

PI 2 DESIGN - PI2AES Pro Audio Shield

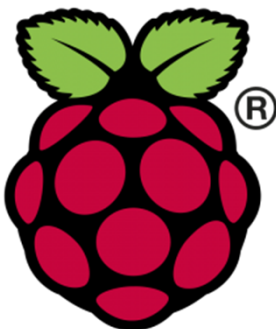
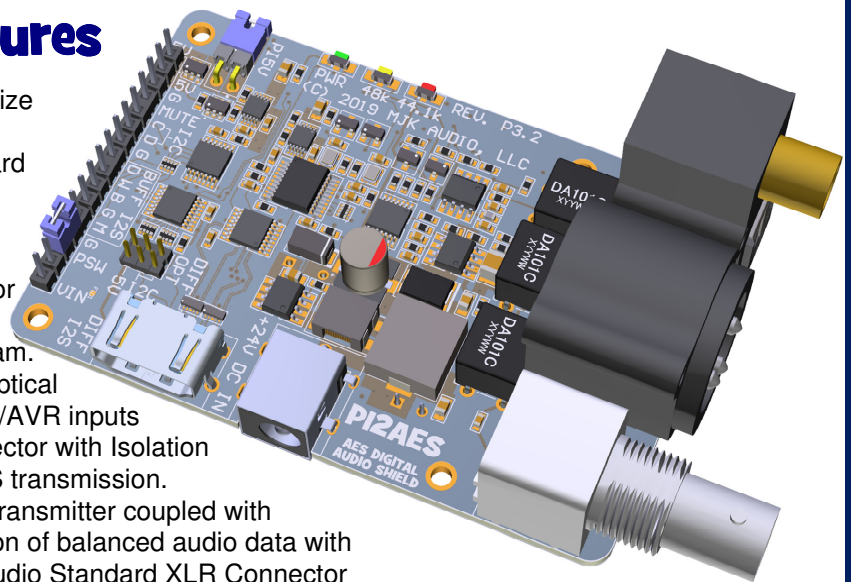
Introduction and Overview

The PI2AES, designed and manufactured by PI 2 Design, is a professional I/O Shield designed to bring Professional Studio Grade Audio to the Raspberry Pi® family of Single Board Computers. This low cost Shield converts the Raspberry Pi® I2S Interface to High Definition Digital Audio Coax, OPTO and Balanced XLR.

The addition of Parallel I2S Output along with LVDS Differential over HDMI allows the PI2AES to interface with virtually any High Performance DAC on the market.

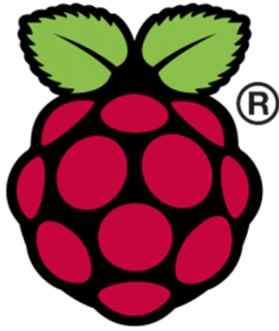
Specifications and Features

- **FORM FACTOR** – Raspberry Pi® Shield Size w/40-Pin mating connector.
- **AES TRANSMITTER** – The industry standard WM8804 converts the RPi I2S stream to AES3/SPDIF formatted data at 24-Bit up to 192Khz Frame Rate
- **SPDIF COAX OUTPUT** – An RCA connector with Isolation Transformer provides coaxial transmission of the SPDIF Audio Data Stream.
- **SPDIF OPTICAL OUTPUT** – An Isolated Optical Transmitter Supports Consumer Level DAC/AVR inputs
- **AES BNC OUTPUT** - A 75 ohm BNC connector with Isolation Transformer provides for Single Ended AES transmission.
- **AES BALANCED OUTPUT** – An RS-422 Transmitter coupled with Isolation Transformer allows the transmission of balanced audio data with 110 ohm impedance via the Professional Audio Standard XLR Connector
- **BUFFERED I2S OUTPUT** – Parallel Buffered I2S is available for direct short distance connection to off-board D/A. Perfect for DIY use! I2C for control is also provided as well as the 5V Regulated and Input Voltage Rails.
- **DIFFERENTIAL I2S OUTPUT** – A DS2063 Differential Transmitters is used to drive the I2S Bus over a standard HDMI Connector. The Pinout is Selectable Between the PS Audio and Gustard Standards.
- **HIGH RESOLUTION CLOCKS** – A pair of Ultra-Low Noise NDK NZ2520SD oscillators allow the WM8804 to operate in non-PLL mode for the lowest possible noise.
- **ULTRA-LOW NOISE LDO's** – An Ultra-Low Noise LT3042 LDO (<1uV noise and 80dB PSRR) is used to Supply the WM8804 Transmit Section, while another LT3042 Powers the High-Resolution Clocks.
- **LOW NOISE PCB LAYOUT** – Constructed with 4-layer Split Ground PCB with noise reduction techniques refined from years of High-Speed Mixed-Signal Design work



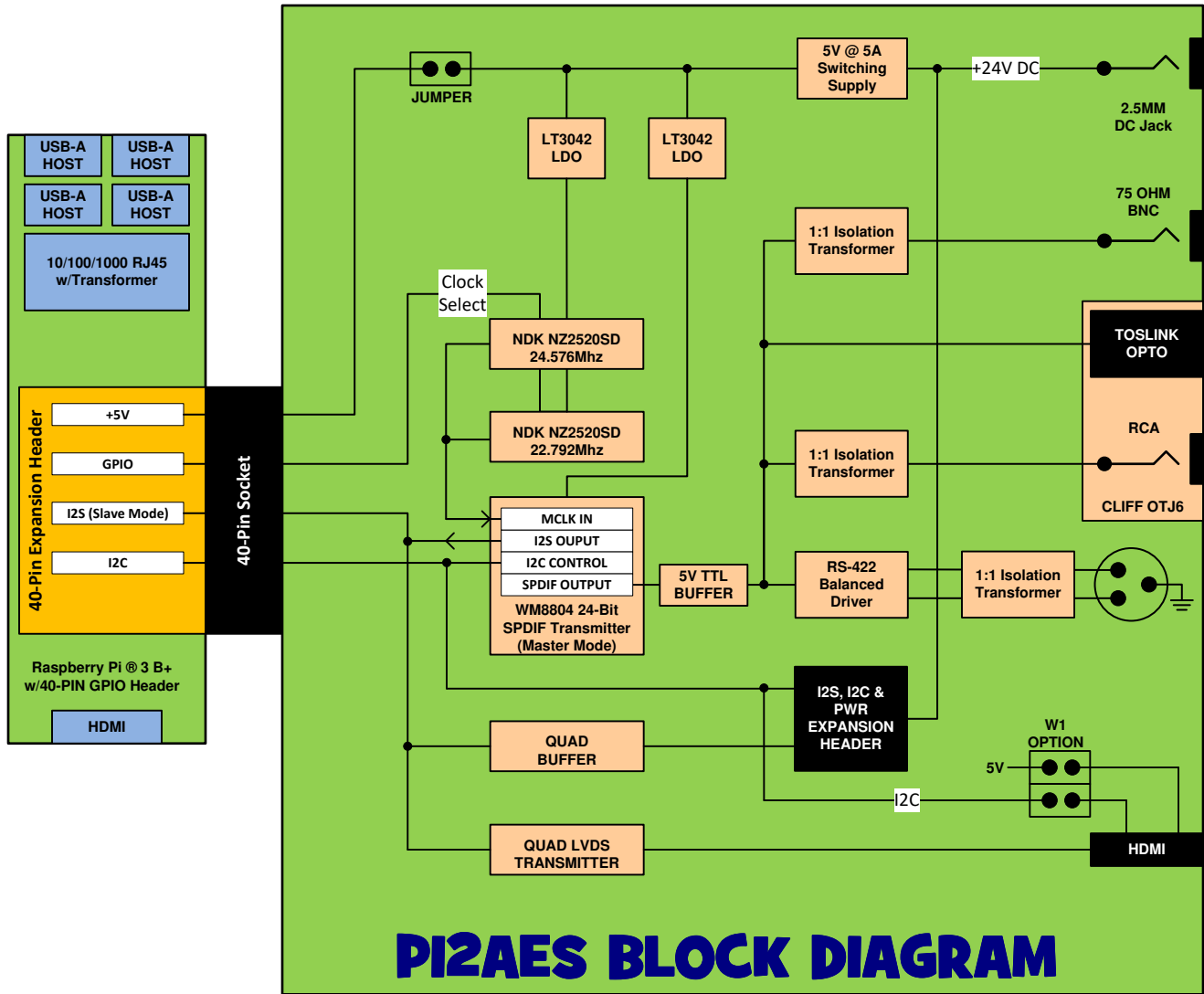
Pi 2 Design

www.Pi2Design.com



Pi 2 Design

www.Pi2Design.com



PI2AES BLOCK DIAGRAM