



HiFiBerry DAC+ DSP

The HiFiBerry DAC+ DSP is a high-resolution digital-to-analog converter for the Raspberry Pi (newer models with 40 pin GPIO connector). It combines a Burr-Brown DAC used on the HiFiBerry DAC with digital input and output and also comes with a powerful digital signal processor.

Features

- Stereo analog output (sample rates up to 192kHz/24bit)
- Stereo digital input and output (input up to 96kHz, output up to 192kHz)
- 300 MHz Digital Signal Processor (6144 instructions per sample incl. FFT and FIR accelerators)
- Dedicated 192kHz/24bit high-quality Burr-Brown DAC
- High quality asynchronous sample rate converter that can upsample/downsample/mix audio sources
- Onboard EEPROM allows to boot and run even without the Raspberry Pi
- Users can upload programs developed with Analog's SigmaStudioStereo input and output
- Connects directly to the Raspberry Pi, no additional cables needed
- No soldering, comes as a pre-fabricated kit. You just plug it onto the Raspberry Pi, it is conform to the Raspberry Pi hardware-attached-on-top (HAT) specification.
- Compatible with all Raspberry Pi models with a 40-pin GPIO connector
- Directly powered from the Raspberry Pi, no additional power supply
- Gold plated RCA output connectors
- Comes with all components required to mount it. We include 4 M2.5x12mm spacers to fix the board onto the Raspberry Pi

Dimensions without package	5.5 x 6.5 x 2 cm
Dimensions including package	9.5 x 7.5 x 2.5 cm
Weight	0.02 kg
GTIN	

Use Recommendations

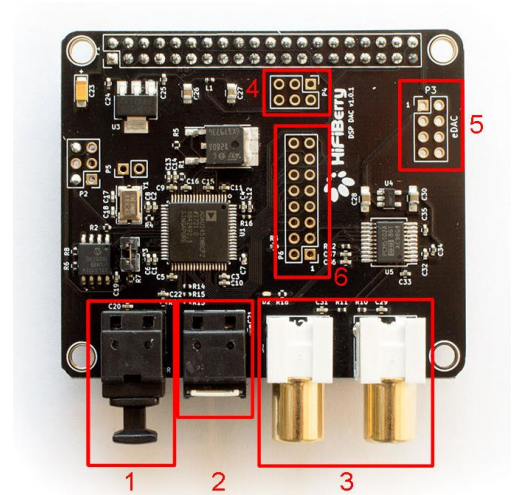
- High-resolution music streamer or server
- Replacement DAC for lower performance units
- Standalone equalization (independent of Pi)

Hardware

Note that the actual board might look a bit different. Layout and components might change without further notice. We do not guarantee a specific PCB layout or specific components.

Connectors and Jumpers

- 1 TosLink input (up to 96kHz)
- 2 TosLink output (to 192kHz)
- 3 Analogue output
- 4 DSP Analogue inputs (P4)
- 5 external DAC I2S output (eDac)
- 6 DSP digital inputs and outputs



DSP analogue inputs (P4)

The analogue inputs connect directly to the DSP. These are NOT audio ADC. The inputs are designed to use external analogue control like voltage sources or variable resistors to control a DSP program. You need to design your own DSP program to use these. Pin 1 is the top-right pin

GND	1	2	+3.3v ANALOG POWER SUPPLY (UP TO 0.1a)
AUX ADC 1	3	4	AUX ADC 0
AUX ADC 3	5	6	AUX ADC 2

eDAC I2S output

This output provides the digital I2S data stream that is used for the onboard DAC. Note that there is no support from us to configure specific external DACs. This should be only used by people who can not only debug I2S, but also create their own DSP programs. Pin 1 is on the top left.

+5V	1	2	GND
Raspberry Pi SDA	3	4	Raspberry Pi SCL
I2S BCLK	5	6	I2S DATA
I2S LRCLK	7	8	MCLK

DSP digital inputs and outputs

This output provides access to additional I2S inputs and outputs of the DSP. This should be only used by people who can not only debug I2S, but also create their own DSP programs.

+3.3V (up to 0.2A)	1	2	GND
MCLK	3	4	GND
LRCLK OUT1	5	6	BCLK OUT1
DATA OUT 1	7	8	GND
LRCLK OUT2	9	10	BCLK OUT2
DATA OUT 2	11	12	GND
DATA IN2	15	16	GND