
PS Audio PerfectWave DAC MKII Review

by

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Several Consumer Electronics Shows ago I remember seeing the PS Audio PerfectWave DAC in a very early stage of its development. If I'm not mistaken the front color display was actually an iPod screen placed in the front window of the chassis. Most high end audio focussed show goers had no clue what PS Audio was doing with this new PerfectWave series of products. As The Computer Audiophile one of my most important stops of the entire show was the PS Audio suite. The PerfectWave DAC was right up my alley and I wanted to extract as much information as possible from everyone in that suite. I must have asked the same questions to five different PS Audio representatives just to see if I could squeeze an extra morsel of information. I left the PS Audio suite thinking the PWD looked very promising based on a nice set of features and that PS Audio as a company was laser focussed on the next phase of high end playback with the PerfectWave products leading the way. Since that show PS Audio hasn't wavered in its dedication to the PerfectWave platform and computer based audio. In November 2011 PS Audio announced the MKII update to its original PerfectWave DAC. Once the dust settled I got my hands on the MKII this summer. After a couple months with the PWD MKII in my listening room I have some strong opinions about the product. The bottom line is the MKII update is a game changer that elevates the PerfectWave DAC to [C.A.S.H. List](#) status and puts the original PWD MKI to shame.



Straight To The Point

The PerfectWave DAC has been [reviewed](#) and talked about so much over the last few years that a lengthy introduction is not necessary. I'd rather get straight to the point focussing on what's new in the MKII and how the DAC sounds in my listening room. According to PS Audio the PerfectWave DAC MKII has a "completely redesigned digital input board, software, connecting cables and remote control as well as the addition of a PS Audio Critical Link fuse for the power supply. New features of the Mark II include 192kHz 24 bit asynchronous USB, NativeX mode, non-saturated logic data path, 11 additional power supplies, lower jitter and a precision balance control for the volume."



Analog path

The new digital input board has been redesigned to use lower jitter clocks and analog switches. Digital audio is all about clocking accuracy. One way to attain excellent clocking is the use of fixed oscillators for different frequency families. Multiples of 44.1 kHz are generated from a different fixed oscillator than multiples of 48 kHz. The oscillators are now powered by supplies completely separate from all other timing devices in the PWD. The new oscillators/clocks and power supply engineering in the MKII reduce jitter to half of what it was in the PWD MKI. PS Audio also feels strongly about its move to analog switching in the digital audio path. Digital switches that are either on or off can suffer performance degradation during

transition from on to off and vice versa. This degradation can be unpredictable and reduce sound quality. There's nothing worse for an engineer than unpredictable performance. It's much easier to design better sounding components using stable and predictable parts. Thus, PSA's move to high speed analog switches that don't suffer from saturated logic and hall reduce jitter from the levels measured in the original PWD.



Asynchronous

PS Audio wisely updated the USB input from adaptive capped at 24/96 in the MKI to asynchronous capable of 24/192 in the PWD MKII. With this async USB update PSA's appears to be embracing direct connect computer audio much more than it has in the past. In fact its eLyric Music Manager was updated in 2012 to support output to USB DACs. PS Audio's USB implementation is what I consider the industry standard based on the XMOS chip with software / drivers written by Thesycon System Software & Consulting GmbH based in Ilmenau, Germany. The XMOS / Thesycon combination implemented by several manufacturers is the most problem free USB solution I've used to date. DAC manufacturers have a number of

software customization options available to them when working with Thesycon. Some manufacturers use the generic software while others pay attention to the small details. PS Audio paid attention to the small things like customizing the installation path for the software (C:\Program Files\PS Audio...) and removing all user configurable / visible programs. Some users like to fiddle with software configuration but that goes against the PS Audio grain. PSA wants its customers to focus on music playback and forget about the fact there's a computer in or near the listening room.



Digital Lens

The new built-in Digital Lens is the single biggest improvement PS Audio has made to the MKII. The digital lens improves sound quality in the MKII so dramatically that I consider the MKI product broken. Honestly I can't imagine listening to a PerfectWave DAC without sending every bit of audio through the sharp focus of the Digital Lens. The Lens works with all inputs of the PWD MKII even the network Bridge that contains its own version of the Lens. The Digital Lens receives all digital audio signals just before the actual DAC chip and regenerates a new reduced jitter signal for conversion by the DAC. According to PS Audio the Lens accepts any amount of incoming jitter and reduces it to below 1 picosecond. I believe I've heard

similar statements from nearly every DAC manufacturer about how jitter is reduced to below a picosecond by one component or another inside their DACs. Marketing for sure, but they have a job to do like everyone else. PS Audio's implementation of the Digital Lens in the PWD MKII is called NativeX and it's selectable via the front panel touchscreen or the remote control. NativeX shouldn't be confused with Native or any of the Sample Rate Conversion (SRC) options available on the MKII. Like the MKI the MKII offers users the ability to convert sample rates up or down to a desired frequency or leave the audio untouched in its native format. Two options leave the audio untouched, Native and NativeX. Native is available on both the MKI and MKII. This mode is pretty straight forward as it simply send the exact data received on the digital input to the DAC chip. Sending CD quality audio at 44.1 kHz to the PWD on any of its inputs using the Native mode bypasses all manipulation and allows the 44. kHz data to reach the DAC chip. The NativeX mode, available only on the PWD MKII, takes advantage of the new built-in Digital Lens. Think of it this way, sending that same CD quality audio at 44.1 kHz to the PWD on any of its inputs using the NativeX setting sends the audio data through the Lens that regenerates a reduced jitter 44.1 kHz audio signal just before the DAC chip then sends it on to be converted to analog audio. The same process is used for audio of all sample rates supported by the input in use.

In layman's terms the Digital Lens is activated by selecting NativeX on the PWD MKII. All audio is sent through the regenerating Lens for signal "improvement" before conversion by the DAC chip. The results are very audible and very good. In fact I only listen through NativeX mode on the PWD MKII unless I'm

evaluating another setting. The bad news is owners of the MKI don't have NativeX. The good news is the MKI can be upgraded at home or by any PS Audio dealer. The cost of the upgrade is \$995. That's not bad price to pay for a game changing upgrade.



Listening Impressions



I listened to the PerfectWave DAC MKII in a number of system configurations. Readers should know that the review unit I received didn't contain the Bridge network adapter that supports UPnP/DLNA playback over an Ethernet network. I will receive the Bridge at a later date and publish a follow up article dedicated to the Bridge and something else PS Audio has up its sleeve. The two main music sources I used during the review were [aC.A.P.S. v2.0 server](#) and a 15" MacBook Pro Retina running OS X Mountain Lion and Audirvana Plus version 1.3.9.9. I used the asynchronous USB input 90% of the time and the AES/EBU input the other 10%. All listening was done through my Spectral Audio DMC-30SS Series 2 preamp and DMA-260 power amp into my TAD CR1 loudspeakers.

Upon first receiving the MKII I must admit to not reading the manual. I placed the unit directly in my system and tapped play on my iPad remote control. I was quite underwhelmed with the performance during my first several listening sessions. I had left the PWD MKII in its default Native mode thinking that must be the most pure audiophile method of playback. Looking at the other modes I knew I wanted to skip the resampling and thought NativeX must be some eXtreme DSP. Given all the uses of the letter X over the last decade, think X Games or Bender from the show Futurama suggesting "Blackmail Is Such an Ugly Word. I prefer 'extortion'. The 'X' makes it sound cool." I figured the X was all about marketing and nothing I wanted to experiment with until a later date. After this less than stellar showing by the MKII I downloaded the PDF manual and noticed NativeX mode and the Digital Lens. Switching from Native to NativeX mode on the MKII the best thing since the Blues Brothers put the band back together.

In Native mode the MKII sounded syrupy reproducing transients with rounded edges and powerful but muddy bass. My go-to HRx 24/176.4 track Passacaglia from the Kansas City Symphony was nothing special in Native mode and I quickly lost interest in the music, checking the CA What's New section every couple minutes. Flipping over to NativeX mode was fantastic. The deep bass immediately tightened up and the high frequencies were brought much more into focus. The biggest impact from NativeX was definitely heard in reproduction of the bottom end.

I continued to bounce back between Native and NativeX mode. Such a comparison should be valuable for those on the fence about upgrading their MKI DACs and readers who may have written off the PWD based on previous MKI listening sessions. In Native mode tracks like Tori Amos' Silent All These Years and Nat King Cole's The Very Thought Of You suffered from a lack of air around the instruments and very tame high frequencies. Nat's vocal has very little gloss to it while Tori's piano appeared deadened from an over damped recording studio. NativeX mode wasn't the cure or panacea that removed 100% of Native's sonic signature in the high frequencies. A slight synthetic character to the high frequencies remained but this was only an issue when compared to some of the best components I've had in my listening room. Nonetheless NativeX gave brought the once dead music back to life.

Over the last few weeks I've been introducing my seven month old daughter to Miles Daves, Joni Mitchell, and a host of other artists critical to her cognitive development. We started listening to Kind of Blue in Native mode. Don't worry I'm not going to suggest she noticed a difference and signified this with a wiggle of her big toe or something preposterous. What I noticed was a homogeneous sound causing all the horns to sound awfully similar. Miles' Trumpet sounded smooth when it should have been brash. Coltrane's tenor sax sounded far to close to Cannonball Adderly's alto sax. Everything was like smooth jazz in the worst sense of the genre. For the most part NativeX put Kind of Blue back into focus. There's nothing more identifiable and enjoyable than Miles' Harmon Mute on Flamenco Sketches accurately reproduced.

Once I understood the benefits of NativeX I played some of my favorite tracks in which the Digital Lens could really focus. The first three tracks from Tool's album Undertow, Tower of Power's Diggin' on James Brown, and School from Supertramp's rime of the Century. The lower frequencies from bass guitar on Undertow and School were very tight while David Mann's tenor sax on Diggin' was reproduced with excellent delineation. Nothing can ruin these tracks like sloppy bass. Fortunately NativeX mode cleaned up many of the common ills of reproducing bass and enabled me to focus on the music rather than unmusical playback flaws. For good measure I played the entire Phat Pack album from Gordon Goodwin's Big Phat Band. Through the PWD KMII and NativeX played at Big Band concert levels I had a blast with this one.



Conclusion



The PS Audio PerfectWave DAC MKII is much better than the additional Roman numeral that differentiates it from the MKI would make it appear. The upgrade from MKI to MKII is a major step forward for PS Audio. Inclusion of a new digital input board, asynchronous USB to 24/192, and the Digital Lens have truly elevated this DAC. To be honest I thought the original PWD MKI was a MidFi component. The MKII is definitely a HiFi component with a great feature set and matching sound quality. The overall sonic signature of the MKII in NativeX mode is somewhere in the middle of solid state and tubed electronics, but leaning a bit more toward solid state. The Digital Lens / NativeX mode brings life to the music by clearing up 95% of digital clouds. Much tighter and delineated bass is one hallmark of the Lens. Some may find the bass a bit pronounced but that's never been a problem for those who like to feel as well as hear their favorite tunes. The Digital Lens also brings the high frequencies into much sharper focus than possible through the original MKI PWD. The MKII update is a game changer that raises the PerfectWave DAC's level of playback significantly and places it firmly in competition with the next echelon of converters.