

PrimeSeat: DSD streaming is now a reality

CHRIS HOLLEBONE describes how European concerts are now being streamed to Japan in high-res DSD audio

Photos: Everett Porter, David Walstra, Seigen Ono and Chris Hollebhone

Hi-Res Audio is a term that means different things to different people. The badge that has started to be used on some hi-fi equipment and on recorded files is defined as “better than CD quality” or typically 24 bit/96 kHz. Many audio enthusiasts and leading recording engineers beg to differ. For them, if it is not DSD, it cannot be regarded as truly hi-res. DXD has become an accepted part of the DSD production workflow, so this has also been included in the true hi-res category, although the majority prefer DSD as the final delivery format for file downloads and there are many websites now offering well over 1,000 titles.

Downloads of any DSD flavour can be challenging to someone with rural broadband connections and consequently, streaming in DSD would appear to be an impossible dream. However, in Japan and other Asian countries, extremely fast connections are more usual with a far more developed fibre network. One Japanese ISP has decided to launch a premium music service that streams subscribers a slightly delayed live feed of concerts recorded in Europe. These unedited performances are then “tidied up a bit” and offered on demand about two weeks later for those that have paid. Internet Initiative Japan (IJ) is the company offering this service which is called PrimeSeat. Various trials have been done over the last year but the first and second live streams for paying customers took place when many of us were gathered in Amsterdam for IBC. Rather conveniently, these came from the city’s famous Concertgebouw concert hall.

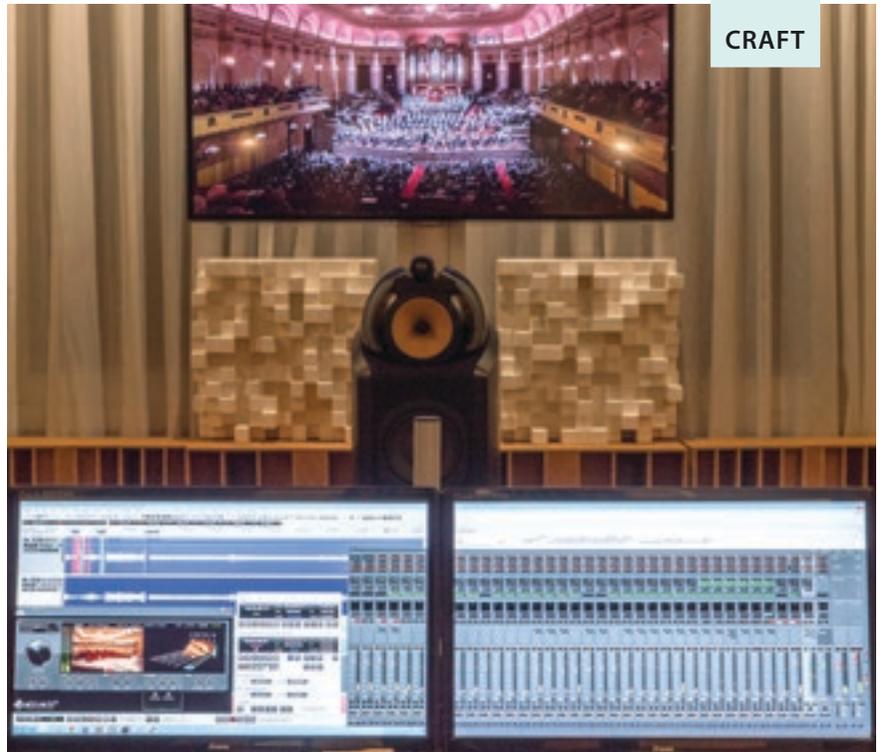
The origins of this service go back to 2014 when a successful recording and mastering engineer and former Virgin recording artist Seigen Ono, was discussing the possibility of DSD streaming with the CEO of Sony Computer Labs (SCL), Mr Kitano. The idea seemed to be interesting and obviously DSD has an emotional bond to Sony. The next day, Seigen Ono introduced Koji Oishi from KORG; a company that also has a long history of making DSD recording equipment and supporting the format. A project team of SCL, KORG and Saidera Paradiso (Ono’s mastering house) was created to look at the technology required to make this happen. Enter Sony’s Mr Tsunoda who told them that IJ was interested in looking at better sound quality for streaming audio on the internet. Ono suggested to IJ, if USB data rates can be streamed through internet, then why not try DSD, even if it is not a standard format for AES or any TV codec. The Chairman of IJ is Mr Suzuki who is a well-known classical music enthusiast

and is famous for starting a series of Spring Festival concerts in Tokyo. The company’s President, Mr Katsu, is also a keen music fan, so this was clearly a project that ticked their emotional boxes and made potential business sense. Katsu-san previously worked for the Ministry of Economy, Trade and Industry which is the body responsible for internet in Japan, hence his desire to see IJ leading the way.

Now that this was looking like a real project, the management was transferred from SCL to the Sony Audio Technology Development Department (Mr Fukui and Mr Nishio) and they contributed the encryption algorithm for securing the signal once uploaded, while KORG worked on the upload (Limelight) and download (PrimeSeat) software for Mac and PC. By April 2015, a mere six months from the start of the joint project, they were ready to test the concept with a first live streaming of the Chairman’s “Marathon Concert of Spring Festival in Tokyo”. This was recorded by Seigen Ono using only a two microphone set-up with no mixing console used. This was followed by a concert featuring Sir Simon Rattle conducting the Berlin Philharmonic which was streamed in parallel 2.8Mhz and 5.6Mhz DSD to Tokyo from the Berlin Philharmonie. This was coordinated by Sony’s Mr Komuro and Ayataka Nishio, one of Sony’s foremost DSD experts, with Polyhymnia International’s Jean-Marie Geijsen capturing the concert as it happened. The streaming of the 5.6MHz DSD was successfully accomplished and the technology was proven robust, so the concept of PrimeSeat was formulated. A further DSD stream was made the following October from the Warsaw Philharmonic where Polyhymnia shipped in their own equipment and used an adjacent dressing room as the control room. Both Berlin and Warsaw have fully equipped recording facilities but it was important to use the equipment with which the team were familiar.

Ayataka Nishio was due to leave Sony so it was obvious that he would be an asset to IJ to supervise the technical aspects of PrimeSeat. A European liaison person was needed to deal with the artistic and orchestra management negotiations, so another former Sony champion of SACD, David Walstra, joined the team. The local expertise provided by Polyhymnia had been a significant factor in the success of the Berlin experiment and the fact that the company has permanent facilities in the Concertgebouw, suggested that the Royal Concertgebouw Orchestra (RCO) would be a suitable candidate. The timing was propitious because the RCO’s recently appointed Chief Conductor; the exciting and experienced Daniele Gatti, was just about to take up his position. The season’s opening night and his investiture was scheduled for September 9th and was looking to be the ideal concert to attract a paying audience. This gala evening featured an eclectic mix of pieces by Beethoven, Schubert, Mahler and Italian favourites, Respighi and Verdi. The importance of the occasion meant this was an exceptionally busy night for Polyhymnia with four separate recordings to manage. The PrimeSeat recording was done using Seigen Ono’s purist approach using the minimum number of microphones direct to stereo, but additional microphones were also recorded with automation so that improvements could be made to the “on-demand mix”. Seigen Ono explains: “This is not to say that there is anything wrong with existing standard multi-track post production for TV, record production etc. It is simply going back to radio days. Besides the purist approach, you can save budget and time for post-production.”

This was all recorded in DXD (PCM at 352.8 kHz) and later rendered to



DSD 5.6 MHz (DSD128) for upload to the server in London which has a high speed backbone to Tokyo. Amazingly, the upload took only 15 minutes instead of the hours anticipated. Additionally, there was a live TV and radio mix needed with the TV feed going live to the French specialist classical music company, Mezzo, who broadcast this concert to more than forty countries, and later it was transmitted on other networks including NHK in Japan. The video recording facilities are also in-house and operated by Polycast, a sister company of Polyhymnia. This combines high definition video with high-res audio. The fourth recording was the regular RCO archive recording made for all major concerts in the Concertgebouw. The next live stream was scheduled for late October when Daniele Gatti conducted an exciting programme of Wagner, Mahler and Alban Berg.

Polyhymnia International was founded in 1998 and was an MBO of the famous Philips Classics facility in Baarn, which had been scheduled for closure by parent company, Polygram. This downsizing of the classical recording facilities also saw the company close Decca's classical facilities in London. Upholding the Philips tradition for high quality recordings has always been the top priority for the three internationally renowned directors and producer/balance engineers, Erdo Groot, Everett Porter and Jean-Marie Geijsen. They have been joined by Laurant Jurrius and Karel Bruggeman with Leendert van Zanten looking after SACD authoring and technical support. Although they have a permanent control room in the Concertgebouw, four distinct recordings meant that any other room that could be found with enough space to nearly swing the proverbial cat, had to be pressed into service and suitably equipped. The Polyhymnia team are

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night was broadcast live on Medici.tv and the fourth was a live radio broadcast. In parallel, the first three performances were recorded for TV/Blu-ray use and all four of the concerts (and rehearsals) will be used for a CD production, plus extra tracks were recorded with height information for a future 3D surround mix. Mahler 2 is a monster piece with a huge orchestra, choir, soloists, organ and offstage

instruments in no less than 6 locations, so 40 channels of DXD were recorded and mixed live using Merging's MassCore in the same computer as Pyramix. This combination of Pyramix, MassCore and the Horus and Hapi networked interfaces has established itself as the de facto standard for major concert halls and opera houses around the world. The ability to record large numbers of tracks in DSD (64 up to DSD256, 11.2 MHz) or DXD, with 3D panning and the option to mix "in the box" provides the versatility needed to produce DSD files for download or streaming, SACDs, Pure Audio Blu-ray or regular CD. The fact that there is a complete workflow from recording, through editing and mixing to final mastering or authoring, has proved to be a major factor in the success of Merging in recent years. DSD never really went away, but it is definitely back with a bang now. In tandem with the revival of analogue recording and vinyl, DSD, the "most analogue of digital formats", is also undergoing a significant resurgence.

passionate about getting the front end as pristine as possible and therefore they use their own mic preamps and even modify many of their DPA, Schoeps and other microphones with their own internal electronics. The recording systems that they have used since 1999 are from Merging Technologies. As beta testers for Merging, the team have been responsible for many additions to the Pyramix software including being involved in the development of the SACD/DSD workflow with Philips Electronics. Now on Pyramix 10, they have a Ravenna network of Horus units in the hall, including one up in the roof space to be close to the numerous suspended microphones above the stage. They, like many other classical recording teams have welcomed the simplicity of having a single Cat 6 cable delivering the audio and the remote control of the Horus or Hapi units.

The second concert to be streamed to the PrimeSeat audience was recorded on 15th September 2016 and featured Daniele Gatti conducting Mahler's 2nd Symphony. This was the second evening of a four-night series. The third

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Unusually, Merging also sells a consumer DAC that is PrimeSeat-ready. The Merging+NADAC is available in 8 channel or 2 channel variants and offers many similar features and performance to the Hapi, making it the ideal device to listen in the home. KORG also supplies a range of DACs that are designed to work with the PrimeSeat software they have developed. PrimeSeat is still in a test marketing phase and exploring the acceptability of the service to the Japanese consumer. The full live stream and on-demand option is currently 2700 Yen (€24) with a lower cost on-demand only payment of 1620 Yen (€14.25). This may seem expensive but this needs to be put into context as the concert seat prices in Japan are typically about €300 per seat and the concerts are normally sold out all the time. This is a definite peculiarity of the Japanese market, which may not be typical of other countries, although prices of good seats in all top venues has risen significantly in recent years. However, these initial PrimeSeat prices may change based on the feedback received from the subscribers. Initial comments about the presentation and the sound quality have been excellent and in addition to the classical concerts, live jazz recordings from Tokyo's Cotton Club are also available free of charge. These are recorded by Ayataka Nishio on KORG MR-1000 DSD recorder and are set up to catch the live atmosphere with the minimum processing. This was not something he had envisaged when he started with IJ!

It is clear that the technology works, but what happens next is the more interesting question. Ayataka Nishio hopes that they can embrace other international venues with top quality orchestras, and this would help them to provide a more interesting programme for the Japanese market. IJ would like to start streaming services to other countries in the future but there is no clear timescale for this at the moment. As previously mentioned, there is a European backbone and there is also one in the USA, so the potential is there to stream from three locations, but it is acknowledged that local broadband speeds may not yet be up to the standards required. A stable 25 Mbps is needed as a minimum for the audio-only service as it is. Nishio-san would like to see the audio stream elevate to DSD256 as there is a body of opinion in Japanese engineering circles that this offers a significant improvement to the listening experience. Unsurprisingly, the topic of adding HD video to the DSD streams is also being considered but this raises the broadband speed exponentially. This might be a real possibility in urban Japan or South Korea, but may push it further beyond the reach of us mere mortals, dependent on BT or other national carriers in Europe.

Technology challenges are not the only issue for the successful expansion of the project. Negotiating with the orchestras and the venues can be equally challenging as well as managing the content that is available for streaming. This is more akin to being a record label and requires A&R management as well as negotiating the legal minefield of rights management, musicians' unions and differing attitudes from country to country. Even in Japan, it is early days and the service is not particularly well known yet, so additional publicity, refinement of the pricing strategy and providing the right repertoire all have to be managed before expansion into other territories becomes a reality.

Seigen Ono was the original catalyst, so how does he feel now that this has started, and how does he see it going in the future? 'My idea was to get the "live radio feel" to these streams and the direct-to-stereo DSD mix is achieving that plus we keep the signal processing to the minimum. Internet speed is only going faster every year and soon NHK will start 4K and even 8K broadcasting. There is not enough room on the satellite, so eventually, in Japan, most of TV and Radio programmes should move to internet distribution for home and smartphone devices. DSD is not a standard format for TVs, but why not? It's the best technology for point to point connection. PrimeSeat has created much interest here and we

can certainly see that many people are now thinking about streaming 4K video, but the challenge will be to maintain the high quality audio. We don't want to be in a situation where our audio is squeezed because of the large amount of video data. After all, we are listening to the world's finest musicians so we should treat their playing with respect.' ■

Shown Actual Weight.

Of course the SSM bodypack transmitter is small - in fact, it is smaller than any other full-featured transmitter on the market. But you might not know how light it is. At 2.3 oz. (65.2 g.) with battery, it is half the weight of the most popular alternative, making it easier to conceal and less bothersome to the talent. Even still, the housing is all metal so it is just as rugged as any other Lectrosonics transmitter. Other cool features include remote setting capable with a smartphone app, superb audio quality with Digital Hybrid Wireless® and a 75 Mhz (3-block) tuning range. Check it out in person sometime soon - it's even smaller and lighter than it looks in the picture.



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