer, but also with the sense of flow and expression.

Indeed, rather as one finds when a high-quality, high-power amplifier is slotted

PROGRAMMABLE PHONO

No fiddling with jumpers or DIP switches with Mark Levinson's N°526 as the phono stage's user-configurable 50-680pF input capacitance (MM), its 20ohm-47kohm input loading (MC) and +40dB to +70dB gain options [see Lab Report, p43] are all accessible via the front panel setup menu. As is, I might add, the infrasonic filter that switches in a 2nd-order roll-off at a low 15Hz. In practice, I preferred the sound of the phono stage without the filter *in situ*, although the contoured LF response of the eq section reinforced the already rich and boisterous quality of the SME 20/3 and SME Series V/Koetsu Black front-end spinning at the back of my listening room. But while the N°526 brings a powerful sense of weight and momentum to vinyl, the likes of Isaac Hayes' 'Life's Mood' [Branded; Virgin VPBLP 24] is not overly brooding but bursts into song as the off-beat piano contrasts with the more fulsome feel of his deep and soulful vocals. It's a neat trick but I'd still be wary of warped LPs, less-than-perfectly isolated decks and, most importantly, under-damped reflex-loaded speakers. PM

PREAMP/USB DAC



ABOVE: Two coaxial and two optical S/PDIF digital ins are joined by USB 2.0 and AES/EBU inputs, micro USB, USB-A and Ethernet port plus XLR and four analogue RCA inputs (including a configurable MM/MC input) plus RCA and XLR outputs

into a system, the effect of the N°526 is somewhat akin to letting the music off the leash. Best of all, it delivers this standard of performance across its wide gamut of input options, from balanced and single-ended analogue to high-res digital music played via USB input.

PLAYING WITH FILTERS

With PM having established the quality of the inbuilt phono stage in his boxout, I have to admit I was most intrigued to find out how well the onboard digital stage combined with the analogue section would fare as a source/control set-up. Here, the N°526 never disappointed. With everything from violin with orchestra on DSD – Arabella Steinbacher's *Fantasies, Rhapsodies & Daydreams* [Pentatone PTC5186536; DSD64 via *NativeDSD.com*] – through to mainstream rock and blues, the N°526 demonstrated the ability to put what sounds like everything that's on the recording out there for the listener's pleasure, drawing the attention deeper into the music.

On the Steinbacher recording the sense of the solo instrument before me was almost palpable, with every bite of rosin on string beautifully delineated, while the orchestra had wonderful scale and richness, never seeming cloying or over-bloomy. Meanwhile with the recent 44.1kHz/24-bit release of Rage Against The Machine's eponymous album [Epic; HDtracks download] the N°526 simply let the full-on onslaught of the sound slam out of the speakers, losing nothing



in impact or power, or indeed the visceral effect of the performances.

There's not much the digital filters can do to alter the charge of that particular album, but with less bonkers content there is a perceptible difference between 'Fast' and 'Slow' settings, the former giving a little more attack, and the latter a marginal gain in warmth and weight. Meanwhile, the Minimum Phase filter gives slightly sharper focus when listening to solo instrument recordings such as Johan Brouwer's *Vaudry* [Aliud ACD BA089-2; DSD64], tightening the rendition of the harpsichord strings just a shade.

Switching the PLL Lock to 'Wide' softens the sound very slightly, but may be useful if find yourself using digital sources prone to momentary drop-outs. As ever, preferences when it comes to all these digital settings are really down to the user.

Whichever you choose, one thing is for certain – if the mark of a great hi-fi component is how well it offers everything while apparently doing nothing to get in the way of the music, then the Mark Levinson N°526 is very special indeed. ☺

HI-FI NEWS VERDICT

By any standards a remarkable preamplifier, as much for its sound and flexibility as the quality of its build – oh, and the price! The N°526 is striking for its ability to deliver everything played through it with maximum conviction and clarity. Of course it places demands on the system with which it's used, but if you're lucky enough to be able to afford a set-up able to do it justice, you're in for a treat.

Sound Quality: 90%

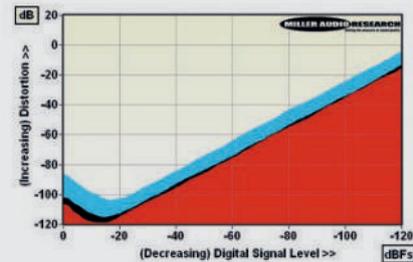
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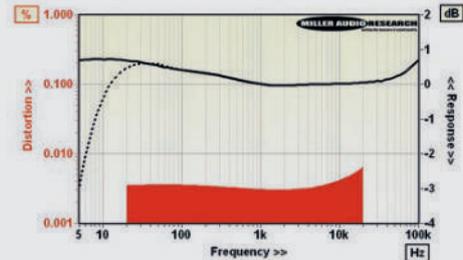
MARK LEVINSON N°526

Based on the N°585 [*HFN* Apr '15] and N°519's ESS Sabre DAC stage, the N°526 offers a full 20V output via its 73ohm balanced XLR outs while the A-wtd S/N ratio reaches 112.6dB and the response is flat to within $-0.15/20\text{kHz}$, $-1.1\text{dB}/45\text{kHz}$ and $-6.2\text{dB}/90\text{kHz}$ with 48kHz, 96kHz and 192kHz digital inputs. The 'Slow' filter option offers a stronger $-3.1\text{dB}/20\text{kHz}$ cut than either the 'Fast' or 'Minimum Phase' filters, but there's less acausal distortion (pre-ringing) on transients. Harmonic distortion drops as low as 0.0008% at 1kHz/10dBfs but is a little higher at 0.001% by 20kHz/10dBfs [see Graph 1]. Jitter is phenomenally low at $\leq 10\text{psec}$, all sample rates, while low-level resolution is good to $\pm 0.3\text{dB}$ over a full 110dB dynamic range.

The precision engineering of the N°526's phono stage is reflected in most of the measurements. The notional +40dB (MM) and +50dB, +60dB, +70dB (Low, Mid and High gain MC) settings arrive closer to +53.7dB, +63.3dB, +73.4dB and +83.1dB in practice (full volume, balanced output). So the N°526 is very sensitive but also benefits from very low noise, delivering a massive 94.2dB A-wtd S/N ratio via MM and 77.6dB via all three MC settings (re. 5mV and 500 μV in, respectively). High gain typically means limited overload margins and so the N°526 clips at 89mV (MM), 31mV, 9.2mV and 3.0mV (Low, Mid and High gain MC), suggesting it's best partnered with lower-output MMs and MCs. Distortion is far lower than ML's <0.03% spec. at 0.003-0.007% (20Hz-20kHz, re. 0dBV) but the boost in sub-1kHz response (+0.25dB/300Hz, +0.5dB/50Hz and +0.7dB/20Hz) must surely be intentional [see Graph 2]. PM



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB range via S/PDIF (1kHz, red) and USB (1kHz, black; 20kHz, blue)



ABOVE: RIAA-corrected frequency response over an extended 5Hz-100kHz (infrasonic filter, dashed) with THD versus frequency (red) via MM at 0dBV output

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	20Vrms at 73ohm
A-wtd S/N ratio (Digital/MM/MC)	112.6dB / 94.2dB / 77.6dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.00065% / 0.00018%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0dB to -0.15/-1.13/-6.2dB
Frequency resp. (MM, 20Hz-20kHz)	+0.70dB to +0.04dB
Input sensitivity (MM/MC, re. 0dBV)	2.07mV / 682 μV /214 μV /70 μV
Input overload (MM/MC, re. 1% THD)	89mV / 31mV / 9.2mV / 3.0mV
Power consumption	67W (1W standby)
Dimensions (WHD) / Weight	267x76x295mm / 3.6kg

Mark Levinson N°536

With no little irony, Mark Levinson releases a monster of a monoblock power amplifier, its design team headed by a long-term Krell veteran – say hello to the N°536

Review: **Ken Kessler** Lab: **Paul Miller**

For a decade or two, the heaviest hitters in high-end amplification were Mark Levinson and Krell. Forty-three years after the birth of the former and 36 with the latter, we find that the Mark Levinson N°536 monoblock power amplifier has been designed by an engineer who had worked for Krell for a total of 21 years. Although Todd Eichenbaum, Director of Engineering, Harman Luxury Audio, has been with the brand since 2013, those two-decades-plus have made an indelible impact.

Not to suggest that there's anything immediately 'Krell-ish' about this £14,000 unit. It looks like a Levinson and one of the explanations for its existence describes delving into the brand's past. And while it isn't the Class A design that launched the brand, neither will it strike the Levinsonian audiophile as something alien.

Its 400W nominal rating proves very conservative [see PM's lab report, p43] and its build, from the finger-slicing alloy heatsinks that flank its carcass to that thick, precision-milled black/silver fascia, all speak of a very serious intent. As does the massive power supply which is seen in our internal shot [right].

Not competent enough to decipher his AES paper, I spoke directly with Eichenbaum about the project, which editor PM points out had the gestation period of an elephant. 'This amp was announced over a year before it was finally launched – why?' lamented PM. It sounds like Mark Levinson wanted to make sure that this new amp was spectacular, a tacit way of saying that the brand has been quiet of late, and this is all but a re-boot in name. Todd Eichenbaum was not going to be rushed. He said he had several goals for the N°536.

'First, I wanted to recreate some of the "magic" that I remembered hearing for the first time more than 30 years ago – the

very first time I listened to Mark Levinson electronics.' The depth and space were unlike anything he'd heard before, 'And relatively few systems I've heard in the decades since have been that good.'

KEEPING THE DNA

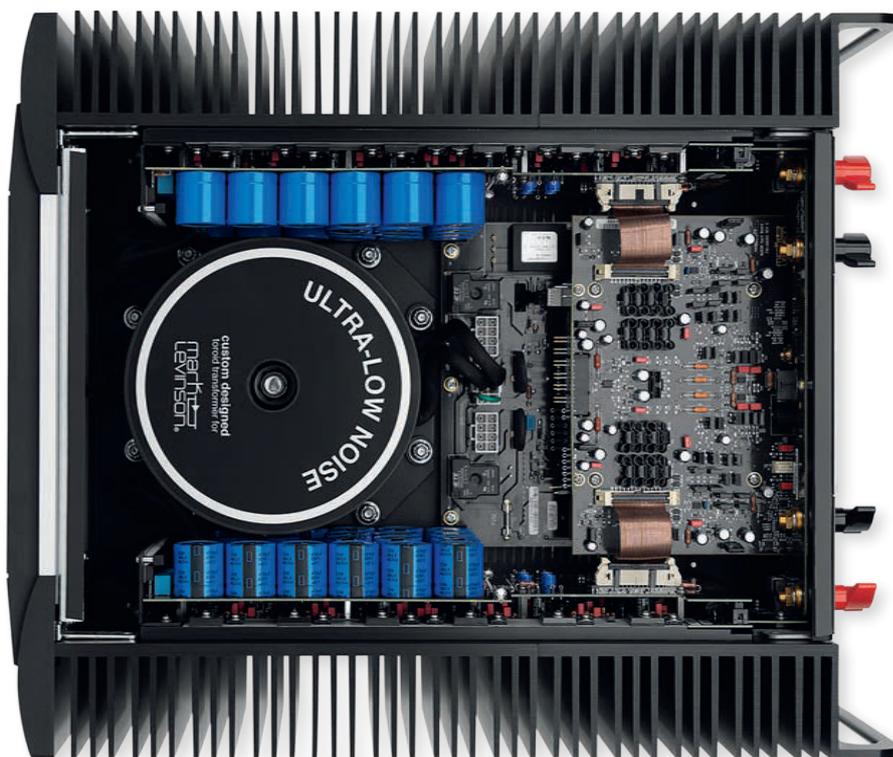
Second, he wanted to apply design techniques that he and the engineering team had learned over the years to 'bring the new Mark Levinson products to the "next level" of performance and convenience while still maintaining much of the DNA in the Mark Levinson sound.'

Lastly, he wanted to design the N°536 'to be inherently robust and reliable, straightforward to assemble and test, with processes and measurements that are consistent and repeatable day in and day out.' This additional testing regime certainly extended the time before the eventual release of the amplifier.

While the earlier, vertical-chassis No53 Class D monoblock power amplifier [HFN Jan '11] still sits at the top of the tree pricewise, the newer and more affordable N°536 is clearly the *de facto* flagship.

So the N°536 differs from its immediate predecessors in a number of ways. Says Eichenbaum, 'The gain stages in earlier generations of Mark Levinson amps had more complex signal paths and much higher open-loop gain and feedback. Our new Pure Path topology is based on the philosophy that the signal path should be – and here he quotes Einstein – 'made as simple as possible, but not simpler.'

'In this case the main building block is a very high quality dual J-FET, connected to several bipolar transistors in a multiple cascode configuration.' Here he wanted to obtain the best qualities of all the transistors, combined to form 'what is functionally a dual "super" transistor.'



RIGHT: Massive 1800VA toroidal transformer is at the heart of a PSU that drives a fully symmetrical (balanced) 2x12 high current transistor, Class A/B output stage



The Levinson team allied this with an improved current mirror design to create a gain stage that promises extremely good linearity and wide bandwidth, before applying any negative feedback to the amplifier. Inside each N°536 are two bridged power stages each comprising six pairs – that's 24 in total – of high current, bipolar output devices, and each with its own driver transistor. A limited 16dB of negative feedback is applied around the amplifier circuit, which Eichenbaum feels, 'gives us the best combination of image depth and space, bass extension, and dynamics.'



IMPECCABLY BEHAVED

While *HFN* awaits the forthcoming matching preamp/DAC, I used the N°536 with 2m lengths of Crystal cable to the Wilson Alexias [*HFN* Mar '13], and drove it in balanced mode with the Audio Research REF 6 preamp [*HFN* May '16], via Transparent. Sources included the SME

'Wedded as I am to valves, I like to dance with the devil, too'

Model 30/12 with Series V-12 arm and Clearaudio Goldfinger MC [*HFN* Jan '15] into the EAT E-Glo phono amp. Digital playback came via my trusty Marantz DV8200 SACD/DVD player. Hook-up was a joy, thanks to the substantial binding posts and switchable balanced or single-

ended inputs. (Note that the USB connector on the back is for firmware upgrades, not for use with a USB audio device.) Switch-on involved watching the LED on the front, which glows blue, red or white or flickers,

depending on whether the amp is in standby, operational, or behaving badly.

If you're expecting me to wax glorious about blasts from the past, and how I can see the form of former Krell supremo Dan D'Agostino – let alone John Curl – hovering overhead, well, you're right: this sounds like an amplifier from the period I prefer for bad-ass, overkill, solid-state amps. So let's make one thing clear: as wedded as I am to valves, I like to dance with the devil, too,

ABOVE: Two required for stereo, this imposing monoblock amplifier features Levinson's latest black and silver industrial design – an all-alloy chassis with precision, side-mounted heatsinks

like the guy whose heart belongs to Alfa Spiders and TR3s, but doesn't mind a blast in a muscle car to clear the sinuses.

This amplifier doesn't need ages to warm up, and after a fierce eight-hour session, it didn't singe flesh. Indeed, its behaviour was utterly impeccable throughout. Its visual impression is perhaps one of brutality, and I scared myself when trying it with the KEF LS50s [*HFN* Jul '12] – what would happen if I switched sources and blasted its 400W+ into a small standmount? (The amps did sound sensational through the wee KEFs, though I doubt anyone normal would match a sub-£1000 speaker with a £14k monoblock.)

KICKS LIKE A MULE

It took, oh, three seconds into 'Rock The Boat' by The Hues Corporation, in both digital and analogue forms, side by side – *The Very Best Of The Hues Corporation* [Camden 74321 603422; CD] and *Freedom For The Stallion* [RCA APL 1-0323; LP] – to realise two things simultaneously. The N°536 kicks like a mule, and it's incisive enough and transparent enough to lay out the differences between CD and LP in such vivid terms that even the most fervent disbelievers would be staggered by the disparities.

What springs to mind most frequently is the term 'commanding', but not in the grab-the-listener-by-the-throat method of hyper-etched designs. Indeed, the resolution of strings at the upper reaches was almost a bit hazy, but one could equally say that it was non-fatiguing. ➞

HARMAN LUXURY AUDIO

In specialty audio, it doesn't get any bigger than Harman International Industries, Inc, Mark Levinson's parent company. If my sources are correct, the company, with sales of US \$5.9 billion during the year ending 31 Dec '14, is roughly the size of Bang & Olufsen and Bose combined. Its roots can be found in a name familiar to older audiophiles, harman-kardon (with lower-case 'h' and 'k', thank you very much). Sidney Harman and Bernard Kardon founded the amplifier manufacturer in 1953. Both were ex-Bogen engineers, and their eponymous brand is considered one of the key names in the founding of high-end audio. Harman bought out Kardon in 1956, and the company just grew and grew. In its latest form, it designs, manufactures and markets equipment in other fields as well, including A/V, in-car and professional markets. Its brand portfolio includes AKG, Harman Kardon, Infinity, JBL, Lexicon, Mark Levinson and Revel. Quite a roster.

LAB REPORT

MARK LEVINSON N°536

Such is Levinson's (Harman Luxury Audio's) painstaking production engineering process, I had been waiting over a year to get its flagship monoblock power amp through the lab doors and on to our front cover. I'm pleased to report that the wait has not been in vain for the N°536 massively exceeds its specification. Rated at 400W/8ohm and 800W/4ohm, it achieves 530W/8ohm and 870W/4ohm at <1% THD with sufficient reserves to accommodate 610W, 1115W and 1935W (or 31.1A) into 8, 4 and 2ohm. Short-circuit protection kicks in above 440W/1ohm [Graph 1, below] but the N°536 is surely capable of more. Furthermore, despite the close proximity of this massive power supply, noise is exceptionally low at -85.7dBV (52µV) and the A-wtd S/N ratio very wide at 98.7dB (re. 0dBW) – this is a silent giant!

Via its XLR inputs, overall gain is an appropriate +25.6dB (151mV for 0dBW) from a fully balanced output stage comprising no fewer than 24x15A devices. Loop feedback is modest but while the output impedance is not vanishingly low it is a uniform 0.07-0.08ohm from 20Hz-20kHz, increasing to 0.125ohm/100kHz. The frequency response is very flat and extended with -0.5dB points at <1Hz to 75kHz and falling to just -0.9dB/100kHz. So there's very little attenuation of ultrasonic output from SACD/DSD sources here... This is of potential interest because distortion, again not vanishingly low but consistent at ~0.01-0.02% from 20Hz-3kHz (an elegant 2nd and 3rd harmonic only), rises very steeply at high frequencies - 0.05%/10kHz, 0.12%/20kHz to 0.4%/40kHz at 10W/8ohm [see Graph 2, below]. Choice of partnering source (DAC) and loudspeaker will be key to optimising its performance. **PM**



ABOVE: Pairs of 'hurricane' cable binding posts support bi-wiring. Single-ended (RCA) and balanced (XLR) inputs are joined by Ethernet, RS232 and 12V system triggers

At the bottom end, the balance between openness and near-papery dryness was near perfect, such that the pure percussion extravaganza of Kodo's *Heartbeat: Drummers Of Japan* [Sheffield Lab CD-KODO] was a display of woofers shifting air. And it was here that I was glad I swapped the KEFs for the massive Wilsons!

AN AMP THAT SWINGS

What was emerging, based on notes I'd taken over the years, were not dichotomies so much as schools evolving within amplifier types. And I mean the nature of the sound more than the circuitry. With modern champions like Constellation, Soulation, Chord, D'Agostino, McIntosh, darTZeel and a number of others utterly destroying the notion of 'solid-state' sound, such that valve lovers have to accept levels of previously unavailable warmth, the N°536 has arrived at a fecund time.

On the one hand, the Levinson's job is made easier by the quality now expected of such amplifiers, which it certainly delivers. On the other, the competition is tougher than ever before, and listeners are forced not to search for absurd measurements and hyper-naked sound, but to accept and/or prefer sonic 'personalities' – and therefore the differences – of each amp.

Listening to Dino, Desi & Billy's *Our Time Coming* LP [Reprise RS-6194], recorded when McIntosh tube amps were the peak of sonic attainment, the N°536 treated the all-analogue, wide open sound with a delightfully airy presentation. Not, I hasten to add, the clean-scrubbed effect of digitalia or overly-analytical systems, but a sound akin to the big transistor darTZeels. The irritating teenage squealing of their voices, against the best session men ever seen in LA, was a portrayal of textures that made you want to find

a pair of Stax 'phones or Quad 57s: subtlety where none should exist.

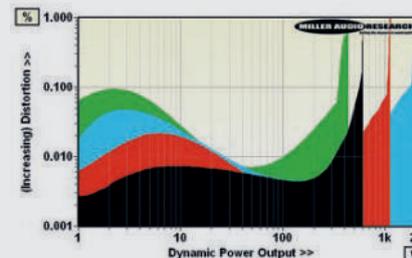
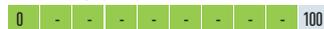
But move on to something with the same sound quality yet musical merit without peer, and you have – in The Band's 'Up On Cripple Creek' [*The Band*; Mobile Fidelity UDSACD 2129] – a sound reminiscent of a big Chord, if not quite the limitless slam. Again, it was back to Levon Helm's kick-drum for the N°536 to do its stuff, and it did so with enough detail to imagine his foot pedal, and enough dynamic scale to provide all the punch. Even twangy Jew's harp, that least expensive and least complex of instruments, acquired a weird majesty all its own.

Saving Dianne Reeves and Lou Rawls' *At Last* [Blue Note CDP 791937 2] for the end, the vocal duet in the title track revealed a sweet, natural-sounding midband that was able to juggle such disparate voices with ease. I kept reminding myself that this pair of amplifiers together costs less than a number of single-chassis stereo rivals, and yet it gives you the channel separation that only monoblocks can. Dianne and Lou, apart yet together: this amplifier pair truly swings. ☺

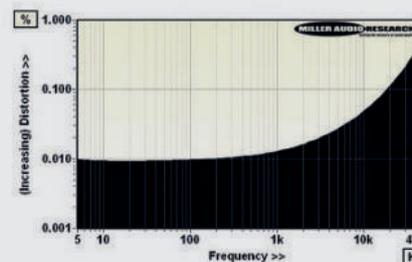
HI-FI NEWS VERDICT

It's not as schizophrenic as you think, and I am not calling it a 'Krellvinson', but the N°536 does exhibit the effortless power delivery associated with the post-Class A Krells. Interesting, too, the amp possesses a smoothness and warmth to counter its sheer muscle, so those old 'fist in a velvet glove' analogies complete the retro vibe. Best of all? For two monoblocks of this calibre, the price is kinda retro, too.

Sound Quality: 88%



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) loads. Maximum current is 31.1A



ABOVE: Distortion versus extended frequency from 5Hz-40kHz at 10W/8ohm

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	530W / 870W
Dynamic power (<1% THD, 8/4/2/1ohm)	610W / 1115W / 1935W / 440W
Output impedance (20Hz-20kHz)	0.066-0.077ohm
Frequency response (20Hz-100kHz)	+0.00dB to -0.93dB
Input sensitivity (for 0dBW/400W)	151mV / 2995mV (balanced)
A-wtd S/N ratio (re. 0dBW/400W)	98.7dB / 124.7dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.0093-0.11%
Power consumption (Idle/Rated o/p)	213W / 840W (each)
Dimensions (WHD) / Weight	451x194x504mm / 53kg (each)

Mark Levinson N°515

When Mark Levinson wanted a turntable to partner its vinyl-friendly N°523 and N°526 preamplifiers it turned to fellow US brand VPI for help with the mechanical design
 Review: **Ken Kessler** Lab: **Paul Miller**

Precedents are not hard to find for collaborations such as this alliance between Mark Levinson and VPI. You can go all the way back to the Tandberg-badged Thorens TD-150s of 50 years ago, or look to current efforts such as the Clearaudio-made McIntosh turntables or the plethora of machines Pro-Ject produces for others. The bottom line is that – like Mac’s decks – the £10,000 Mark Levinson N°515 is not a case of badge-engineering: it’s an all-new model that happens to be made for them by VPI.

MEETING THE CHALLENGE

Visit the Levinson website, and you find out just how closely the two manufacturers worked, the ML crew admitting that their specialty is electronics, while VPI was eager to rise to the challenge not just of making a record deck for another brand, but one worthy of that brand’s particular ethos. VPI already showed it could do it with last year’s Shinola Runwell Turntable, and for that venture, the trick was making one that respected the design language of a company that makes bicycles and wrist watches rather than hi-fi equipment.

For the Levinson turntable, VPI had to emulate the standards of a no-compromise electronics brand, known for its superior metalwork and aesthetics as well as sonic performance. VPI already has its own catalogue of high-end decks, but Mark Levinson was not interested in simply putting its logo on a VPI, so a new look and stance was created in keeping with the electronics with which the turntable is likely to be paired – the phono-equipped N°523 and N°526 preamps [*HFN* Dec ’16].

For those familiar with the VPI range, the N°515’s family tree would show roots in the VPI Prime [*HFN* Jun ’15] and Prime Signature [*HFN* Mar ’17]. Shared elements include the massive alloy platter, the sandwich plinth construction, but made

larger for the N°515, and a 3D-printed arm tube and headshell. To show how far the transformation goes, the company re-engineered its unipivot arm to house, instead, a gimbal bearing and custom counterweight. Fine – I have a love/hate relationship with unipivots, as most are a pain to set up properly.

Says Todd Eichenbaum, Director of Product Engineering for Mark Levinson, ‘The arm tube and headshell are a single 3D-printed component directly derived from VPI’s 3D-printed unipivot arm. The stainless steel gimbal assembly and counterweight, although designed by VPI, are not used on any VPI-branded decks. When we first began working with VPI, we were shown a prototype tonearm that used this same gimbal assembly with a metal arm tube and headshell, and I was really taken with the sound of it. It offered very precise and well-controlled imaging and soundstaging with a rock solid bass.’

For the N°515, they used what Eichenbaum feels are ‘the best of both

worlds – the 3D-printed section mated to the gimbal’. Instead of the four-pin Lemo connector from tonearm to plinth, the tonearm wires run directly to the RCA sockets at the rear of the deck. This arrangement also allows users to experiment with cables from deck to phono stage, accepting any RCA phono-to-phono signal leads, plus an earth wire.

PLATTER AND PLINTH

For the plinth – a combination of features and materials from several VPI models – the designers settled on top and bottom layers of 12.5mm-thick MDF wrapped with a tough, heat-applied vinyl sheet with additional damping to the MDF panels. The layers, besides being attached to each other with adhesive, are also clamped together at the four corners with large, threaded Delrin and stainless steel posts. The centre section is a single billet of machined 12.5mm-thick aluminium.

Resting on Delrin foot pillars with concealed rubber shock mounts, the N°515



RIGHT: The 10in 3D-printed arm tube is culled from VPI’s JMW 10 3D tonearm but the latter’s unipivot is replaced here by a custom gimbal bearing and decoupled counterweight



also sports the same machined aluminium feet and rubber pads that are used on the N°534, N°536 [HFN Sept '16] and N°585 [HFN Apr '15] amplifiers. These should improve damping and isolation of the plinth from external vibrations, and also allow for small height adjustments.

Identical to those in VPI models are the inverted bearing and the platter. Says Eichenbaum, 'They both do their jobs admirably, and there was simply no compelling reason to make changes.' The 8.5kg platter is machined from a single aluminium billet with a large disc of MDF attached to its underside to provide damping. A nice touch is the personalised felt mat, with the Mark Levinson legend across its surface.

Reminiscent of TechDAS's Air Force models, the N°515 uses an outboard motor assembly that sits in a niche to the left of the main chassis. The housing uses the

same sandwich construction as the plinth, its AC motor mounted directly to the thick aluminium plate in the sandwich. The rest of the motor housing is made from folded, welded 2.3mm aluminium.

Eichenbaum points out that 'The aluminium is very rigid and well-damped, and, unlike steel, it does not vibrate in response to any stray magnetic fields from the enclosed motor and transformers.' The control electronics comprise two oscillators, one each for 33.3rpm and 45rpm, and a Class AB power amplifier. Two press-buttons operating in push-push fashion start the deck.

'The bass was a foundation for utterly devastating guitarwork'



TIGHT TRANSIENTS

Arriving with a nice Ortofon Cadenza Bronze cartridge pre-fitted – a circa-£1499 MC on top of the £10,000



LEVINSON'S LEVERAGE

Todd Eichenbaum, Director of Product Engineering for Mark Levinson, detailed specific differences between the VPI and ML decks. Beyond the cosmetics, he says, 'The electronics are similar to VPI's analogue drive system, but are optimised for the N°515's motor. Having them built into the same housing is convenient from a system perspective: it minimises the amount of wiring, which mitigates radiated noise and provides a very direct connection to the motor itself.

'We use three belts to provide a somewhat tighter connection between the motor and platter, reducing drag and offering a slightly more extended and accurate bass sound than a single belt. Having the motor housing and turntable plinth physically separated reduces noise and vibration transfer from the motor, as you would expect.' The armboard and VTA base are almost the same as VPI uses, but the VTA base on the N°515 is smaller. 'No RCA jacks or Lemo connector, and the anti-skating mechanism is mounted directly to the rear of the VTA pillar.'

ABOVE: The 48mm-thick, 8.5kg machined aluminium platter and composite/alloy sandwich plinth are both inspired by VPI's Prime Signature, but the motor and feet are ML's own

price – the N°515 was fed into my EAT E-Glo phono stage, Audio Research REF6 preamp [HFN May '16], McIntosh MC2102 power amplifier and a fresh pair of Sonus faber Amatis [see p28]. As I had just been feeding that system with the vinyl remastering of The Beatles' *Sgt Pepper* [Apple 4553420602557], it was as good a place to start as any.

Wow! The nature of the bass was so different that I had to do the same thing and level the playing field by fitting my Air Tight PC-1 Supreme MC to separate the deck from the cartridge. While the Cadenza Bronze is a fine performer, the PC-1 Supreme – at many times the cost – demonstrates greater refinement and a more lively top end. And a £10,000 deck like this should be (and was) able to handle any cartridge you'd care to fit. It quickly

showed the Cadenza is something of a bargain, and that the bass heard was a feature of the N°515 itself.

It reminded me of the SME Model 30: so controlled and precise, yet somehow warm that it managed to do what CD doesn't, down below. You get slam and tight transients, but without any artifice.

What benefited most from this lower octave behaviour was Ringo's drumming, especially in the manic reprise just before 'A Day In The Life'. The word that springs to mind is 'visceral', and the sensation it imparts is one of utter authenticity.

It's all about pretending the musicians are in the room with you. The N°515 is deliciously uncoloured in the manner ↻

LAB REPORT

MARK LEVINSON N°515

Comparisons between this new N°515 and VPI's Prime [HFN Jun '15] and Prime Signature [HFN Mar '17] decks are useful, not least because they share a very similar, if not identical, 8.5kg platter and inverted bearing with hardened stainless shaft, chrome ball/PEEK thrust pad and phosphor bronze bushing. The N°515 utilises a beefier AC synchronous motor and power supply [see inset picture, p39], benefiting start/stop times, but the triple belt drive also has the potential to transmit more noise into the platter. In practice, through-bearing noise is slightly higher in the N°515 at -69.5dB (DIN-B wtd) versus -70.6dB for the Prime and -73.6dB for the Prime Signature which translates into a similar increase in through-groove noise. Peak wow and flutter is comparable at 0.06% but our sample of the N°515 was running about 0.5% fast [see Graph 1, below]. This will not be detectable by most listeners and, as I often mention, motors typically slow with age anyway.

The 10in 3D-printed polymer/resin arm tube is necessarily less rigid than a carbon or titanium-tubed design and so the first bending mode occurs at a low 96Hz with a series of higher frequency harmonic/torsional modes at 240Hz, 310Hz and 365Hz [see Graph 2, below]. The headshell bending mode appears at 670Hz but all are reasonably well damped, in part courtesy of the tube's foam infill and the cleverly decoupled counterweight. The VTA adjustment pillar offers quick and easy 'tweaking' of arm height with no obvious compromise to the integrity of the arm structure. Similarly, the gimbal bearing is of exceptional quality, with friction less than 10mg in both planes while suffering no detectable play. It's a precision partner for a precision deck. **PM**



ABOVE: ML's triple-belt drive system is clear to see as is a variant of VPI's JMW tonearm base with its adjustable VTA tower. RCA sockets allow your choice of cabling

of the company's electronics, and was clearly voiced to match them, but the vocals throughout weren't merely showcases of hyper-detail. They enjoyed warmth and expression, adding poignancy to 'She's Leaving Home', which has always hit me with its almost cruel resolve, and elevating the charm of 'When I'm Sixty-Four'.

POWERHOUSE PERCUSSION

Ultimately, that LP challenges the listener with its long fade-out, before the rather irritating lead-out groove loop. The crescendo is delivered by Levinson's N°515 with faultless power and decay, which is as it should be. The Ortofon Cadenza managed this with total competence, but the deck and arm proved their mettle with the Air Tight PC-1 Supreme. The fade leaves you drained, only to be shocked back to the present with the lead-out groove nonsense.

Looking for something with less polish, more energy and a boat-load of angst, I turned to the most underappreciated, underrated band of all time: Big Star. From the debut LP, *#1 Record* [Big Beat WIK53] I listened to the raging, pre-punk power of 'Don't Lie To Me'. Raunchy, twangy guitar, McCartney-esque bass, tortured vocals and any fears I might have had that the Levinson N°515 was too nice, too polite to deal with frenzy, eliminated the instant the drums kicked in (0.7sec).

With a positively mental lead-break worthy of the early Kinks, punchy percussion and a surfeit of attitude, the song presaged every powerhouse band ever to bear comparison with The Clash.

This turntable made an occasion of it, continually thrilling with the way it spread the drums across the room, and let the bass roll with it, a foundation beneath utterly devastating guitarwork. Left drained from that, I moved to the sequel,

Radio City [Big Beat WIK 54] and my all-time fave Big Star classic: 'September Gurls'. The odd spelling tells you that this is a song like no other, part-Byrds, part-Beatles, part-Left Banke. Its chiming sound, punctuated by McGuinn-like guitar and heart-breaking vocals were conveyed with exactly the mix of power and delicacy required.

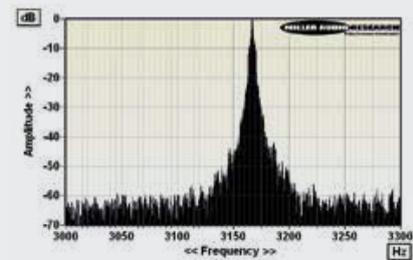
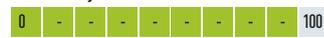
Moving on to something gritty and funky, I dug out a brace of mono Lee Dorsey LPs, *Ride Your Pony/Get Out Of My Life Woman* [Amy 8010] and *The New Lee Dorsey - Working In The Coal Mine/Holy Cow* [Amy 8011]. Exemplars of the New Orleans sound that dates back to the mid-'50s, when funk and rock began to temper the blues and jazz, these Allen Toussaint productions mixed punchy brass, barrelhouse piano, sharp guitar and those rich vocals, with a lazy, swamp feel that says 'Deep South' without equivocation.

'Ride Your Pony' was all I needed. The snap of the bass, the crisp snare, the super-cool backing vocals and the yackety sax coalesced into a gumbo of pure funk. The Levinson N°515 did not impose any restraint, nor did it lose any detail or atmosphere. This turntable is a testimonial for analogue. ☺

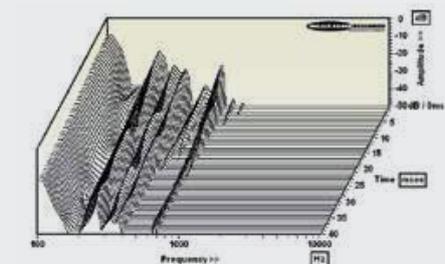
HI-FI NEWS VERDICT

There was never any doubt that the N°515 would be exceptional. With the pedigree of Mark Levinson and VPI, how could it be otherwise? While there are gains to be made in terms of the ultimate perception of mass or grandeur in the sound, the next steps up the scale mean doubling the spend. If £10k is your budget, and refinement with the option to rock hard define your tastes, add this to your list of candidates.

Sound Quality: 88%



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ±150Hz, 5Hz per minor division). Wow is very low but absolute pitch was +0.5% in our sample



ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.50rpm (+0.51%)
Time to audible stabilisation	5sec
Peak Wow/Flutter	0.02% / 0.04%
Rumble (silent groove, DIN B wtd)	-67.9dB (-68.0dB with clamp)
Rumble (through bearing, DIN B wtd)	-69.5dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-55.1dB
Power Consumption	10-23W
Dimensions (WHD) / Weight	533x200x404mm / 26kg

Mark Levinson No585

Featuring a built-in DAC with hi-res-capable USB input, the long-awaited integrated amp from Harman's high-end Mark Levinson brand is a powerful all-in-one package
 Review: **John Bamford** Lab: **Paul Miller**

Back in the 1980s when CD was new, marketing folks might erroneously have called the Mark Levinson No585 a 'digital amplifier'. A replacement for the old No383 100W integrated amp has been anticipated for many years, and when it was previewed at Munich's High End exhibition last summer it was revealed that it would be an all-encompassing integrated component priced at £10,500, featuring a built-in DAC and a suite of digital as well as analogue inputs.

Parent company Harman International Industries, manufacturers of high-end Revel loudspeakers and Mark Levinson electronics – alongside JBL Synthesis and Lexicon electronics, and JBL's statement 'Project' speaker designs, in the conglomerate's Luxury Audio Group division – has spent the past few years undergoing some major restructuring 'in the background' while maintaining its day-to-day operations.

A BEEFY REPLACEMENT

As a consequence, fresh-up Mark Levinson products have been relatively few and far between, exceptions during recent years being the awesome No53 flagship monoblock priced at £23,500 [*HFN* Jan '11] and, somewhat later, the No52 'Reference' preamplifier (£28,000) to partner them, an awesome two-box design which can lay claim to being one of the most desirable preamps in the world [*HFN* May '14].

Recently Harman has opened a brand new electronics R&D facility in Connecticut, headed up by Todd Eichenbaum [see interview, p31]. The reorganised design team there is busy on a raft of designs and this new 'entry-level' amplifier is Mark Levinson's first integrated since 2006, when the No383 was discontinued.

Rated at 200W/8ohm, the No585 is considerably more beefy than the No383 and is a fully balanced Class A/B design

RIGHT: A single 900VA transformer (with dual secondaries) feeds independently-regulated supplies for the 12-transistor strong Class A/B power amp(s) and DAC section

employing 12 output devices for each channel in a double mono configuration. At the heart of the amplifier's on-board digital audio processing stage is an ESS Sabre 32-bit D/A converter with proprietary jitter elimination and fully balanced, discrete current-to-voltage circuitry.

The USB interface employs a USB audio processor from C-Media capable of asynchronous data transfer of PCM files at up to 192kHz/32-bit resolution and DSD natively at both 64 and 128fs with supplied ASIO drivers.

The No585 has many separate power supplies, each optimised for its particular function. First, a small switching supply is

used to provide power for 'housekeeping' functions while the unit is in standby. Second, a larger one powers the digital and control circuitry. Finally, eight linear power supplies, four per channel, provide power to all the analogue circuitry.

Separate outputs from a 900VA toroidal transformer feed the left power amp, the right power amp, and the left and right power supplies for the analogue preamp circuitry. Four linear voltage regulators, two per channel, provide 'a quiet, rock-steady power source for critical preamp and DAC analogue circuitry' says the design team. It employs individual signal switching relays for each of its analogue inputs, while





volume adjustment is via discrete 15-bit R-2R resistor ladder networks and low-noise analogue switches.

COVERING ALL BASES

As is typical of all Mark Levinson components, the No585 has been designed with meticulous attention to detail, in order to ensure extremely high sound quality commensurate with its price. It employs a heavy-gauge chassis and card-cage architecture to isolate critical low-level analogue and digital circuitry, and features audiophile-grade internal components and top-quality rear-panel connectors [see pic, p33].

At the same time it features comprehensive functionality to accommodate real-world installations rather than simply appealing to 'purist' knit-your-own-sandals types. It has four analogue and six digital inputs to cover pretty much all possible source requirements and the fascia sports buttons

for governing display brightness, absolute phase polarity, mute, balance (in 0.1dB steps), and for entering the amplifier's configuration menu [see boxout].

All functions, including standby on/off, can also be accessed via the amplifier's IR handset, a compact all-metal affair which is perhaps the product's only let-down. It just doesn't sit in the hand anything like as satisfactorily as the stubbier and more rounded handset that accompanied the old integrated model (still supplied for use with Mark Levinson's current preamplifiers).

Curiously, the new handset adds 'transport' keys – next, previous, pause/play and stop – for controlling computer audio playback via USB. Correct functionality can't possibly be guaranteed with all Mac and PC music playback software, however I can confirm faultless operation with foobar2000 and JR Media Centre running under Windows – although I question its real usefulness.

'Clari-Fi is meant to restore "the full listening experience"'

ABOVE: Rotary source selector and volume controls are also used to navigate the amplifier's configuration menu, such as naming/trimming inputs. They flank the unit's red display

'Scrubbing' within tracks isn't supported, and if you're pushing into the amp's USB input from a computer and want to avoid using a keyboard and/or mouse, won't you be navigating your music collection using a control app on a phablet? Surely most users will...

A further button on the new handset, placed prominently in centre position, turns the amplifier's 'Clari-Fi' processing on/off. A function of the digital section's on-board DSP, Clari-Fi is a proprietary 'music restoration' algorithm that claims to identify which music sources have been lossily compressed and, in real time, restore playback to the 'full listening experience'.

FILTERS BURIED IN THE MENU

As with Sony's DSEE or Pioneer's 'Sound Retriever' processing designed to enhance the sound quality of compressed media, it's moderately successful at adding clarity to low-bitrate audio, seemingly boosting the 5-12kHz frequency region to add some pizzazz. Clearly, audiophiles will pay it scant attention as it's more appropriate to in-car audio and portable playback systems than the pursuit of high fidelity *per se* – but I did find it quite effective when streaming YouTube videos and the like.

Most owners surely will find it a lovely amplifier to use thanks to its easy-to-read display and ultra-fine volume adjustment in circa 0.1dB increments. Even the law of the volume control can be configured to taste. Nevertheless, audio enthusiasts keen to experiment with the DAC's filters on the fly will rue the fact that the filter options are buried in the menu and not *directly* ↻

ON THE MENU

As with the brand's existing preamps – and the long defunct No383 integrated which this No585 replaces – there are myriad settings one can configure via the set-up menu. The analogue and digital input levels can be trimmed to even-out level differences between sources, inputs can be named as well (a most desirable feature never to be overlooked) and minimum/maximum output levels determined – including the muting level. The No585's line outputs can be configured to be fixed level (for recording) or variable (to facilitate a 'preamp output'), and if set to the latter and used to drive powered subwoofers there's the option of switching in a 80Hz high pass filter. And any one of the amp's four analogue inputs can be chosen to act as a pass-thru' for integration with a surround processor if required. The DAC's choice of 'Sharp', 'Slow' and 'Minimum Phase' digital filters for playback of PCM files [see Lab Report, p33] are also selectable, as is a choice of 47, 50, 60 or 70kHz filters for when playing DSD files.



ABOVE: Fresh styling is a little 'cleaner' and more modern – while remaining characteristically 'Mark Levinson'. Substantial heatsinks are encased within the chassis frame to avoid sharp edges

switchable via the handset. And when using the on-board DAC the amplifier's display only indicates incoming sampling rate for a brief moment – if and when the sampling frequency *changes*. Mind you, this is adequate to determine that your computer source has been correctly configured in the first place.

SUPERB TRANSPARENCY

Feed any good quality source into the No585 and its sophisticated sound is instantly apparent.

It appears as more powerful, 'faster' and more immediate than the No383 of old – a tad more crisp and vivid. It just seems 'cleaner', and it delivers more explicit low frequencies, with

no soporific softening of leading edges through the midband and HF.

Revisiting the 96kHz/24-bit recording of the jazz/rock combo Vantage Point (featuring drummer Simon Phillips and pianist Jeff Babko) made for the DVD-Audio album *Resolution* produced by Mark Waldrep [AIX Records AIX 80040] revealed just how vigorous a performer the amplifier is, and confirmed its first-rate transparency to fine detail.

Waldrep's hi-res productions are uncompromisingly explicit, and this new amplifier was excellent at showcasing the recording's lifelike dynamics, and it delivered images of the musicians performing in a natural space in a most convincing manner. All the while the sound remained endearingly luscious and

'relaxed', with a smooth midrange and sweet treble but without ever appearing too creamy and mellow.

Light-footed while simultaneously meaty and powerful, it's every bit a high-end performer, despite its 'entry-level status' in the Mark Levinson product portfolio. It proved perfectly competent at exposing the dexterous plucking by guest bassist Alphonso Johnson and revealing his subtle phrasing, where too often the clarity of the bass can be masked by the wallops of

Simon Phillips' kick drum in this 'live take' AIX recording.

It's also wonderful at carrying music's inflections and accents. Whether it was with hi-res demo tracks or any regular recordings

in my current playlists, this new amplifier threw a most musical, accurate and detailed soundstage in front of me.

On *New Moon Daughter* [Blue Note Japan TOCJ-5996] Cassandra Wilson's opening 'Strange Fruit' had all the sumptuousness and atmosphere I'm accustomed to hearing from this track, with the cornet solo at the beginning occupying a perfect space at the rear of the soundstage. The reverberation tails sounded convincingly natural. I was entranced by the manner in which the amplifier portrayed the atmosphere in her psychedelic jazz re-working of Tommy Boyce and Bobby Hart's classic 'Last Train To Clarksville'.

And on Keith Richard's under-appreciated solo album *Main Offender* ➔

'It is wonderful at carrying musical inflections and accents'

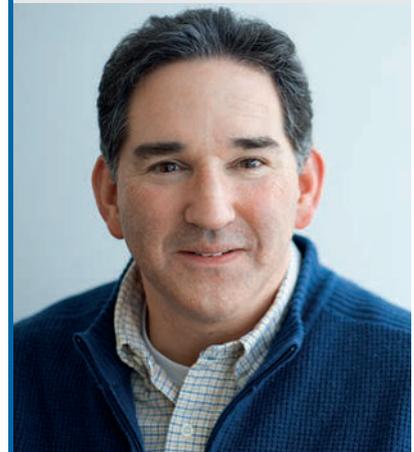
TODD EICHENBAUM

While Harman's near-legendary design facility in Northridge, CA, continues to focus on speaker design, electronics such as its prestigious Mark Levinson components are now developed in Shelton, CT. Head of the new Shelton development team is Todd Eichenbaum, who joined Harman in Feb '13

after spending a lifetime designing components for Krell Industries. In his youth he studied electronics engineering and after gaining his degrees he worked as a designer at Krell until 1995, leaving to work on a series of upmarket in-car audio components for specialists Precision Power Inc. Three years later he returned to Krell as the company's senior analogue engineer and was promoted to become Krell's VP of product development in 2008.

Says Todd: 'As a student I remember having what I would call a life-changing moment when I compared the amplifier I then owned to a Mark Levinson. It was fantastic in every aspect: detailed, three-dimensional, and just plain huge. It was also completely unaffordable! I went home disappointed, but excited at having heard what was possible from high-end audio.'

'We've ten engineers focused on rejuvenating the Mark Levinson product line. We've just showed our latest No536 mono power amp at CES, one of several ground-up designs scheduled for release in the near future.'



LAB REPORT

MARK LEVINSON NO585



ABOVE: Two coaxial and optical S/PDIF digital ins plus USB and AES/EBU are joined by three RCA analogue line ins (one pre out), one balanced XLR in and 'Hurricane' 4mm speaker terminals. System controls include Ethernet, RS232, IR and 12V triggers

[Virgin CDVUS 59] the amplifier delivered the infectious verve of the musicians' performances with aplomb. Tracks such as 'Wicked As It Seems' fizzed with pent-up energy, while on 'Will But You Won't' I could actually hear when the second guitar mic feed opened up, prior to hitting the loud pedal and letting rip.

REVEALING DEPTHS

All the while I'd been listening to the amplifier's built-in DAC. So turning attention to the performance of the No585's DAC section I set up some straightforward comparisons, listening in turn to a T+A DAC 8 [HFN Oct '12] and Antelope Audio Zodiac Platinum [HFN Feb '15] hooked up to the amp's balanced inputs.

Differences in sonic presentation were fascinating – largely in terms of subjective tonality and 'character'. The T+A sounded characteristically vivid and razor-sharp, a tad more squeaky-clean, while Antelope's Zodiac (which costs almost as much as the No585 when partnered with its Rubidium clock) appeared more robust, 'organic' and free-flowing.

I never felt the least bit short-changed listening to the No585's built-in D-to-A converter – possibly because any qualitative variations in using a more costly separate DAC can become masked by the necessity for interconnecting cables. There's much to be said for having everything integrated – though future upgrading becomes less straightforward, of course.

Due to the No585's crisp immediacy I sometimes thought it a little 'lean' in bass weight, only to be caught off guard by recordings containing *true* low-bass content.

One such moment came when listening to 'Comes Love' from Joni Mitchell's exquisite *Both Sides Now* album (recorded in London's Air

Studios) in 96kHz/24-bit resolution [DVD-Audio, Reprise 47620-9], when the bass trombone doubled by the string bass suddenly go very deep indeed. So not only is the No585's midrange extraordinarily transparent and clean, it is also very revealing of low frequency detail.

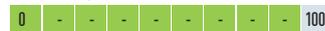
And Vince Mendoza's sumptuous orchestral arrangement in 'At Last' was served up with a tremendous sense of space thanks to the amp's subjectively super-quiet background – fine detail such as the quiet piano notes balanced low in the mix hovering like a halo above Mitchell's cigarette-scarred contralto.

In the world of high-end audio an integrated amplifier might be considered something of a 'compromise', especially one with an on-board DAC. But not here, the Mark Levinson No585 delivering a powerful sound with superb dynamic-range capability, smooth and grain-free high frequencies, an uncoloured, natural-sounding midrange, and possessing the ability to throw a wide, deep and stable soundstage. I could live happily ever after with it, it's that good. ☺

HI-FI NEWS VERDICT

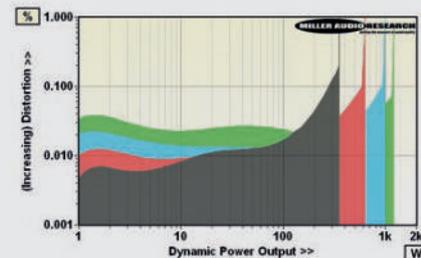
Proof positive that you don't *have* to have a rack-full of separate boxes in your living room to enjoy fabulous high-end music replay, the No585 integrated unit sounds simply sublime – and delivers adequate power to drive even pretty demanding loudspeakers. Its built-in hi-res PCM and DSD-capable USB DAC makes it even more desirable for those wanting a no-compromise set-up while remaining resolutely clutter-free.

Sound Quality: 89%

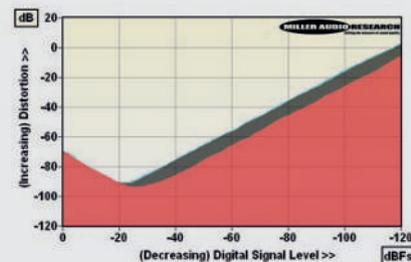


Levinson's 0-80 volume control (scaled in steps of 0.1 but not precisely ± 0.1 dB) is accurate to ± 0.5 dB over the top 60 dB of its dynamic range. The No585 is also very powerful, obliterating its 200W specification with a 2x285W/8ohm and 2x455W/4ohm performance, increasing to 355W, 635W, 988W and 1211W (~ 35 A at $<1\%$ THD) into 8, 4, 2 and 1ohm loads under dynamic conditions [see Graph 1, below]. Distortion increases gently from 0.007%/1W to 0.02%/100W and 0.03% at the rated 200W (all at 1kHz) but also at very low frequencies – 0.05% at 20Hz and 2.5%/5Hz (10W/8ohm). The response is somewhat load-sensitive, extending down to -0.04 dB/20Hz but varying at 20kHz from -0.1 dB, -0.25 dB, -0.5 dB and -1 dB into 8, 4, 2 and 1ohm. The S/N ratio is healthy at 89.4 dB (re. 0 dBW).

Tested via the pre-outs (power amp disabled) THD via the S/PDIF and USB inputs rises quite quickly beyond 2.5V so a 'standard' 2V/0 dBFs level was established at Vol = 6.1.4. THD is moderate but consistent at 0.04% (100Hz-20kHz), but 0.12% at 20Hz and reaches a minimum of 0.001-0.0012% at -25 dBFs [see Graph 2] while the A-wtd S/N ratio is a respectable 108 dB via S/PDIF and only slightly poorer at 105 dB via USB. Low-level resolution is good to ± 0.2 dB over a 100 dB range. The three digital filters influence response, stopband rejection and time domain ripple – 'Sharp' (-6.3 dB/90kHz) is a conventional brickwall type, 'Slow' (-9.6 dB/90kHz) has the least pre/post ripple but the poorest stopband rejection while 'Minimum Phase' (-6.0 dB/90kHz) offers an acceptable stopband rejection (75 dB), no pre-event ripple but the most post-event echo. 'Slow' would be my choice for 96/192 kHz music files. PM



ABOVE: Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads. Maximum current is 34.8A



ABOVE: THD vs digital level over a 120dB range via line out (S/PDIF 1kHz, red & 20kHz, black; USB 20kHz, blue)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	285W / 455W
Dynamic power (<1% THD, 8/4/2/1ohm)	355W / 635W / 988W / 1211W
Output impedance (20Hz-20kHz)	0.025-0.130ohm
Frequency response (20Hz-100kHz)	-0.03dB to -1.28dB
Input sensitivity (for 0dBW/200W)	25mV / 365mV (balanced)
A-wtd S/N ratio (Analogue/Digital)	89.4dB (0dBW) / 107.7dB (0dBFs)
Distortion (20Hz-20kHz, An/Dig)	0.05-0.0045% / 0.12-0.040%
Power consumption (idle/Rated o/p)	88W / 845W (1W standby)
Dimensions (WHD) / Weight	434x193x506mm / 34kg



With huge build quality and price tags to match, Mark Levinson has defined the high-end of hi-fi

Mark Levinson 326S/532H | Pre/power amplifier | £9300/£7500

“There’s an undeniable aura of class about it”

Mark Levinson can claim to be one of a handful of brands that defined the ‘high end’, establishing a template of over-engineered electronics, lavish construction and, of course, huge price tags. This 326S/532H pre/power pairing may be one of the company’s more affordable offerings, but we suspect it will be all the amplifier anyone ever needs.

Compact, but classy

By high-end standards the 326S preamplifier is a compact unit, yet there’s an undeniable aura of class about it. That impression starts with the superbly made casework.

The preamp’s internal electrical layout is dual-mono, where the left- and right-channel circuits are as symmetrical as possible to optimise stereo imaging. Connectivity is good, with seven line-level inputs, both single-ended and balanced XLRs. There’s also the option of a built-in MM/MC phono module for an extra £1375.

The 300W-per-channel 532H power amplifier is far simpler. This is a sizable powerhouse at 19 x 45 x 50cm and 34kg. Inside you’ll find a dual-mono configuration right down to using twin mains transformers - one for each channel.

There’s also an ethernet connection, but no streaming module built in. It enables the amp to be configured as part of a multi-room set-up when using ML’s Media Console as the source.

The 326S/532H combination is nice to use - not always the case with high-end equipment, which tends to compromise usability either in

the pursuit of better sound or appearance. This pairing avoids both, with an intuitive control layout and one of the clearest displays around.

But while the duo is undeniably talented, we initially wonder whether its presentation is just a little too subtle, and whether there is a shortfall of punch and attack. Over time, we realise this impression is a result of the 326S/532H combo’s class-leading refinement and composure. There aren’t any hard or bright edges in the sound, so no artificial excitement.

Play a challenging piece of music such as Hans Zimmer’s *The Battle* (from the *Gladiator*

Play a challenging piece of music and this pairing takes it all in stride. Played at the volume this amplifier is capable of, it is fearsome

OST) and this pairing takes it all in stride. Crescendos crash with impressive force while there’s plenty of drive to the rhythmic elements. It’s quite fearsome when replayed at the huge volume levels this amplifier is capable of.

Even with the music at its most challenging this pairing sounds totally unflustered, almost as if it barely has to try to produce all that fury. There’s no undue hardness in the presentation, and certainly no rounding-off of extremes.

The stereo imaging is remarkable too, with a presentation that is wide, deep and very well layered. Instruments are just locked in position, refusing to budge even when a crescendo hits. The midrange is fluid in communicating nuance, and there’s an appealingly natural way with which this amplifier renders vocal-based music.

This pair does a good job communicating the changing pace and momentum of the track. The delivery is for one so powerful, and traces the leading and trailing edges of notes nicely.

Forgiving with aggressive tracks

Tonally these Levinsons aren’t strictly neutral, sounding just a little rounded at the top end and a touch rich through the midrange. But these characteristics are mild and give this combo a forgiving outlook with aggressive recordings.

The MLs are still revealing enough to show off any shortcomings in production (or partnering equipment) but never overemphasise things. The 326S/532H combination is a hugely capable pairing that delivers a controlled, entertaining sound. Add terrific build and the Mark Levinson brand name, and it’s easy to be tempted.

WHAT HI-FI? says

RATING ★★★★★

VERDICT Hugely capable, with insight, refinement and muscle that’s hard to better for the money

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POWER | PRECISION | PURITY

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