Grimm Audio MU1 Streamer

THE MU1 'STREAMER' IS DESIGNED AND MANUFACTURED BY EINDHOVEN-BASED GRIMM AUDIO, FOUNDED IN 2004 BY FOUR LUMINARIES OF THE LOW COUNTRIES AUDIO SCENE: EELCO GRIMM, BRUNO PUTZEYS, GUIDO TENT AND PETER VAN WILLENSWARD. KEVIN FISKE GETS TO GRIPS WITH IT

Grimm Audio originally designed and manufactured equipment solely for professional users, and it continues to serve this sector today. The MU1, launched in 2019, was therefore a departure in two senses, being both the company's first product solely for the consumer market, and also its first streamer. Actually, labelling it a streamer does it no favours: Grimm Audio prefers the term music player, but even that doesn't give us an adequate handle on what the UK RRP of around £10,000 buys. The basic £9995 tag brings you the MU1 'as is', with the option of 2TB or 8TB of SSD internal storage adding £329 or £875 respectively.

The MU1 accepts digital inputs via RJ45 Ethernet, Toslink, AES3, S/PDIF and two USB ports. As well as a streamer, the MU1 is also a re-clocker, a scaler, a digital volume control for DACs and active speakers including Grimm's own LS1s, and a fully integrated Roon core and Roon endpoint. It can also be specified or retrofitted with that internal SSD adding further to its flexibility.

Inside its visually striking black and bronze anodised aluminium chassis, the MU1 contains an Intel i3 NUC using a dedicated SSD as its system disc, plus a digital processing and interface module and a switch mode power supply. Digital file format conversion and filtering is carried out by proprietary code on a FPGA.

Grimm's designers have taken a different approach to that employed by some of their competition; the MU1 weighs just 4.5 kg, and inside there are no obvious measures, such as a massy sub-chassis or mechanical isolation of boards, to mitigate microphony. Grimm Audio argues that if the digital processing is done to the highest possible standard, then quality power and the lowest possible jitter are the two most important factors for the achievement of good audio quality.

The MU1's power supply and processing boards evidence the company's very detailed attention to these aspects of sonic performance. Both are entirely proprietary Grimm Audio designs; each a double-deck affair and the result of many years of intellectual and engineering effort. The power supply is a flyback converter with power factor correction, achieving common mode noise 30dB lower than required by EMC regulations. Buck converters are used to supply the different voltages required throughout the MU1 while a mixture of integrated devices and ultra-low noise custom shunts – handles voltage arrival at the points of use. The processing module contains two clocks, one a Tent Labs crystal that regulates the FPGA, while the other is an ultra-

low jitter Grimm design with two crystals that clock the audio output.

Inputs up to 96kHz are upsampled to 24 bit 192kHz (4fs) by default, but the MU1 scaler can also be set to off, or 96 kHz (2Fs). Perhaps somewhat controversially DSD datastrams are down-sampled and converted to 24/176.4kHz PCM while PCM files with a sample rate greater than 192 kHz are also downsampled, Grimm Audio's contention being that processing integrity, jitter suppression and power supply quality is what matters most.

Three-plus years on from launch, the MU1 has already been quite widely reviewed. I deliberately avoided reading any of these existing evaluations, seeking to approach it with as open a mind as possible. Even so, it was impossible to quieten my internalised expectation bias since I've had six streamers/network players in my review platform over the last two years, including one that, with its accompanying power supply, came in at more than £22,000. All but the latter – sadly personally unaffordable – had me unconvinced by streaming.

Configuration and control

To use the MU1 you'll need a subscription to Roon, and if you want to access streaming services, Tidal or Qobuz as well. You'll probably want to use a iPad or similar to run Roon Control, but a browser will also allow on-the-fly configuration of the MU1 via its Web interface. Alternatively, the natty bronze coloured disc that sits within a beautifully machined tractrix-like depression on the top surface of the MU1 allows manual configuration. A sequence of long and short presses and rotations of the disc reveals multiple menu pages on the MU1's front panel display, and thereby the ability to select inputs and outputs, control digital volume, modify or turn off scaling and so forth. The disc is satisfying to use in a tactile sense, but gives access to a smaller range of functions than the browser interface.

Setup and sound quality

Brand new when it arrived, it was only after some two weeks of 24/7 operation had passed, during which it very noticeably gained dynamic weight, tonal detail and soundstage depth, that the MU1 was judged to have settled sonically. It was connected via its RJ45 socket to the household CAT5 network and thence via a BT router to a 75 Mbit/s FTTP feed. A standard Ethernet lead and a regular electrical kettle-type mains connection were used; Grimm Audio says boutique items are unnecessary.

The MU1 has no I²S output – just the two bi-directional USB sockets that by-pass the digital processing module and are directly connected to the NUC, two AES3 sockets, a S/PDIF and a proprietary socket to facilitate connection to Grimm Audio's LS1 active speakers. I asked Eelco Grimm the reason for the choice.

"Our target group for the MU1 is people who just love great sounding music and would rather not fiddle around with too many cables and very specific solutions, so we selected the only widely available connection that conveyed not just data but also clock to the DAC. I²S is not widely available as external interconnect and it's usually intended to make the DAC clock master and slave the transport, which is the opposite of what we want to do. A USB connection transports the data but not the clock, so the only option is AES3."

I connected the MU1 to the household Mola Mola Tambaqui DAC using an AudioQuest Diamond AES3 cable. An icOn 4PRO balanced line stage and Bryston 4B Cubed power amplifier fed the output of the DAC to PMC MB2se speakers.

Grimm Audio claims that the MU1 adds sonic value to digital systems by feeding partnering DACs a data stream with ultra-low jitter and on which the first and most processor-intensive stage of up-sampling has already been carried out. The Tambaqui perhaps wasn't the best DAC with which to test Grimm Audio's claim. It's the household's current reference for good reason; out of the box delivering a neutral sound, spatially, dynamically, texturally and tonally richly detailed, less burdened by digital artifice than some of its peers. It has extremely low native jitter measurements and manifestly does not run out of puff as a computing platform when asked to crunch its own DSP coding.

Using the wi-fi browser interface I changed the MU1's settings on the fly in order to assess sonic performance with its scaling set to 4fs, and then turned off – with the latter setting thereby using just the Tambaqui's native upsampling. Both

configurations were highly satisfying, with some recordings the Tambaqui on its own sounding slightly more transparent with marginally faster transients, while turning on the scaling assistance of the MU1 resulted in a touch more tonal warmth, leading edges that were perceived as slightly softer, and an apparently deeper sound stage. In the end I concluded that both the Tambaqui and the MU1 feature very fine examples of coding and jitter control. In this instance there was no right or wrong, just the slightly different sonic aesthetics of the individuals behind the respective coding.

Data from anywhere

Grimm Audio claims the MU1 is agnostic about where the data resides: Internet, local Ethernet, USB-attached or internal SSD, the results are inseparable. Expecting to swiftly disprove this assertion I ripped several CDs and along with some DSD sample tracks placed them on the internal and USB-attached SSDs. Comparing the PCM files with the same recordings streamed from Qobuz I was surprised to discern no clear hierarchy of sonic performance; any differences I thought I detected being so minor as to be of no consequence and more than likely just the product of a fevered imagination.

As a streaming neophyte, I was dismayed to find a difference between running Qobuz natively, where one can save albums for offline playback, and accessing it via Roon, in which only real-time streaming is allowed. But then Roon requires an active Internet connection to function, so this is no great hardship, and is mitigated to a large degree by the sheer quality of the sonic result the MU1 magics from the 0s and 1s that have travelled the Internet before they enter via the RJ45 socket.

Contrarian in technical approach to some of its alternatives it may be, but in the context of the review system MU1 made an emphatic case for recognition as a properly high-end device. With PCM and DSD files, the MU1 exhibits class-leading dynamic expression right across the audio band. There is no sense that DSD or higher sampling rate PCM files have been levelled down; low-end musical content whatever file type is played has satisfying weight and texture, by turns tight and punchy, and rich and sonorous when it should be.

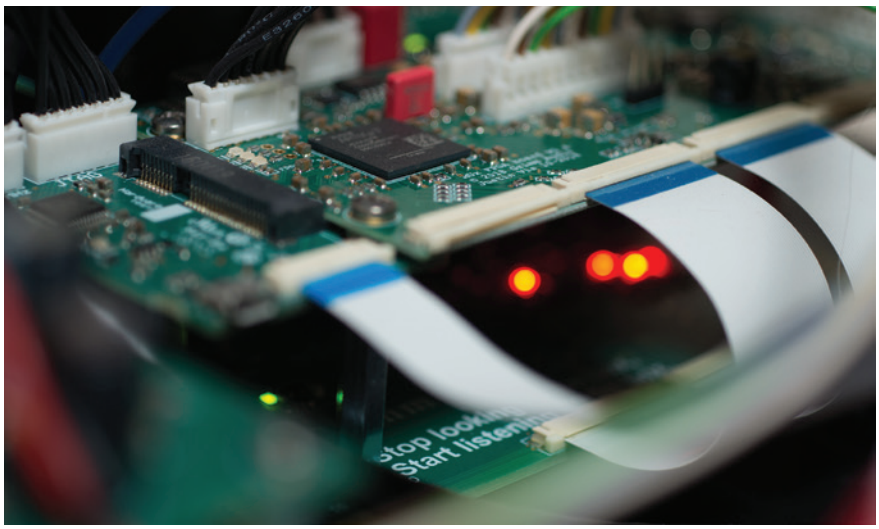
Dynamic agility and tonal colours too are arresting, and yet at the same time unforced and natural, enhanced by the absence of uncomfortable brightness or jarring intermodulation. Well recorded soundstages are rendered as deep and immersive, almost tactile performance spaces. Crucially, the MU1 pushes the emotional buttons of listeners too with a delivery that is fluid, natural, without any hint of the bright, mechanical digititis that I found so disappointing in some alternatives.

Streamed from Qobuz, then locally played from both the USB-attached SSD and internal drive, *Paris Sketches* (16 bit, 44.1kHz) by French pianist Franck Avitabile had me purring with approval. Trio jazz of this genre can seem so simple and undemanding on the surface, yet within the simplicity lies a profound challenge for digital audio: with only three instruments interacting, timing errors, tonal insufficiency, dynamic weakness and poor recovery of detail have nowhere to hide.

The MU1, as it did with all the other material I chose, whether streamed or played locally, delivered the track with scrupulous attention to these key musical pillars; Avitabile's piano with emphatic dynamic weight, percussiveness and tonal complexity, the restrained yet so cleverly melodic fills of Pino Palladino's bass, and the crisp, wristy technique of Manu Katche on the drums.

The household had musician visitors one evening, and I played them *The Trondheim Concert* by Norwegian jazz pianist Espen Berg (24 bit 96 kHz). It is an absolute tour-de-force of solo improvisation, as well as a benchmark recording. The MU1 delivered it with such immediacy and lack of artifice that the guests were straining forwards on the sofa in suspense as the concerto's ten fully improvised parts unfolded; a posture concert-going readers will immediately recognise as a clear sign of an audience entranced by the magic of the moment.

After having lived with the MU1 for some three months I realised one day that despite owning quality vinyl and CD front ends I was now opting to stream much of the time. This new habit was in part simply a logical submission to the ease of discovery that streaming affords. But it was also to a larger degree an emotional response; music delivered via the MU1, from the Internet or locally played, was reaching the parts many other streamers had failed to reach.



HIFICRITIC AUDIO EXCELLENCE

Specifications

Grimm Audio MU1

Type	Network music player
Price	from £9995
Networking	Ethernet
Digital inputs	AES/EBU, coaxial and optical, 2x USB
Digital outputs	2xAES/EBU, one Grimm-specific for LS1 active speaker control
Streaming services	Include Tidal and Qobuz, Roon-ready
Dimensions (WxHxD)	35.5x8.5x295cm
Weight	4.5kg

grimmaudio.com
UK distribution
sounddesigndistribution.co.uk