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Q & A

What is SPDIF decoder and DAC?

It's an audio equipment, good designed decoder boost your audio system greatly with limited cost. It's widely used in following cases:

- 1) To up grade the current DVD or other Disc player, upgrade the analog output to HIFI standard. DVD player is designed for general audio/video home usage so there is a large gap in audio quality comparing to a pure CD player. A mainstream CD player often costs from one to several thousands dollars. Well designed SPDIF decoder boost your dream of enjoying HIFI music with limited cost to be true. A CD player can be roughly divided into two parts, the Disc reader, which read the disc and output the digital signal in a SPDIF serial format via TOSLINK fiber connector or COAX cable, and the electrical part that decode the SPDIF signal into I2S PCM audio data signal, converting it to Analog signal for Line out and feed into the headphone amplifier circuit for driving the headphone. For low price DVD players, the audio quality degrade heavily at the second stage, i.e, the electrical part due to the consideration of cost in design and manufacturing. A decent SPDIF decoder takes over the signal processing job directly from the first stage of a DVD player, taking SPDIF signal as input, and output high quality analog signal for line out and headphone driving.
- 2) To work as PC HIFI equipment. The SPDIF signal can also comes from a sound card with SPDIF output, and usually they are not expensive. By connecting to a well designed SPDIF decoder you are able to enjoy the music from a PC.
- 3) To cooperate with some professional disc readers.(well, you have it, you know everything....)

Why external USB sound card for PC HIFI?

Sound quality of integrated sound card on the main board, or in the PCI slot, is largely restricted by the noise of switching power supply in the PC, and the complex electro-magnetic environment in the computer, exposing to high noise radiators you can't expect it to output good HIFI quality sound. A well designed external sound card solve these problems.

What is AWaudio E-100?

E-100 is a well designed/manufactured SPDIF decoder DAC and USB sound card, by utilizing the top performance it's able to output high standard HIFI quality analog audio signal.

A deep insight of AW audio E-100:

AW audio take the DIR9001 from Texas Instrument as SPDIF receiver, this chip is current the best SPDIF receiver chip in the world, it converts the SPDIF signal into I2S digital PCM audio data stream, feed into a high speed audio mux switch chip, then output to the PCM1794 DAC chip for digital to analog converting. PCM1794/1792 is currently the best audio DAC chip in the world, it's performance is a little better than the TDA1541, which was widely used in the best rank CD players for decades by famous CD player manufactures. AWaudio E-100 take PCM2706 chip as the USB decoder, again PCM270X series chip is the best USB sound card receiver chip from TI. Comparing to the widely used PCM2707, designs involving PCM2706 here has better performance, as PCM2706 directly output I2S signal for the Digital to Analog stage while PCM2707 has to encode the audio data package into SPDIF first, then convert back to I2S for Digital to analog converting. In the digital stage, clock jitter brings in most of the loss in a audio system, this kind of redundant converting to SPDIF and back to I2S may cause great degradation on audio quality. AWaudio E-100 avoid this drawback by fully consideration over the design.

The headphone amplifier take an OPA2134 as buffer input stage, followed by several Toshiba low noise audio transistor to work as the voltage and current boost stage. Two pairs of Toshiba 2SA1358/2SC3421 is connected parallelly for each sound channel, this design ensure the better performance. All the transistors are working in class A to output sweet sound.

AWaudio E-100 takes 4 stands DIP-8 op amps in total, two for I/V converter, one for dual to single end, rest for headphone amp buffer. All assembled with a DIP-8 socket, enables you to change them as needed.

AWaudio E-100 use two pairs of LM317/337 to generate two isolated channel of power supply, one for low noise low current signal processing, another for the high current headphone power amplifier. This kind of isolated design secure the performance. In a audio system, especially the mixed signal audio system, noise are usually introduced by unwanted interaction between different stage of the circuit, by either the ground, power line, or radiation. Designer of AWaudio products take good care of the digital and analog power supply, taking proper isolation to boost the audio quality. Fast recovery fairchild Diode MU260 to work as the rectifier and two 4700uF NCC capacitor as the power filter. Dozens of Rubycon and WIMA are used in the power and main board as filter, that's why E-100 sounds dead quiet when tuning the potentiometer to

MAX with no input signal, and sounds so sweet. Every single LM317/337 power regulator is fully protected by two diodes, so believe me, unless you apply a super high input voltage to the power supply it's not going to damage within a decade. Huge heat sink is used for the power regulator so it's safe and quite for continuous use in hot summer.

An ALPS potentiometer is used, tuning the volume feels good.

An Omron relay is used as the headphone protector, we design the board to be working normally for decade of years however if in any case something goes wrong, the relay will isolate your headphone totally away from the circuit, protect your precious headphone from being damaged.

Design philosophy of AWAudio products:

- 1) Use the top performance components, but do not rely on them.
- 2) All DC coupled.
- 3) Power supply is the most important
- 4) Fully consideration over the user experience.

Brief specification:

Power supply: 110V or 220V AC optional (please let us know your option for your order)

Input:

- 1) Fiber
- 2) Coaxial RCA
- 3) USB

output

- 1) RCA stereo out
- 2) 6.5mm headphone jack

24-bits resolution, sample rate up to 108KHz

Appendix:

- 1) DIR9001
 - a) 24-bits, 96 KHz.
 - b) Super low clock jitter 50 ps
- 2) PCM1794A
 - a) THD+N: 0.0004%
 - b) Dynamic Range: 132dB
 - c) 24-bits, 192 KHz

Warranty:

One year Warranty.