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音響技術



2012年9月號

372

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dCS
ONLY THE MUSIC
UK



Vivaldi SACD/CD Transport
Specification : ● Size : 444W x
435D x 196H (mm) ● Weight :
23.2 kg

Vivaldi upsampler Specification :
● Size : 444W x 435D x 125H
(mm) ● Weight : 14.2 kg

Vivaldi DAC Specification :
● Size : 444W x 435D x 151H
(mm) ● Weight : 16.2 kg

Vivaldi master clock
Specification : ● Size : 444W x
435D x 126H (mm) ● Weight :
13.6 kg

Perfect Music Reproduction
The Four Seasons of

dCS Super-System : **Vivaldi**

I have mixed feelings when writing this review.

It has been 30 years since the launch of CD system in 1982. The 1st CD player was Sony's CDP-101 and the first CD album was Billy Joel's "52nd Street" by CBS/Sony. Five years ago, when I reviewed the then new flagship SACD/CD Playback System, which included Scarlatti Transport, DAC and Master Clock from dCS, UK, I applauded for the super performance of this set, full of ease, smoothness, without any edginess in its outstanding sound reproduction.

Two years later, the Scarlatti has added a new member to the combination — the Upsampler. With the addition of this new member, the whole set has reached an even higher level, producing more refined and more touching music. I can still remember the day when I and a couple of our reviewers were sitting in our audition room, listening to the 4-piece Scarlatti. And we sighed and wondered if there would be an end to the development of sound reproduction technique. Of course, there are, besides dCS, other Hi End brand names manufacturing State-of-the-art multi-piece SACD/CD reproduction systems. They have a unanimous aim: to replay the signals from all discs in the most musical way. I have listened to most of these players, and have owned some of them. They have different tonal characteristics, but all of them have reached a very high standard of sound reproduction, even the most picky audiophiles have no complain, except, perhaps, for die-hard vinyl fans.

Once in Five Years

Due the growing popularity of FAS(File-as-Source), many small manufacturers have reduced or even stopped their production of CD players, and are switching their production lines to DACs for FAS and related equipment. Yet, there are Hi End manufacturers who think real high resolution file is not yet a real popular format at the moment, the CD system is still the best sounding source. So they keep developing new technologies and launching new equipment, but unavoidably, the frequency of new products has been slowed down.

After launching Scarlatti 5 years ago, only an Upsampler has been added to the line. In the following years, dCS has also applied the technology to the more affordable Paganini, which is also a 4-piece combination; Puccini SACD/CD player and U-clock, and the Debussy DAC. In the past few years, when I met dCS's Director, David Steven, and Sales Representative, Raveen Bawa at the CES and Munich Hi Fi Show, they never gave me any hint on what plans dCS was going to have in the near future. But frankly, looking at the handful of State-of-the-art CD systems, one can't ask for more on their sonic performance, and their popularities among audiophiles are not far off. Obviously, to exceed the limit is a big challenge. Unexpectedly, dCS has secretly been undergoing a great project, giving all of us a big surprise.

Highly Confidential

One month before the 2012 Hong Kong High-End Audio Visual Show, Patrick of Radar (Sole Agent of dCS in Hong Kong) commissioned us a special job — to translate into Chinese the product materials and technical overview for the dCS new flagship SACD/CD digital playback system, so that they can reach the hands of audiophiles on the same day announcing its launch. Patrick seriously asked me to keep it confidential, because dCS insisted that the outlook of this 4-piece new Flagship, the Vivaldi should not be exposed to the

public before 10 August. All people concerned should keep their mouths sealed. Even the dCS website did not mention a single word about the Vivaldi before this date. In these 30 days, we only knew that the Vivaldi was still a combination of 4: the Transport, the Upsampler, the DAC and the Master Clock. We also learned some of the new technology involved which I am going to reveal in the following paragraphs; but we had no idea about how they looked. Radar received the Sample System only one week before the Show. When I first had my eyes on the Vivaldi, it was 9 August, the day before the show, when the Radar people were doing the set up. The rest is history.



Although I was very eager to know how good Vivaldi was, I was so occupied in those four days, I couldn't squeeze any time to go to the Radar Show Room to get a glimpse of it. I had to wait until after the show, these 4 pieces were sent to us for a full audition. And so, it is now the featured equipment of the present issue.



Hi End Qualities

Now Vivaldi has become the new dCS flagship, unavoidably, people would naturally compare it with the previous flagship, the Scarlatti; and the most immediate comparisons are the appearance and construction.

Frankly, they are incomparable! 5 years ago, when I reviewed the Scarlatti, I truly felt that their outlook were too simple and even crude for a flagship product. From the Paganini, things are getting better. Today, when we see the Vivaldi, we can't hide our admirations! This is truly Hi End Qualities! The silver white body is made from high grade aluminium. The face plate of each piece is machined from 30mm thick, weighing 10-16kg, by a 6-axis CNC milling machine. They have different curvatures, which can minimize vibrations and at the same time, create an elegant look. According to David Steven, these curves "provide light and movement which reflects the fluid nature of sound".

The top and side plates are 10mm thick. The inside of the top plate is machined with asymmetrical cavities and filled with acoustic damping materials to help breaking up vibration modes. They are made with top-class craftsmanship; all junctions are finished smoothly, together with a just right size of white LCD screen on a black background, the subtle curvatures and the miniature, concise push buttons, etc., make these four pieces of equipment look just gorgeous!

The Ultimate Transport

As I have mentioned before, Vivaldi follows the 4-piece design of the Scarlatti. Basically, the Transport, DAC, Upsampler and Master Clock have massive chassis of the same footprint as 444mm (W) by 435mm (D), but of different heights. The SACD/CD Transport employs the highest grade Esoteric VRDS Neo VMK 3 mechanism, which is assembled in an isolated chamber with damping materials, so that both the revolving of the disc and the movement of the disc drawer are smooth and very quiet, even quieter than the Esoteric flagship Transport! Obviously dCS has some targeted deployment on its design.

Besides the laser mechanism, all electronic servo and digital processing circuits are designed by dCS. Inside the Transport, there are two big, high grade, low temperature toroidal transformers, providing power separately to the SACD/CD mechanical and the digital processing sections. The filtering capacitance is as high as 40,000µF. (The power supplies of the 4 pieces of Vivaldi adopt the traditional dCS design, using the same basic big circuit board; the layout and quality of the filtering capacitors, voltage stabilization and computer-controlled logic circuit are also the same. The Transport and DAC have one more transformer than the



Upsampler and the Master Clock. Each piece would add corresponding circuit boards and installation according to its specific function.)

The powerful digital processing platform of the Transport is based on dCS's FPGA(Field Programmable Gate Array) chips, DSP chips and a microcontroller system. When playing SACDs, the dCS-encrypted DSD is fed through a double AES digital output to the double AES input of the Vivaldi DAC. This double AES output can also upsample the CD signals to DSD or DXD (24 bit/352.8 kHz) before transmitting to the DAC. At the back of the Transport there are 1 pair of AES/EBU, 2 SPDIF and 1 SDIF-2 (2 X BNC) balanced outputs. They will output native CD data (16 bit/44.1 kHz) when playing both SACD and CD.

An Upsampler with multi-inputs

The Vivaldi Upsampler is also equipped with the newly developed powerful digital processing platform. It is able to accept musical data from almost any digital source and upsample the original sampling rate up to high resolution (24 bit/192 kHz), super-high resolution DXD (24 bit/352.8 or 384 kHz), or DSD (1 bit/2.822 MHz or 3.07 MHz); then the data is fed through a double AES to the 2nd double AES input of the Vivaldi DAC . The Upsampler has a number of digital inputs: 1 x AES balanced, 4 x SPDIF (2 x RCA, 1 x BNC, 1 x Toslink) and 1 x SDIF-2 interface (2 x BNC). All input can accept PCM data up to 24 bit/192 kHz, but the Toslink and SDIF-2 are limited to 24 bit/96 kHz.

Besides, the Upsampler has a RJ45 connector which acts as UPnP renderer and streams digital music from a NAS or computer through standard Ethernet network, decodes all major lossless formats including FLAC, WAV, AIFF, WMA up to 24 bit/192 kHz sampler rate. It also supports compressed format such as ALAC, MP3, M4a, AAC and OGG.

A USB 2.0 interface on a type B connector operates in Asynchronous USB mode, Class 1 or Class 2. The Class 2 mode will accept up to 24 bit PCM up to 192 kHz and DSD in DOP format.

A USB-on-the-go interface on A-type connector streams audio files from a USB flash drive or iDevice. Will accept up to 24 bit/192 kHz PCM and DSD in DOP format. It operates in true asynchronous USB mode.

Other than the double AES balanced digital output, there are 2 SPDIF (RCA + BNC) output. They can output PCM data up to 24 bit/192 kHz. The Upsampler also has 2 word Clock inputs and 1 output on BNC connectors. In addition, choice of filter responses is available for certain popular conversions.





DSPs, all of these improve the capacity, flexibility, speed of data transfer and performance of the platform. The platform's Phase Locked Loop (PLL) has greatly improved the linearity of the Phase detector circuit, allowing more gain around the PLL for further improved jitter performance.

dCS has put in a next generation dCS Ring DAC in the Vivaldi DAC. They claim this new generation of Ring DAC is the biggest single technology development in the past 20 years.

The DAC has 4 × AES/EBU balanced digital inputs, which can be used as 2 double AES (AES 1 + 2 and AES 3 + 4) inputs, accepting up to 24 bit/352.8 or 384 kHz DXD. Other inputs include 3 × SPDIF (2 × RCA, 1 × BNC), 1 × Toslink, 1 × SDIF-2, 1 × USB2.0 type B, operating in Asynchronous USB mode, Class 1 or Class 2. The 3SPDIFs accept PCM data up to 24 bit/192 kHz, all the rest are limited to 24 bit/96 kHz.

The DAC has 3 Clock inputs and 1 Clock output; 1 XLR and 1 RCA analogue output. The output voltages are selectable between 2V and 6V rms. It also provides a number of filters to suit the owner's personally taste.



Powerful Digital Processing Platform

The Vivaldi DAC employs 2 toroidal transformers to power up the digital and analogue circuits separately. All 4 are equipped with the completely redesigned powerful digital processing platform. This platform is based around Field Programmable Gate Array (FPGA) chips, built with a single SPARTAN 6 device, featuring 100,000 Configurable Logic Blocks (CLBs). The super high operating speed and processing capacity of the chips, together with increased flash memory size, FPGA RAM and additional parallel interfaces to the

Rigorous Tests

The 4th Season of the Vivaldi is the Master Clock. Although the use of high precision Rubidium as clock oscillation media is common in the market, dCS sticks to crystal oscillation for its Master Clock. They stress the Vivaldi Master clock has undergone rigorous in-house tests — The crystal oscillators are pre-aged and selected for long term stability then individually calibrated over a wide temperature range to ensure consistent optimal performance. Vivaldi Master Clock uses a sophisticated microcontroller system to ensure smooth correction as the temperature changes and this approach gives a more stable result than either oven controlled crystal oscillators or even atomic clocks.

The Clock has 2 crystal oscillators, Group A and Group B (each group with 4 BNC terminals), to provide independent word clock outputs. Users can specify the clock frequency of Group A as 44.1 kHz (or 88.2, or 176.4 kHz), and Group B as 48 kHz (or 96, or 192 kHz). Group A can be connected to the clock input 1 of the Upsampler and the DAC, and Group B to clock input 2 (For the Transport, one must use the 44.1 kHz), through a 75Ω co-axial cable. When the user has selected different sampling rates from different sources, the auto clocking mode of Upsampler and the DAC will automatically choose a most suitable clock frequency. This will not only make convenience and also reduce jitter. There is a BNC terminal which accepts reference word clock input of 1 MHz, 5 MHz and 10 MHz.



Ready for Audition

Auditioning the 4-piece Vivaldi system, you have to have enough accommodation space, and also adequate cables! First of all, they need 4 power cables, and then, 5 AES/EBU digital cables (2 from Transport double AES to DAC for SACD, 1 from Transport to Upsampler for CD, 2 from Upsampler double AES to DAC). Fortunately, When Radar sent us the Vivaldi system, they also sent 5 AudioQuest WEL Signature digital and 5 Supra clock cables. The gears that work with the Vivaldi is our reference: Boulder 2010 pre-amplifier, Momentum monoblock power amplifier and the Dynaudio C4 Signature speakers. The sonic characteristics of these gears are very familiar to us; so that it would be easy for us to tell how much better the Vivaldi is to the Scarlatti. Patrick told us this set has been played for about 200 hours from the date of its arrival to Hong Kong up to the end of the Hi Fi Show. I expected to let it run for an extra 100 hours before making any conclusions, but that seemed unnecessary.

When all 4 were connected and set up properly according to the menu (it looks complicated, but was actually quite simple and easy when doing it step by steps; and after a couple of operating processes, I found no difficulties at all! Like!), I put in our "The Perfect Sound 2012" Test CD to give it a run-in. But, Oh! Although I had listened to almost all top-of-the-line CD systems available, and I thought I could hardly be surprised by any new systems, I was blown away by the super beautiful sound of the Vivaldi as the 16 tracks were played one after another. It was obviously much better than any SACD/CD system I have ever listened to before. It made me put down my work, took out a pile of soft-wares that I had been listening for a hundred times, and started listening again for several hours.





The most fascinating thing about Vivaldi is, it goes a big step forward over the gears that I once believed flawless. The noise level, the coherence and fluency throughout the frequency spectrum, the extension of highs, the line and texture of the mids, the body and velocity of the lows, the density and micro-dynamics, the openness and layers of the sound field, all these have brought the sound effect to a higher level, which I have never experienced on those soft-wares. For vocals, the details of the lips and teeth sound, the chest tone and breath, the interpretation of the song and variations in strength, even the space of the recording venue, all are clearly audible, and the emotional expression is more touching.

For instrumentals, variations and skill of the player, the unique character of the instrument, clarity and rich harmonics are more life-like, music is more appealing. The dCS team has apparently achieved real breakthrough in this SACD/CD replay system. Not only I got blown away by the Vivaldi, all our reviewers were. They all increased their frequency of visiting, and the duration of staying in the audition room, only to listen to the super beautiful sound of this super set. I am happy to let you know how my colleague reviewers Patrick Lee and Thomas Leung feel about the performance of Vivaldi.

Last but not least, apart from the super performance on SACD/CD, Vivaldi is also capable of playing FAS. How well does they sound? I'll leave this to the other two reviewers, Martin Leung and Paul Leung. Meanwhile, I am busy preparing my place to welcome the Four Seasons of Vivaldi!



Come and Listen to the Creation of a World Record

dCS Vivaldi CD/SACD Playback System

I remembered long time ago, when the world record of 100 m reached 9.9s, many specialists pointed out this would be the limit of men. But the record was broken again and again. In 2009, the record was broken again by Usain Bolt, and has been kept up to this day. The new record is 9.58s, a very big step forward than the so called 'limit'. Same happened to the CD playback system. A few years ago, what seemed to be invincible, or cannot be better in the near future, are now beaten by yet another world record. The record is from the new dCS CD/SACD playback system, the Vivaldi. Well, undeniably, the price is also a record, but after I have listened to them in the Audioteknik audition room, I can assure you, the Vivaldi is the best CD/SACD playback system you can buy up to this moment.

I put in a CD which I was so familiar that I could remember every detail. It was Eva Cassidy's "Live at Blues Alley". When the music came out from the speaker, I felt the 'air' of the site surrounding our audition room! This 'air' reflected the atmosphere of the bar, and a picture of the bar emerged in my mind. The image of the singer seemed right there before my eyes; her melancholy voice touched me deeply. Such is the charm of Vivaldi, it can easily bring anyone into the music. If you ask me what a good gear is, I would say just like this, it brings you into the music; you can just ignore all its technical specifications.

With dCS Vivaldi, all familiar CDs have something good that was that was not dug out before. The second CD played with the Vivaldi that I would like to share is the "White Snake, Starkers in Tokyo".

My friend Leung was with me. Borrowing his words, "When listening to Soldier of Fortune, the diction was never so distinct before." I totally agreed with him. Not only that, the position of the singer, his breathing, etc., nothing was missing, and that showed dCS's super analytical ability.

Reference Recordings' "Tutti" is another favourite Test CD of mine; I especially like to play the tracks "Berceuse and Finale" from Stravinsky's "Firebird" to test how powerful a gear is. It was easy for Vivaldi to reconstruct the positions of each part of the orchestra. What surprised me most was its dynamic range, which was definitely a breakthrough. When the orchestra was building up a climax, the timpani and the bass drum at the back started from weak to strong. Recalling my past listening experience to this disc, at first I thought the volume was too weak, but when they reached the final climax, I knew the volume was right, it was the biggest dynamic range I have ever experienced in this disc.

We were very familiar with the speakers, Dynaudio C4 Signature, in our audition room; pre- and power amplifier were still Boulder 2010 and Momentum, but with dCS Vivaldi, the C4 sounded like another pair of speakers. The bass units seemed to be much bigger, both the quantity and quality of the bass were much better than they were; the instruments and vocals were more lifelike.

Undoubtedly, dCS Vivaldi is a new standard in the world of digital playback, it is a world record.



Redefining the State-of-the-art
in Digital Playback

The new **dCS** 4-piece combination : **Vivaldi** playback system



About one month before the 2012 Hong Kong High-End Audio Visual Show, I read the promotion materials of dCS and learnt that they were going to launch a 4-piece new flagship digital playback system. They claimed the new product “Redefining the State-of-the-art in Digital Playback”.

Well, it was propaganda. Nevertheless, I was expecting a chance to listen to them; after all, the dCS Scarlatti has been our reference system for some time, and they gave admirable performance. The new product would be definitely better; the question is, how much better?

Most sophisticated 4-item combination

During the Audio Visual Show, I learnt that the Vivaldi was set up at Radar's show room. But, fully occupied, I couldn't spare any time to go and listen. Fortunately, after the show, the full set of Vivaldi was sent to our audition room. Finally, I could sit down to have a good listening session.

The whole set included a CD/SACD Transport, an Upsampler, a DAC and a Master Clock. The outlook was very attractive, sturdy, and was beautifully handcrafted. My impression was: Japanese were most serious on their chassis, they would spend a lot in making a rugged, tank-like case; while products from Europe and US were rarely so sophisticated. Now, finally, the chassis of this Vivaldi set was eye-catching, they were comparable or even better than most Japanese products.

I went to our audition room with some expectations, because Lincoln told me in the phone, “You must come, the Vivaldi is just fantastic!”

Every time I heard him say something like that, I would go; and not a time I was disappointed. But this time..., there was something different.

Big difference on the same recording

When I reached the audition room, Lincoln let me listen to “The Perfect Sound 2012”. Frankly, I had only listened to a few tracks, but had not yet the chance to thoroughly listen to this “our disc” at my home. Lincoln played track 3, “Cry Me a River”. When the vocal came in, in less than 3 seconds, I knew it was good, very good! But, was it good because of the recording? Or the other gears? Or Vivaldi was really so good? I had no idea at that moment.

I looked at the gears, they were our usual ones: Boulder 2010, Dan D'Agostino Momentum, Dynaudio C4 Signature. These were our most familiar gears. No, it was not because of them.

I suddenly remembered, before I left home for Audiotechnique, I was listening to “Cry Me a River”, but without much impression. I picked up the CD case and looked: it's the same singer, Sarah Shea. “Our disc” has chosen the same recording!

Of course, even with the same recording, different mastering would have different result; and I also realized my gears were not of the class of the those in the audition room; but it shouldn't made such a big difference! Don't guess, I took another very familiar disc, the “Jazz at the Pawnshop”, and I was going to play track 4, “High Life”.

Another Level

It's probably over 10 years since I used "High Life" as a test track, and I was very familiar with every detail of it. Every time I auditioned a new gear, "High Life" could reveal what and how its strength was. I put in the CD, and before I pressed the '4' button, the 1st track was already playing. It was the noise from the customers in the bar, but I was a little surprised it didn't sound like that before.

I pressed '4' to "High Life". God! I thought I was listening to another higher grade CD! It was really very good! I didn't know how to describe it. It was not just an improvement, it was another level, another sound, not like any CD sound I've ever listened to before.

Yes, I didn't feel I was listening to a CD, nor an LP. The fact was, I wasn't aware of what format I was listening, it was of a higher state. You won't look for the air-blowing noise from the saxophone, it was there! Arne Domnerus was there! What fine details could be missed? The drum solo part was even more distinct. When I listened to it before, I always thought the drum was a little loose, the drummer was a little too gentle; but now, it was totally different! The drum was tight, and the drumming is firm and vigorous!

Another very familiar disc was from Eva Cassidy's "Live at Blues Alley". Vivaldi showed its ability to reproduce very fine bass lines. It was strong, with punch and not a bit muddy. What is more, no matter how strong the bass was, it never covered the vocal. I had already heard how good the vocal was in "Cry Me a River", Cassidy was only better, more natural, without too much 'Hi Fi' feel.

Easy with complicated orchestral music

The sound from Szeryng's Mendelssohn Violin Concerto was as beautiful as you could imagine. Not only the sound was beautiful, the image and size of the violin was clearly reproduced. I could feel every stroke of the violinist, and the variations in tone colours at different positions of the violin. It was these variations that made the performance so touching.

I also listened to Solti's Beethoven 9th. When the full orchestra was playing, Vivaldi showed its high ability of distinction between different instruments, which was again better than any systems I had ever heard before. When the 4 soloist was singing together, it was quite common the soprano was loudest, nearly hiding the other 3. With Vivaldi, the soprano was still the loudest, but I could hear clearly the voices of the others. That was another proof of Vivaldi's analytical power.

Technology breakthrough made combo breakthrough

Turning to the promotion materials of dCS, there is new advancement in every component of the Vivaldi. The Transport has adopted Esoteric's VRDS Neo mechanism; the Upsampler can upsample the data to high resolution DXD (24 bit/352.8 or 384 kHz), DSD (1 bit/2.822 or 3.07 MHz), or standard high resolution PCM (24 bit/192 kHz).

The Master Clock has undergone rigorous tests, using sophisticated microcontroller system to ensure smooth correction as temperature changes. Its stability is even higher than atomic clocks. The DAC employs the new generation dCS Ring DAC. There are also other technology breakthroughs. All of these combined results in a breakthrough digital playback system.

The improvements in Vivaldi are not only shown in the percentage increase of sound field, or how fast its velocity is, etc. These are only numerical datum. What really stunned me is how close it is to real performance. The treasure is in the lifelike musical experience which is a thousand times more important than the specifications. It made me realize that the sound of CDs can be very good, only that common CD players, or even high end systems have not yet been able to extract every bit of information inside every disc. Vivaldi proved that it can extract, maybe not 100%, but at least much more than all other systems.

Expectations

As I have mentioned above, I was never disappointed with any new equipment Lincoln recommended to me. I could always find improvements in the new gears. Only this time, it was quite different. The improvements of the gears before were by steps; it was not easy to go one step forward, and I admired that. But the improvement of Vivaldi over Scarlatti is by a whole floor, and that is a real breakthrough! I believe no other system can challenge it in the near future. But I guess this won't take long, because where there is competition, there is progress. Breakthrough of one manufacturer in technology is the driving force for others to make even bigger progress. I am expecting a bigger breakthrough (and a more affordable price), and hope that it won't be too long! 🎧

