



## PS Audio DS Junior

If you're a regular *AV Magazine* reader, you'll know that we're big fans of the PS Audio DirectStream D/A converter – so much so that we crowned it our Product of the Year for 2015, and bought the review unit. It's remained our reference DAC ever since.

One of the DirectStream's many appealing features is its upgradeability. It uses custom-coded Field-Programmable Gate Arrays (FPGAs) instead of conventional DAC chips. The FPGAs are software-upgradeable, which means the DirectStream can be continuously updated by simply downloading the latest custom code from the PS Audio website.

To PS Audio's credit, new software has been released regularly, and free of charge, with each update heralding significant sonic improvements. There's no reason that this process won't continue, thus keeping the DirectStream at the cutting edge.

One more thing about the DirectStream (DS) before we move on to the DS Junior (DSJ) under scrutiny here: the DS can be fitted with a network bridge, which allows it to stream music from DLNA-compliant network devices such as a NAS drive, or a computer.

Adding the Bridge II costs extra, but one of the many benefits is that it's Roon Ready, which means it can be used as an endpoint when using Roon playback software.

If you have a large digital music library on your network, and haven't tried Roon yet, you should – the interface is superb, the sonic quality is excellent, and it now offers niceties such as integrated room correction capability, and MQA compatibility.

But I digress. The DS Junior is a compelling piece of kit – perhaps even more compelling than the DirectStream, because it offers so much for the money. In simplistic terms the DSJ is exactly what the Junior designation suggests: a device that offers much of the capability and functionality of a DS plus Bridge II combo, but for a significantly smaller outlay.

PS Audio says the DSJ delivers 85 percent of the DS in audio terms. It offers the same FPGA-based digital processing, but the company has found ways to cut costs by simplifying a number of elements. These include the display and user interface, the power supply and the balanced output circuitry.

The enclosure is slightly slimmer (but still looks and feels the robust

PS Audio part) and the digital input array has one less I<sup>2</sup>S socket. I'm sure there is more to it than that, but what really matters is how well the Junior performs – and in reality it gets mighty close to its smarter, dearer sibling.

Aesthetically, the Junior's steel and aluminium enclosure, with its rounded corners and glossy black top panel, are unmistakably PS Audio. There's the illuminated PS Audio logo on the left which also doubles as an on/standby switch, and a slimline display partnered by a large rotary controller.

The alphanumeric display is smaller and more rudimentary than the full-colour touchscreen on the DS, but it still provides the necessary functionality and information, as well as a variety of set-up options.

The rotary controller confirms that the Junior also offers pre-amp functionality, which means it can operate as the heart of an all-digital system, and be linked directly to a power amplifier if required. PS Audio says the volume and balance control is 100 percent bit-perfect, with no loss of resolution at lower volume settings.

The DSJ comes with a comprehensively configured remote control handset that will also work with PS Audio disc players





such as the DS Memory Player, as well as the brand's pre-amps and the PerfectWave phono stage.

The rear panel offers a choice of RCA or XLR balanced outputs, and a selection of digital inputs: AES/EBU, SPDIF coaxial, Toslink optical, asynchronous USB Type B, and I<sup>2</sup>S. Network connectivity is via an Ethernet socket, and there's a USB Type A interface for firmware updates.

The Ethernet socket confirms that the Junior also includes the PS Audio Bridge II circuitry, which allows it to link to network devices such as a NAS, and stream music content from them using third-party software such as JRiver Media Centre, Audirvana and many others. And as mentioned the Bridge II is also Roon compatible.

Without getting too technical, let's take a quick look at how the DSJ treats incoming digital signals. Regardless of the input selected, all digital data – PCM and DSD – is converted to one-bit DSD with a sample rate of 28,224 MHz – or 10-times DSD by those FPGAs mentioned earlier.

By converting all data to 10x DSD, regardless of bit depth or sample rate, the DSJ makes the conversion to analogue simpler, more accurate and less prone to jitter and distortion. That's partly because converting DSD to analogue requires nothing more than a low-pass filter, while unlike PCM, DSD is intrinsically linear. It also handles clipping more benignly.

You can read about PS Audio's DSD-based D/A conversion methodology in a more

detail on the company's website by pointing your browser to <http://www.psaudio.com/directstream-junior/>.

Instead of conventional op amps, the analogue output delivered by the FPGAs is passively filtered, in combination with high-speed, high-current analogue buffering, and driven by high-speed Class A video amplifiers.

One more thing: the presence of that I<sup>2</sup>S input on the DSJ's rear panel is worth further discussion. The port looks like an HDMI port, and the supplied I<sup>2</sup>S cable is effectively an HDMI cable. But its purpose has nothing to do with video.

I<sup>2</sup>S allows the DSJ to accept a native DSD data stream from a compatible source

## VITAL STATS

Digital conversion .....	Delta Sigma (DSD) single-bit, double rate
Frequency response .....	20 Hz – 20 kHz (± 0,25 dB)
Digital inputs .....	AES/EBU, S/PDIF coaxial, S/PDIF Toslink optical, asynchronous USB, I <sup>2</sup> S
Analogue outputs .....	Balanced XLR, single-ended RCA
Connectivity .....	Ethernet
Dimensions (WxDxH) .....	430 x 360 x 70 mm
Weight .....	12,25 kg

Price ..... R58 000

### Verdict

Almost everything that makes the PS Audio DirectStream DAC great, but in a slimmer, simpler – and more affordable package. So what's the catch?

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OUR RATING: 89 / 100





player, such as the PS Audio DS Memory Player (review pending). And because I<sup>2</sup>S separates the clock data from the digital information, it's also considered the best way to transfer digital data from source to processor.

Okay, enough of the technical bump. As a regular DS user, I was intrigued to find out how close the DSJ would get to its bigger brother's performance levels.

The Junior arrived at the same time as the aforementioned DS Memory Player, which was used as the primary source for much of this review, using the I<sup>2</sup>S interface, as well as AES/EBU for comparative purposes.

I say primary source, but DSJ's Bridge II probably got even more use: I established it as a Roon endpoint on my network, and used it to play back content from my Synology DS213+ NAS. This also allowed direct comparison between my DS and the DSJ, as I could toggle between them as individual endpoints in Roon.

Set-up was painless and very much plug 'n play. I hooked up the DSJ to my listening room network via Ethernet, then connected the DS Memory Player to the DSJ using I<sup>2</sup>S, as well as AES/EBU. I was also able to link my Mac Mini to the DSJ via the asynchronous USB port, and then play back network content using either JRiver Media Centre, or Audirvana 3+.

The rest of the system comprised a Naim Uniti2 one-box system, Esoteric UX-3 SE universal deck, and Vivid Audio V1.5 speakers, with power conditioning via PS Audio P5, and Isotek Evo3 Polaris.

Almost regardless of source selected, the DSJ delivered a sound that was instantly appealing: rich, full and wholesome – very much the same as the DS. Both DACs, by the way, were running the latest Torreys decoding software.

Listening to the DSJ was engaging and compelling. Yes, it was able to extract a rich harvest of fine detail, of subtle nuances and elusive ambient clues. But more impressively, it was able to apply that information to the overall benefit of the music's authenticity and realism.

All too often, a focus on precision and detail retrieval can result in a sound that lays bare every facet of a recording, but



does so with such an unwavering, clinical commitment to the sonic truth that the heart, the soul and the meaning of the music is lost in the process.

But not so the DSJ: like the DS, it never loses sight of the emotive thrust behind the music, and it applies the sonic information at its disposal in a way that invites, even compels, a close involvement with the music.

Music delivered by the DSJ sounded real and enthralling, with a fullness of texture and an extended tonality that made the music come beautifully, viscerally alive.

The sound wasn't overtly rich or lavish,

nor were the trebles in any way attenuated. In fact, I can't say that the DSJ had any marked tonal signature at all. Instead it was more a case of the DAC unveiling more of the sound, and more of the music.

The delivery was fluent and confident, with an ease of pace that was neither hurried nor sluggish, but just right. Similarly the staging was generous and accessible, but never huge or exaggerated: it afforded the music exactly the right amount of air and space required by the original recording.

Indeed, there was never any sense of

## Software

*Paul Simon – Stranger To Stranger (Concord CD and 44/16 WAV)*

*Nils Lofgren – Acoustic Live (Analogue Productions SACD and 44/16 FLAC)*

*Roger Waters – Amused To Death (Columbia SACD and 44/16 WAV)*

*Diana Krall – The Girl In The Other Room (Verve SACD and 192/24 FLAC)*

## Associated Equipment

*Naim Uniti2 one-box system*

*Esoteric Audio UX-03 SE universal deck*

*Bryston BD-3 D/A converter*

*Vivid Audio V1.5 loudspeakers*

*PS Audio P5 power regenerator*

*Synology DS213+ NAS*

*13-inch MacBook Pro/ 2.7 GHz Intel Core i7 / 8 GB RAM / MacOS Sierra*

*Audirvana 2 Plus playback software*

*Roon playback software*

exaggeration or augmentation: the DSJ simply allowed me to hear, to enjoy, to experience the music.

Paul Simon's *Stranger To Stranger* is one of those sets that might leave you lukewarm initially, but keeps on growing on you, and the DSJ's ability to dig down to the very core of a performance only served to accelerate that process.

Take 'New York Is My Home', a bonus track featuring Simon in a duet with doo-wop king Dion. It has just the right, rough-edged, almost improvised charm, with the two singers sharing the same sonic space against the percussion's pronounced thump and some delicate guitar work. The balance, the texture, the space – it all just sounds so right.

'Insomniac's Lullaby' is more polished, with Simon's liquid vocals soaring over the sheen of acoustic guitars and an incisive but subtle bass, while faint city soundscapes add extra dimension. The DSJ allowed full access to every layer and each element, but always retained the music's overall integrity.

With DSD, the Junior is quite stupendous, bringing a new, elevated level of presence, coherence and contextualised detail to the music. The combination of the I<sup>2</sup>S-equipped DSJ and the DS Memory Player is able to fully exploit the sheer depth and breadth of musical data on offer.

The fine strands of information are knitted together closely, creating a rich, textured tapestry of sense that is instantly more musically believable and more emotively charged than when played through SACD-compatible decks without I<sup>2</sup>S – even really good ones.

Nils Lofgren's atmospheric *Acoustic Live* isn't just a superbly performed acoustic set of great music, but it also happens to be meticulously recorded on SACD. Using the I<sup>2</sup>S interface, the DSJ played back the SACD natively in DSD64 – and it sounded spectacular.

The acoustic guitars on this set have a presence, a timbre and a shimmer that seemed to come alive under the Junior's auspices. On 'Wonderland' the full scope of Lofgren's intricate yet powerfully presented guitar was thrillingly explored, with subtle

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keyboards adding further texture.

The coherence of the performance, the sheer urge and authority of the guitar, and the way Lofgren's plaintive vocals are afforded ample sonic space made for compelling, foot-tapping listening. The live ambience added further credence to the experience.

The cinematic, effects-filled Roger Waters set, *Amused To Death* can sound almost gimmicky in some systems, mainly because the set was engineered using Q-Sound, which creates surround-like

effects from two-channel recordings.

Again played in native SACD, the recently remastered version sounded both spacious and cohesive, with a solid central focus and loads of peripheral effects, but all drawn together tautly to create an immersive, compelling whole.

Tonal range here was exceptional, with some of the more explosive effects literally bursting from my Vivids, and seeming to find an extra octave in the process.

So, how does the DS Junior compare to the fancier, and more expensive DirectStream it's derived from?

To be brutally honest, the differences between the two are subtle in purely sonic terms. The DS may offer a slightly more refined sheen to the upper trebles, more resolute in the bass department. It's also ultimately more revealing when it comes to fine nuances.

The delivery of the DSJ seems more liquid and the overall sound gains further accessibility as a result, but it takes a very revealing system to show up these small differences.

The broader sonic picture, however, is identical: the seamless tonality, the inviting staging, the three-dimensional imaging, and the easy, natural flow of the music. The DSJ always reveals but never punishes, and it consistently extracts the best from the material on offer.

Of course, there's also the DirectStream's extra I<sup>2</sup>S socket to consider, as well as the more intricate internals, and the more sophisticated full-colour display, with its ability to show album artwork.

However, in sheer value terms, the PS Audio DS Junior is hard to beat.

Deon Schoeman

