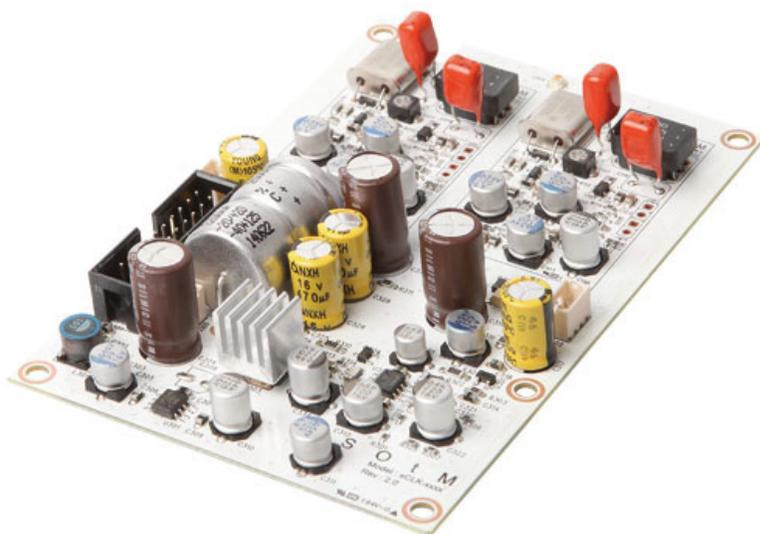# How to do USB audio right

If you need USB ports to send, say, DSD to your chosen DAC, then you want the very best.  This does NOT mean a PCI-card with USB ports as made by SOtM™ or other brands.  Such PCI-card-based USB outputs generate significant common-mode-noise.  This is why we NEVER use a PCI-bus-based card for SPDIF or AES 2-channel output.

Now, after 5 years of Baetis leading the movement *away* from PCI cards, SOtM has introduced the very best USB outputs by taking a signal straight from a USB header on the Motherboard – just as we take a very good SPDIF signal straight from the MB, then improve it with our proprietary daughterboard (and also add AES).  The SOtM circuitry is now an option on all of our Reference or Prodigy-X models, where the computer chassis is large enough to fit in the SOtM circuit boards…one board with the USB ports that simply fits into a low-height PCI bracket opening, and another board containing the USB clocking mechanism.

Here is what the SOtM boards look like.  Board number 1, below, is a board with a half-height PCI bracket with the 2 USB output ports.  Note that we do NOT use the board's own internal SATA power input.



This board is connected to one of the SOtM internal clock boards just to clock these USB outputs.  See photo below:

Then we do some things to significantly improve the overall performance of these USB outputs (which, by themselves, are better than anything else out there):

a) We use the external power input to the first board (at the bottom of the drawing below). This is a much better way of obtaining power than using the SATA connector on the USBhubIN board itself.



b) We provide this external power from the variable-voltage output port of our HD-Plex external linear PSU – lower ripple/noise and better audio than anything else including SOtM's own battery-based PSU for this USBhubIN card.

c) For the cable connecting the HD-Plex PSU to the card, we use a Revelation Audio Labs DC cable specially designed for us – cryo-treated silver with a perfect fit onto the SOtM board.

d) Finally, we provide one of a few, very best USB cables from the SOtM USB ports to the DAC. Please read forthcoming reviews on how the Baetis way of doing USB output beats the PCI-card-based ways of 5 years ago.

For the Prodigy-X or any Reference model, these USB port boards will cost a Baetis client $990 including installation (prices may rise in the future). Another $295 will get you the RAL cryo-silver DC cable, and the price of the USB cable to the DAC can be a wide range depending on quality. Such

USB cables include the RAL 2-line USB cable that sends data through one output port and power through the other USB port.  We continually audition USB cables and can give you a run-down of the possibilities, the best of which we carry ourselves.