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DAC-200ts Digital to Analog Converter Features

Multiple Parallel DAC Topology

While the DAC chip(s) are a piece to the overall solution in creating a reference level digital source machine, it's just one part of a very complex puzzle. As DAC chips become smaller and more powerful with multiple channels per DAC and onboard processing, one could design a good product utilizing perhaps just one chip, maybe two chips, as many do. For the DMC-600 and 600SE, good wasn't good enough. We chose to use 4 DACS consisting of 8 channels, 4 channels per side. This makes for an outstanding product. This configuration is a fully balanced parallel circuit feeding both the balanced XLR and single-ended RCA outputs for exceptional clarity and detail. Additionally, many DAC chips simply can't support PCM beyond 384 kHz or process DSD natively without converting and down sampling to PCM. That's because many DAC's onboard DSPs are limited. Our solution is to use a separate powerful 128 bit DSP engine and DACs that can actually handle native PCM up to 768 kHz (needed for our TruBit™ Upsampling) and native DSD signals up to 256. It's not easy, but it's worth it.

CSR aptX® lossless Technology featuring Cary Audio's fi™ Bluetooth Implementation

Bluetooth modules are a fantastic and convenient way in which to share and listen to music from online and mobile sources. While many companies use these modules as a complete end-to-end or add on solution, Cary Audio does anything but. In an end-to-end approach, the Bluetooth module itself converts the digital signal to an analog signal and it's simply passed off to the analog output section. Our solution is to fully integrate (fi™) the digital information of the CSR aptX® lossless Bluetooth receiver into the entire digital circuit of the DMC-600 (600SE). This approach ensures that Bluetooth sources have the potential to sound like any other expensive input source whereby utilizing our sophisticated digital topology of multiple parallel DACs and our other integrated digital features such as; TruBit™ Upsampling, OSO™ Reclocking, and DiO™ selectable tube or solid state outputs. Now your Bluetooth sources can be true high fi.

TruBit™ Upsampling

Upsampling can be messy, leaving behind lots of digital artifacts resulting in noise and inaccurate signal generation. On the surface, upsampling may seem like a good idea. But if not implemented properly it can be disastrous. Many DACs use modest DSP chips at best, or worse, the DAC chip itself to upsample all incoming I2S and SPDIF digital signals. Typically, this is done as a predefined one-size-fits-all sample rate, such as 96 kHz. On the contrary, Cary Audio's TruBit™ Upsampling is a sophisticated and

powerful process utilizing a 128 bit DSP engine which allows for up to ten (10) different selectable TruBit™ sample rates. Working in tandem with our OSO™ Reclocking feature, the newly generated signal is cross-checked multiple ways ensuring that the selected upsampled rate is as if it were an original native signal. The result is a signal free from digital artifacts that sounds accurate, pure, and a pleasure to listen to.

OSO™ Reclocking

Once a digital signal is transferred into Cary Audio's digital ecosystem via the digital inputs or CD, it is processed with extreme care to ensure the best possible sound achievable. As a digital source transfers from point A to point B it creates an insidious digital problem called jitter. To deal with this, Cary Audio uses something we call OSO™ Reclocking. While USB Asynchronous inputs use the XMOS processor to control the clocking of the USB host, other non-USB sources don't have this luxury and rely on the DAC to clock the data as feed from the source vs. a more accurate and powerful XMOS clock/processor controlling the flow. While DAC clocks are OK for some folks, not for us! Our solution is to reclock all signals again once onboard, even XMOS USB, as to ensure all jitter is virtually eliminated to a minute degree. We call this OSO™, short for "Onboard Signal Origination" because this reclocking and buffering creates a signal so stable and jitter free it's as if the origin of the signal was generated onboard and not from an external source.

XMOS xCore USB Asynchronous

XMOS is the de-facto standard in USB Audio 2.0. This design delivers bit perfect PCM audio up to 384kHz, DSD and DoP format support, round trip latencies as low as 3ms and use asynchronous clocking for computer USB sources. This means the DMC has complete control over the audio clock quality; essential for no-compromise digital audio systems.

DiO™ Analog Stage

To be or not to be? Tube or solid state? The latter question is one in particular we have a lot of experience with. For decades, Cary Audio has made some of the world's greatest vacuum tube and solid state audio products. DiO™ stands for "Dual Independent Output" meaning it can switch between a vacuum tube analog output or a solid state analog output. Not to be confused with a hybrid design where the attributes of both tubes and solid state devices are joined into the same circuit for a combined sound that always has the same characteristic. While a hybrid design is typically better suited for an amplifier or perhaps preamplifier, it's not the best design for source products because of the wide variation of source material, i.e. recordings. To deal with this, Cary Audio's DiO™ Analog Stage is actually two separate analog output stages that are completely independent of one another. One all solid state, the other, vacuum tube. Depending on taste or source material, the analog output can be switched on-the-fly from tube to solid state and back again, again and again. It's like having two source machines in one allowing you to get the most out of your recordings. The result is fantastic sound for all your digital sources in one source cost-effective machine.