Network-attached player/preamp/DAC
Made by: Pixel Magic Systems Ltd, Hong Kong
Supplied by: Sound Design Distribution Ltd, Cardiff
Telephone: 0800 0096213
Web: www.luminmusic.com; www.sounddesigndistribution.co.uk
Price: £8495

Lumin P1

Described as the company's most versatile digital player to date, Lumin's P1 is an unashamedly high-end network audio solution. But can it be all things to all users?
Review: **Andrew Everard** Lab: **Paul Miller**

As is so often the case with network audio products, the salient question concerning the Lumin P1, yours for £8495 in a choice of silver or anodised satin black sculptural milled-from-solid casework, is what it is *exactly*. The company can help with that, suggesting it can be just about anything you want: a network player, a DAC, a preamp (complete with analogue inputs as well as the digital array), or all three. Helpfully it also points out that it can function as a two-channel sound processor for a home cinema system, having three HDMI inputs and a single output with Audio Return Channel capability for a TV set. That last feature may demonstrate a little of the manufacturer's heritage: Hong Kong-based parent company Pixel Magic Systems started out in 2003 making digital TV recorders, and its products are now sold in 25 countries across the globe.

The Lumin brand was launched in 2012, and its catalogue now runs to seven network players and transports, from the entry-level U1 Mini (£1695) upwards, and includes a complete 'just add speakers' network player/amp, also at £1695. In addition there's a heavyweight £10,995 power amp, prosaically named 'Amp', delivering a claimed 160W/8ohm (or 640W bridged), and with curvaceous styling designed to match the company's high-end players – such as the P1 here.

FLEXIBLE FRIEND

In other words, the P1 may look unlike anything else on the network audio market, but it also offers a pretty unique set of attributes, both in terms of connectivity and internal design. However, when a product is essentially computer-based, you can add almost any facility you like, and design it into just about any form factor you choose.

So, while the P1 isn't quite Lumin's flagship – that's the two-box £11,495 X1 – it's still a remarkably capable and flexible device, however you decide to use it. And, thanks to the excellent Lumin app, usable across the company's range and running on Android and iOS devices, plus Mac M1 computers, it's one that's easy to set up and operate. For traditionalists there's also an infrared remote handset, clad in acrylic and zinc [see p59].

The P1 is larger than Lumin's other transports and players, standing 10.4cm tall – not least, I suspect, to give it the rear-panel space to accommodate all the inputs and outputs on offer in addition to housing the shielding for the dual-toroidal power supply [see pic, below]. As well as its HDMIs and conventional digital inputs on AES/EBU, coaxial and optical connections, there's an asynchronous USB-B port for computer connection and analogue ins on both XLR and RCA sockets. Networking, meanwhile, offers a choice of Ethernet on an RJ45 port or an SFP fibre socket, allowing the P1 to be electrically isolated from the network to which it's connected.

THE CHOICE IS YOURS

Actually, make that networking option an 'and' rather than 'or', as the Lumin P1 can use both connections at once, for example allowing the user to connect to their home Internet service via Ethernet, and direct to a NAS containing music via fibre [see boxout and illustration, p57]. To cut to the chase – used this way the P1 benefited from a very real uplift in subjective sound

RIGHT: Fed from a screened PSU [top] the P1's mainboard processor lies under a heatsink [centre]. Two ES9028PRO DACs [bottom centre] are part of a balanced analogue stage that includes Lundahl o/p transformers [bottom right]

ABOVE: Available in black or natural finishes, the stylish P1 features a machined alloy fascia and deep set, dimmable display. There's an IR remote [p57] but most controls are in the app

quality, revealing even more detail in the music being played.

If the inputs on the Lumin P1 are comprehensive, so are the outputs. Both balanced XLRs and unbalanced RCAs are provided, configurable as fixed level for use into a preamp or integrated amp, or variable for power amps and active speaker systems. There are also digital outs on BNC and USB-A should you feel the need to use the P1 into an external DAC, but given the performance of the P1's internal DAC and analogue output stages, I'm not quite sure why anyone would want to do that.

'The reflective pieces are simply breathtaking'

The P1's own digital section uses two of the familiar ESS Sabre ES9028PRO DAC chips as part of a dual-mono, fully balanced layout throughout the player, with a 'Femto clock' system under the control of software running on an FPGA. The P1 also offers the (third-party) Leedh lossless processing system to control the variable output volume level, although this algorithm can be switched in or out.

Via the network inputs, the player can handle file formats up to 384kHz/32-bit LPCM and DSD512, and via USB up to 384kHz/32-bit (and DSD128 via DoP), though as is usual the optical and two electrical inputs are limited to 192kHz/24-bit and DSD64 via DoP. There's then a wide range of upsampling options available when you dig into the menu system via the Lumin app, as well as settings including dimming or turning off the info display, setting a sleep time when the unit hasn't been used for 15 minutes or an hour, and adjusting the fixed output level to suit your preamplifier.

As well as network streaming, the P1 also offers Spotify Connect, Tidal (with full MQA decoding) and Qobuz, plus a comprehensive range of Internet radio stations. It's also Roon-ready, allowing playback to be controlled remotely by a Roon Core-based set-up.

SPARKING INTO LIFE

However you use it – as a DAC, preamp/player or Roon endpoint – the P1 delivers a sound able to grab the attention from the off, and hold the listener rapt across long listening sessions. With the driving rhythms of 'Bullet Train' from the remastered re-release of Sparks' *Balls* [BMGCAT550CD], the Lumin P1 lays down a solid bass and opens up the dense mix. Also, with the lush Toni Visconti mix of 'The Angels', with its ethereal backing vocals, the wide, deep soundstage the player allows adds enormously to the ambience of the track.

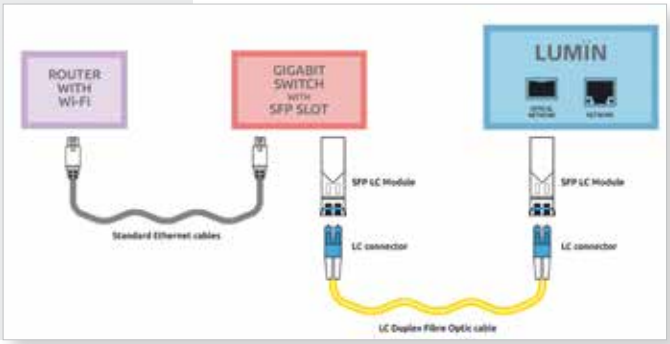
This combination of weight and clarity also serves well the psychedelic metal of Somali Yacht Club's 'Echo Of Direction', from *The Space* [Season Of Mist SOM 648D], allowing all the complexities of the recording – from gentle rock and multi-layered vocals all the way through to crashing guitars and thundering rhythm section – to be appreciated in their trippy magnificence. Switch to a different kind of 'dense', in the form of the 2009 recording of Dvořák's 9th Symphony, by the Youth Orchestra of the Americas under Jean-Pascal Hamelin [2xHD 2XHDFM1229; DSD256], and the Lumin P1 delivers a heroic sound with the final 'Allegro con fuoco', bringing out all the freshness of the playing of the youthful performers.

This same openness is also beneficial with the exuberance of French baritone Florian Sempey's *Figaro? Si!* recital of Rossini [Alpha 791D; 96kHz/24-bit], ⇨

FILES BY FIBRE

As I mentioned in our review, Lumin's Ethernet and fibre network connections can be used interchangeably. You might need a little extra hardware to do this if your NAS doesn't have a fibre connection, but this is a connectivity option I have been using for some time in my own system with excellent results. I deploy little Ethernet to fibre converters (from about £30, though you'll now find 'audiophile' versions for much more!), inexpensive LC fibre-optic cable (think about £10 for a 10m run), and an LC/SPF converter, which also start from about a tenner.

It's an inexpensive experiment to try, and one I've found brings appreciable benefits in clarity when compared with the potentially 'noisy' conventional wired connection. And there's a further benefit: the low cost of the fibre cable makes it easy to store your NAS remotely and avoid its fan/drive noise impinging on your listening. A 20m run of LC/LC cable will still cost you less than £20, and even longer runs are a steal compared to extended lengths of decent Ethernet cabling.



ABOVE: Busier on the back, the P1 offers analogue ins on XLR/RCAs with digital ins on coax, optical and AES/EBU [all 192kHz/24-bit; DoP64], USB-B and optical/wired Ethernet ports [384kHz/32-bit; DSD512]. Three HDMI ins/one out, an S/PDIF (BNC) out and USB-A output are joined by fixed/variable preamp outputs on XLR/RCAs

handling well the speed of the playing of the accompanying orchestra as well as the richness of the soloist's voice.

SAX APPEAL

With one of my favourite test-tracks, the Espen Eriksen Trio's 'In The Mountains' – here from the live album of the same title with saxophonist Andy Sheppard [Rune Grammofon RCD2227, 96kHz/24-bit] – the P1 sounds fabulous with the sonorous drums of Andreas Bye and tight bass of Lars Tormod Jenset, above which Eriksen's piano and Sheppard's sax sing out, the latter wonderfully resonant and breathy.

And that glorious ability with instrumental timbre is also much in evidence with pianist Jan Gunnar Hoff's Steinway on his latest solo set, *Home* [2L 168; DXD], the level of detail in the often-reflective pieces here simply breathtaking. Combine the P1 with a suitably revealing system, and it's hard not to be captivated by the 'piano in the room' effect of this masterful recording, whether with the contemplative 'Magma' or the imaginative improvisations on 'Summertime' and 'Moon River', both of which are a very long way from the usual 'heard it all before' interpretations.

LEFT: Lumin includes an IR remote for input selection, volume and mute, plus basic track and menu navigation. Otherwise, use the app...

As I spent much of my time using the P1 as a player into my usual reference set-up, streaming music from my network storage, I didn't spend too long exploring the variable volume options on offer here, but perhaps the Leedh level adjustment does bring just a shade more detail when playing with low output settings, whether into a unity gain input on my preamp or straight through to the power amp. Mind you, the sound appeared even more convincing when the P1 was used purely as a player, running at fixed 'full power' output.

But while the differences observed when switching back and forth between the volume options were interesting, if subtle, they were minimal when compared to the benefits of adopting the fibre network connection for network music playback. Excellent though the Ethernet feed may be, switching to fibre just brings that extra snap into focus, and details 'pop' a little more, further increasing the ability of the P1 to enthral with music both new and familiar.

SEALING THE DEAL

Yes, the multifaceted Lumin P1 is undoubtedly expensive, and it would be easy to think of ways of getting network music playback at a fraction of its price, but the fact that it looks and sounds so striking, works so seamlessly with its control app, and has all the flexibility most could ever want, means it's an attractive buy. But above all, it's the addictive sound, from electropop to full orchestral force – and everything in between – that seals the deal.

HI-FI NEWS VERDICT

While you get a lot for your (serious) money here, it's worth considering whether you need all the functionality built into the Lumin P1, including DAC, preamp and ability to run a two-channel AV system. But the fact that it more than justifies its cost even when used purely as a network player into a conventional preamp or integrated makes this a fine buy for any high-end connected system.

Sound Quality: 87%

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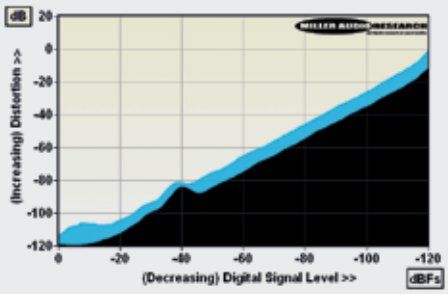
LAB REPORT

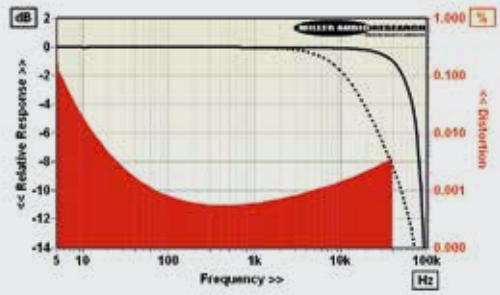
LUMIN P1

Comparisons with Lumin's more affordable D2 music server/DAC solution [*HFN* Jul '20] are not especially instructive because the latter employs the Cirrus Logic (née Wolfson) WM8741 DAC while the P1 uses pairs of ES9028PRO converters. Maximum output is a healthy 5.8V from a transformer-coupled stage with a usefully low 18ohm source impedance (balanced XLRs) while the A-wtd S/N ratio is a very wide 118dB, via all digital inputs and over all sample rates. Distortion is exceptionally low too with just 0.00006-0.0003% achieved between 20Hz-20kHz at its peak output [see Graph 1, below]. Neither does Lumin appear to be using one of ESS's seven 'baked in' digital filters – instead, the algorithm, with a slow-roll off/linear phase profile, appears to be adaptive, responding differently to continuous and transient signals. Stopband rejection is 50dB (re. 20kHz at 48kFs) while the responses have a slightly early pre-Nyquist roll-off of –1.2dB/20kHz with CD/48kHz media and –5.1dB/45kHz with 96kHz+ media. Jitter, meanwhile, is vanishingly low at sub-10psec with all sample rates.

The Lumin P1 includes an equally impressive balanced analogue preamp. Gain is ~unity and the maximum input/output level is ~6V, achieving a low distortion of 0.0008-0.004% at 0dBV (20Hz-20kHz). Distortion increases at subsonic bass frequencies, from 0.004%/20Hz to 0.015%/10Hz and 0.15%/5Hz, presumably as a function of the output-coupling transformer [red trace, Graph 2, below]. The response also cuts off very abruptly below 3Hz but is otherwise flat to within ±0.2dB from 20Hz-20kHz before rolling away above 65kHz (–3dB) to –19dB/100kHz [black trace, Graph 1]. Note that the P1's 'CD de-emphasis' function is applied to its *analogue* inputs [dotted trace]. **PM**



ABOVE: Distortion vs. 48kHz/24-bit digital signal level over a 120dB dynamic range (1kHz, black; 20kHz, blue)



ABOVE: Distortion vs. freq. (red; balanced in/out re. 0dBV) and freq. resp. (dashed, with CD de-emphasis)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	5.80Vrms / 18ohm
A-wtd S/N ratio (Digital / Preamp)	118.0dB / 82.2dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00006% / 0.0011%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.0003% / 0.0022%
Frequency resp. (20Hz-20kHz/45kHz)	+0.0 to –1.2dB / –5.1dB
Digital jitter (48kHz / 96kHz)	9psec / 11psec
Resolution (re. –100dBFs / –110dBFs)	±0.1dB / ±0.2dB
Power consumption	19W (19W standby)
Dimensions (WHD) / **Weight**	350x107x380mm / 12kg