CN II

user manual

Revision 1.0

Labs

Overview

CN II is an 16-bit stereo audio reference DAC module designed for A10-Cubieboard and A20-Cubieboard. Based on dual Philips D/A converters for fully balanced design and a Burr Brown buffered output stage with enough power to drive low impedance headphones.
CN II has additional input selector with 3x S/PDIF as an extra option, which makes it a DAC module that can be used with basicly any audio source.

Power Requirements

No external power supply is needed when used and attached with Cubieboard.

When used as an external DAC with S/PDIF input selector, external PSU is needed:
Digital section 3.3VDC
Analog section 5VDC

Configuration

CN II is easy configured with an onboard jumper for different output frequencies. Either no resampling up to 192 kHz or fixed resampling at 176.4 kHz.

Technical details

Input up to 24bit
Output up to 192 kHz
Output 4.7 Ω balanced
Frequency 4 Hz - 18 kHz, +0 -0.3dB
THD+N = 0.02% (1 kHz)

Inputs

Cubieboard input

Optional:
Additional 3x S/PDIF inputs (header CON_3)

Outputs

L/R Balanced XLR
L/R Unbalanced RCA
L/R Unbalanced headphones 2.54mm pin (header CON_1)

Optional

Analog volume control 2.54mm pin (volume control module)
3x S/PDIF inputs 2.54mm pin (header CON_3)

Installation with Cubieboard

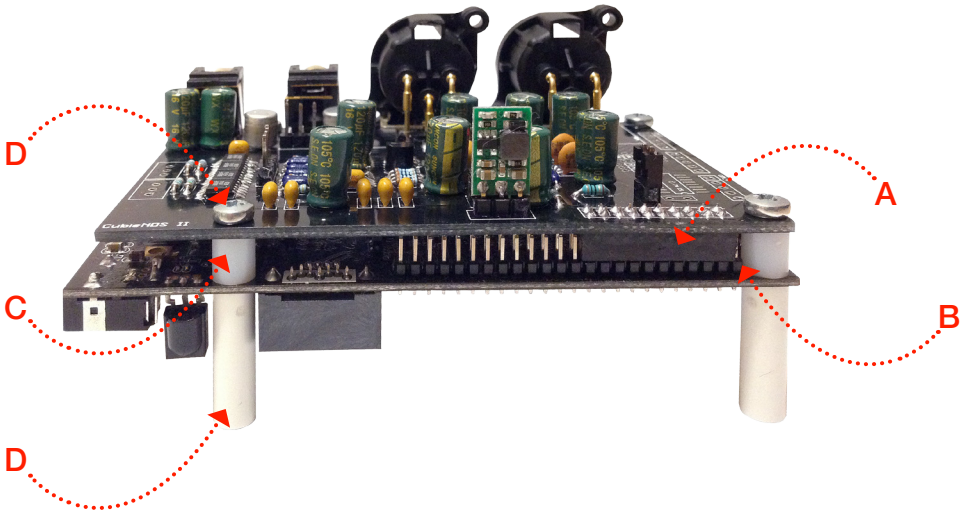
CN II is easy installed within seconds if you follow this guide.

A Attach the CN II female header to Cubieboard male header.

B Notice 1 row of pins is left out.
Otherwise CN II will not work and the screw installation later on will not fit.

C Insert the short spacers between CN II and Cubieboard.

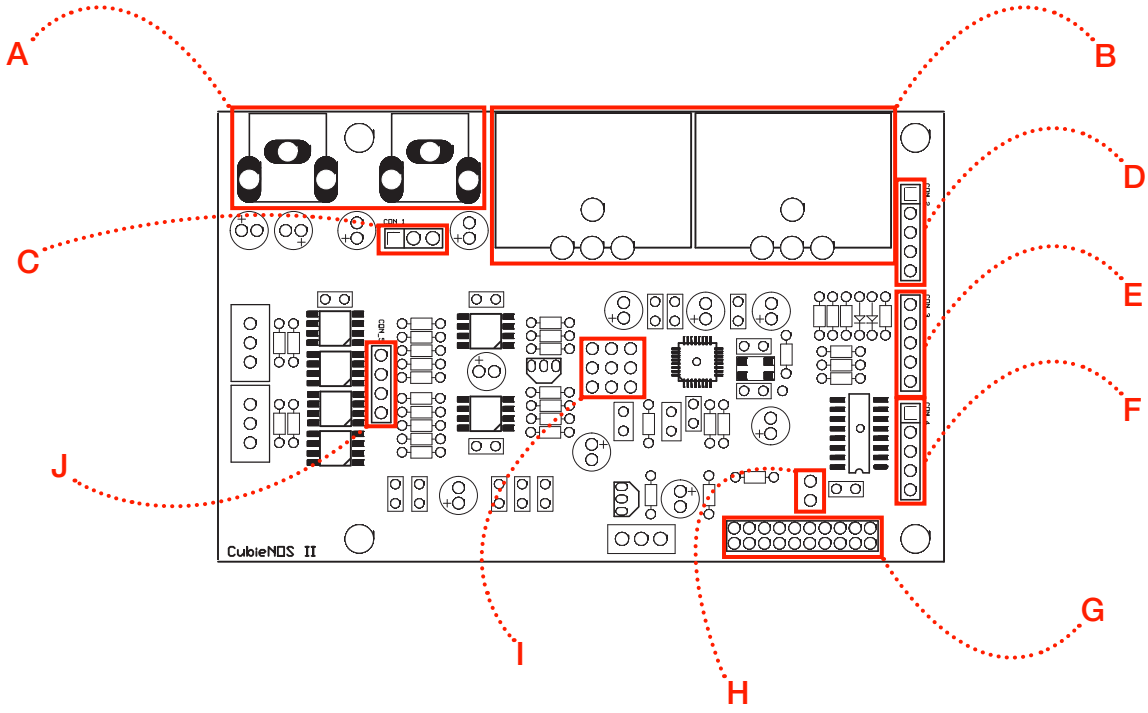
D Insert the screws through CN II-Spacers-Cubiboard and screw into the tall M3 spacer.



PCB Layout

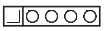
Overview of CN II PCB layout.

A	L/R Unbalanced RCA
B	L/R Balanced XLR
C	CON_1
D	CON_2
E	CON_3
F	CON_4
G	Cubieboard header
H	Optional S/PDIF input/output
I	I2S configuration
J	Optional analog volume control



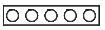
CON_1

Pin 1	GROUND
Pin 2	LEFT
Pin 3	RIGHT



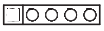
CON_2

Pin 1	GROUND
Pin 2	LED input 1
Pin 3	LED input 2
Pin 4	LED input 3
Pin 5	LED input CN II



CON_3

Pin 1	3.3VDC
Pin 2	Selector input 1
Pin 3	Selector input 2
Pin 4	Selector input 3
Pin 5	Selector input CN II



CON_4

Pin 1	GROUND
Pin 2	S/PDIF input 1
Pin 3	S/PDIF input 2
Pin 4	S/PDIF input 3
Pin 5	3.3VDC

Optional S/PDIF input/output

This jumper is a bridge between Cubieboard and CN II. Jumper must be removed if optional input selector is used or if the CN II is used as an straightforward S/PDIF DAC.

Pin 1	DAC S/PDIF input
Pin 2	Cubieboard S/PDIF output

I2S configuration

Configure with provided onboard jumpers.

Connect according to blue schematic for no resampling up to 192 kHz.

Connect according to green schematic for fixed resampling at 176.4 kHz