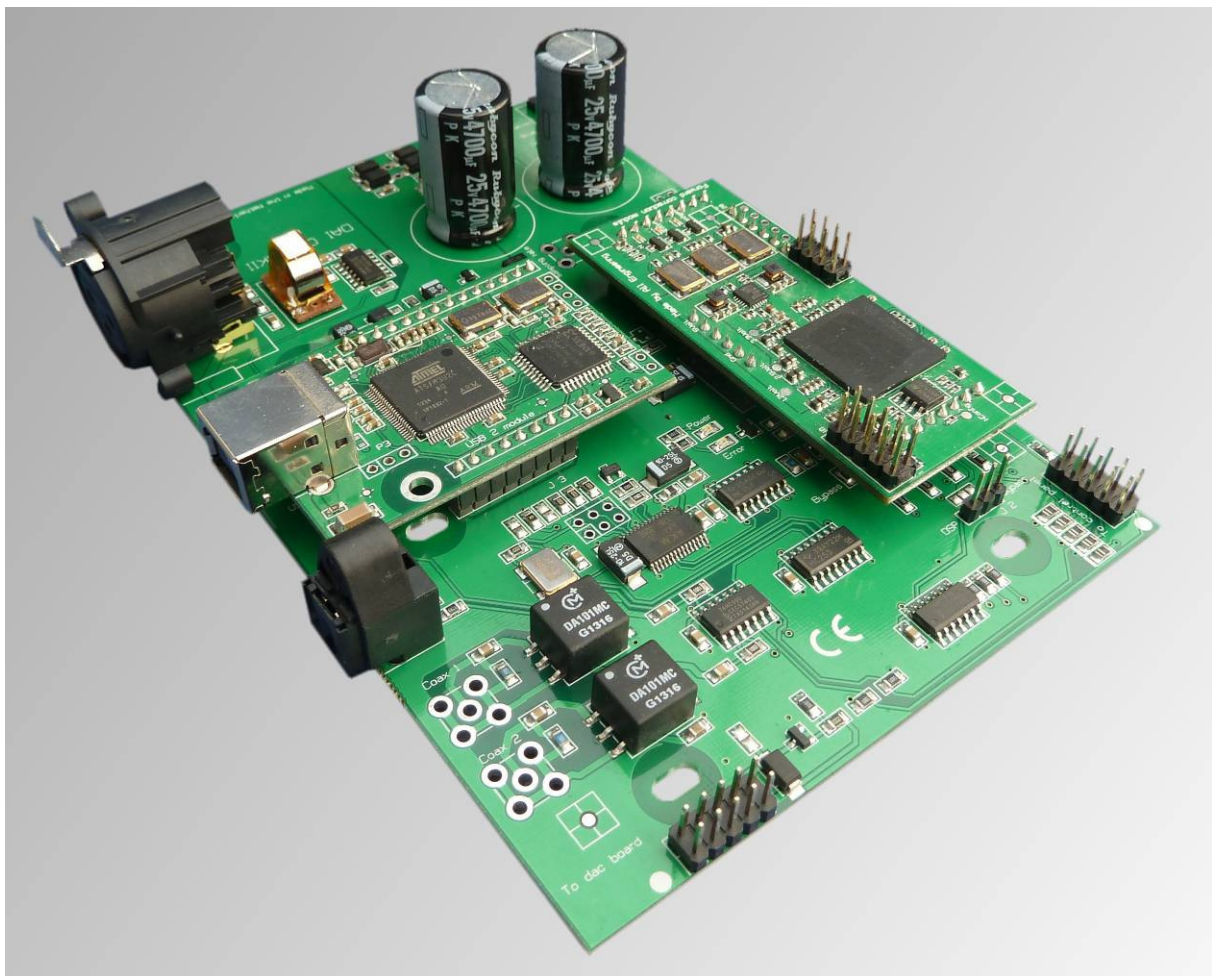


TRANSIENT

DAI ONE digital interface application information



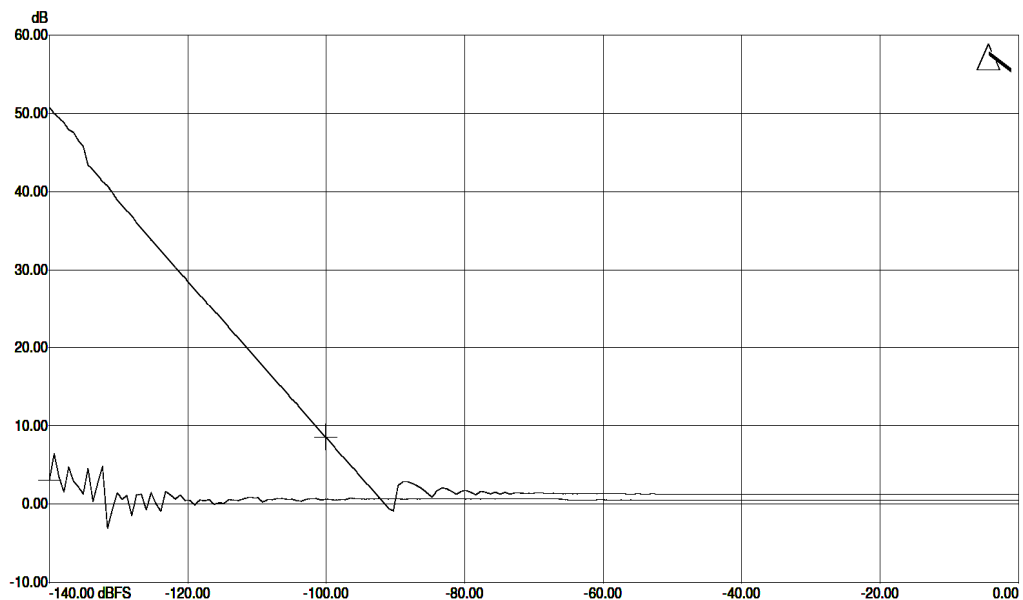
DAI One with optional USB and FPGA board

Introduction

The DAI One board is made to collect several incoming digital audio standards like S/PDIF Toslink , USB and AES/EBU and will translate them to well known interface protocols like RJ 24 or I2S. Settings of the board should be realized by jumpers. Just connecting the board to a transformer having two 9 -10 VAC output windings, a ribbon cable to the dac board and a ribbon cable to the source selector. Depending the chosen input , the board can handle up to 384kHz sampling.

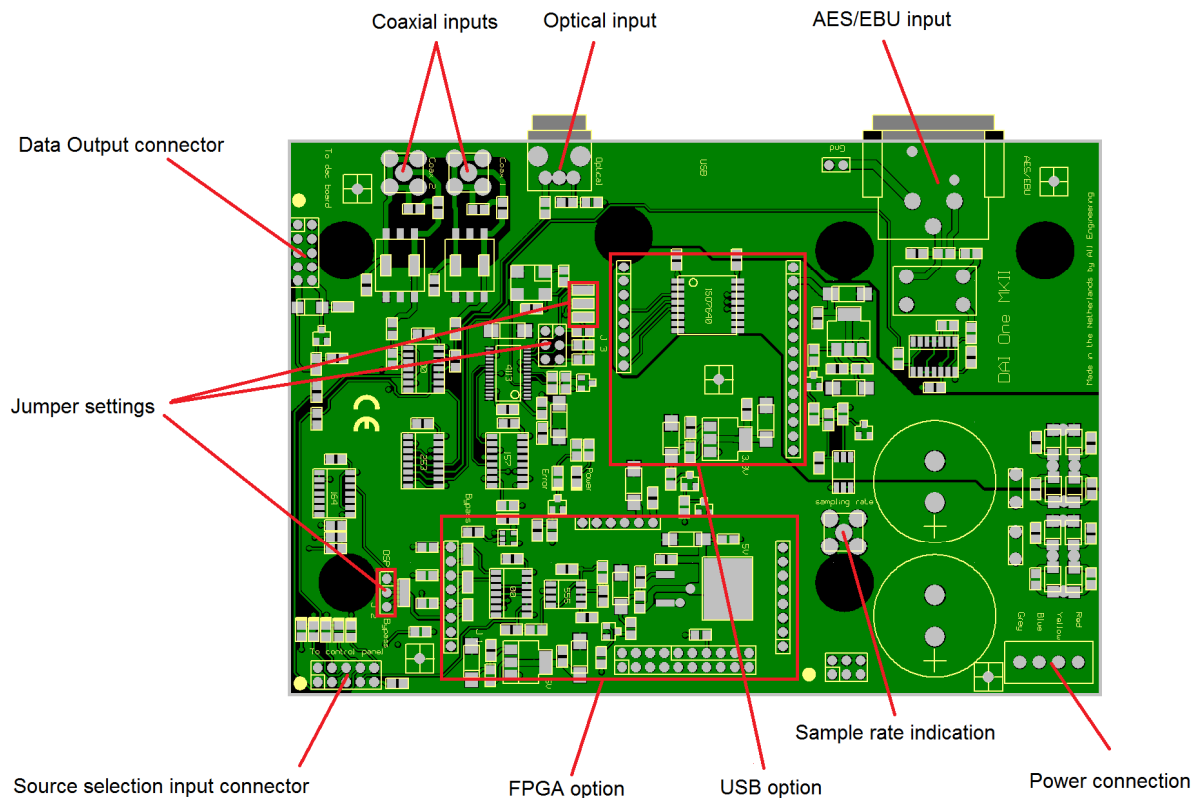
Two optional boards are available .

- USB 2 asynchronous interface board: Accept sample rates up to 384 kHz. Will be internally powered by the DAI One board.
- FPGA/DSP board: In conjunction with the Mono Dac Motherboards the FPGA/DSP board will split up the incoming data stream into two new data streams. Both streams feeding one of the Dac clusters on the Mono Dac Motherboards. The result is a 24 bits resolution having extreme linearity down to -140 dB



Above a linearity plot is shown. 16 bits versus 24 bits created by the FPGA together with the Mono Dac Motherboards. Extreme linearity as a straight line down to -140dB will be the result.

Possible connections and settings



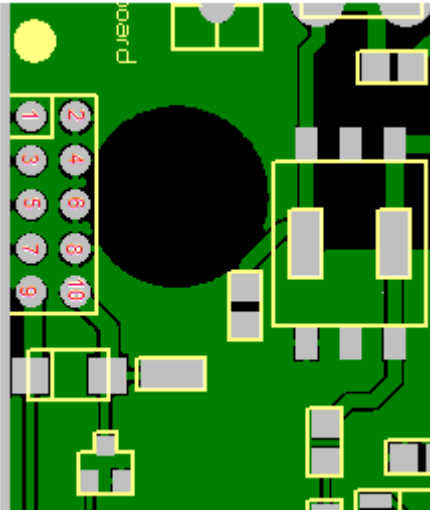
Power connection.

The power connection accepts 2x 9 VAC as a minimum voltage. This voltage is based on optimal regulation of the voltage regulators. If necessary a dedicated transformer can be delivered having both 115 Volts and 230 Volts primary windings and both 10 Volts secondary windings.

Stand by option

By using the "Standby pin" on the Source selection input connector , the DAI One goes into standby. When one of our dac boards are connected , their power will be switched off as well. In standby mode a complete system will dissipate less than 1.5 Watts.

Data Output connector



The data output connector will supply regular data like RJ24 or I2S. When using the right connections the DAI One can be used in conjunction with other brands of dacs. In case of using Transient DAC motherboards the power of these boards can be switched off.

-
- pin 1 Clock Output
 - pin 2 Ground
 - pin 3 Frame Sync Output
 - pin 4 Ground
 - pin 5 Data 1 Standard data output pin.
 - pin 6 Ground
 - pin 7 Data 2 Only in conjunction with FPGA option and Mono Dac Motherboard.
 - pin 8 Ground
 - pin 9 Dedicated for Transient Dac power relay.
 - pin 10 Dedicated for Transient Dac power relay.

The dot as showed on the left side of pin "1" will be visible on all Transient boards as a reference as it helps to connect the ribbon cable in the right position.

⚠ Never turn the data connector for 180 degrees as it can damage your used system modules!!

Coaxial S/PDIF 75 Ohms inputs

The s/pdif inputs can handle a max. sampling rate of 192 kHz. When wrong or no data is supplied, a red led will indicate that the data is not valid or available. This error detection is also available on the Source selection input connector.

Optical Toslink connector

The optical Toslink connector can handle a max. sampling rate of 96 kHz.

AES/EBU 110 Ohms input

The AES/EBU input can handle a max. sampling rate of 192 kHz.

Sample rate indication connector

The "sample rate indication connector" is an empty position for a SMB connector or can be soldered. The signal on this position is a buffered version of the Fsync signal and can be connected to a counter device to give you real sample rate.

USB option

An USB module can be delivered as an option. If other than Transient USB devices should be used , we can supply a special changer board to match the used USB interface with the DAI One board.

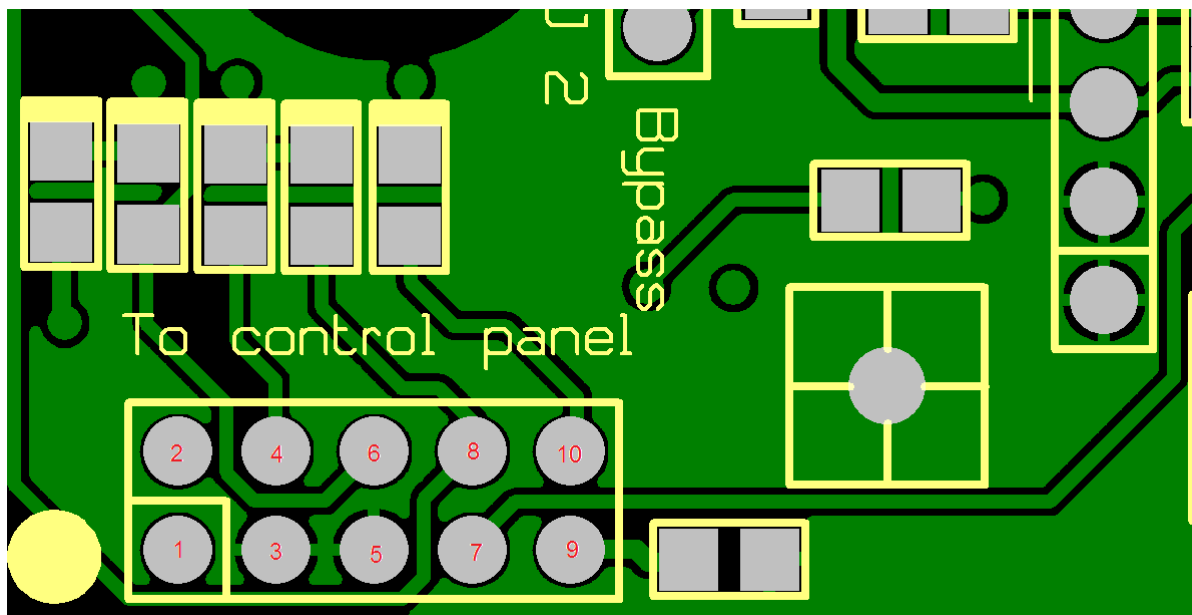
FPGA / DSP option

In conjunction with the Mono Dac Motherboard it will split up the incoming data stream into two new data streams. Both streams feeding one of the dac clusters on the Mono Dac Motherboard. The result is an 24 bits resolution having extreme linearity down to -140 dB. If not in use , correct jumper settings should be used for standard operating mode.

Source input selector connector

The "Source input connector" can be used to connect to a simple rotary switch, or can be connected with a smart "Front panel logic interface board"

In both cases by using a rotary switch or front panel logic board, pin "1" (+5 Volt) should be connected to one of the input sources. In case of selecting pin "9" the DAI One board comes into a "standby" state. In case of using Transient dac boards they will be switched off completely.



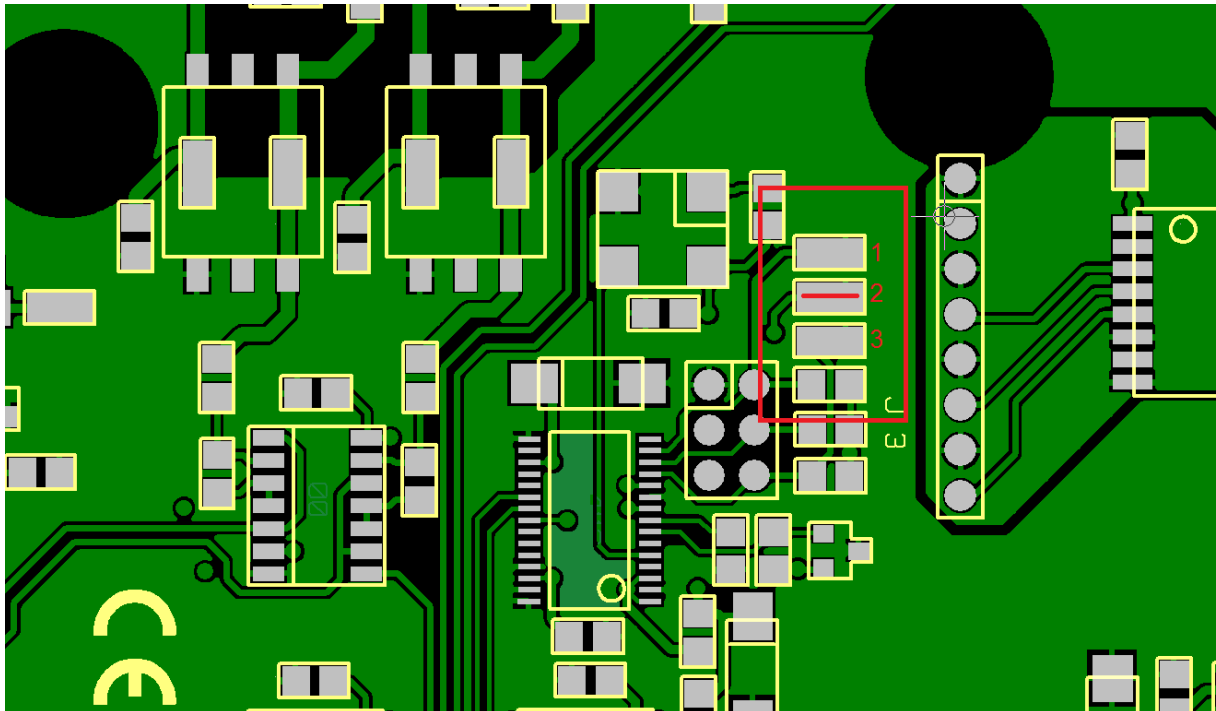
- pin 1 + 5 Volt
- pin 2 AES/EBU select
- pin 3 Ground
- pin 4 Optical select
- pin 5 Ground
- pin 6 Coax 1 select
- pin 7 Data Error indication . A digital "one" is OK. A digital "zero" is a data input error.
- pin 8 Coax 2 select
- pin 9 System "stand by" select
- pin 10 USB select

S/PDIF / Toslink and AES/EBU Jumper settings

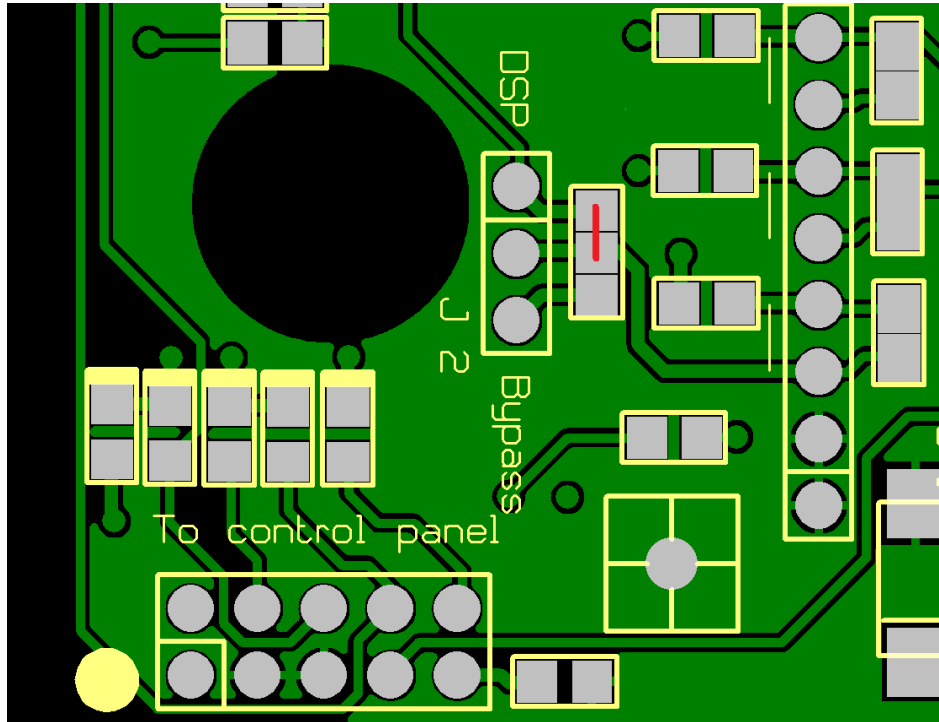
The "S/PDIF, Toslink and AES/EBU" output format jumpers can be selected for both RJ24 or I2S format. However, when a USB option is used in most cases you will be forced to use the I2S format.

The DAI One board will be delivered having a jumper on position "2" and will translate mentioned inputs into the I2S format. Position "1" will give you the RJ 24 format however, this is not logical when an I2S USB module is fitted.

 In case of using the FPGA / DSP option you should use Position "2"

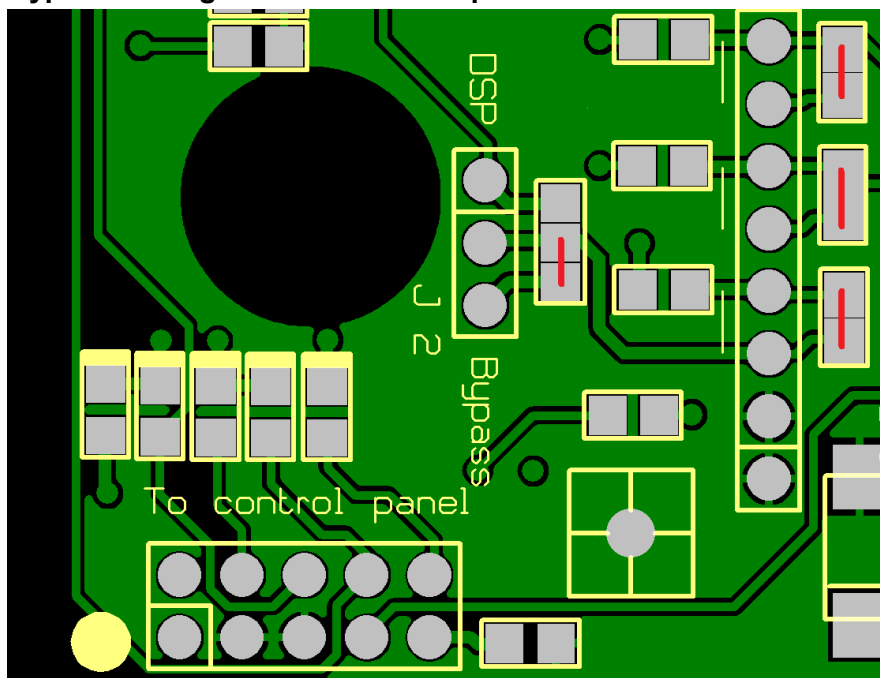


FPGA/DSP jumper settings



In case of using the FPGA/DSP option, the J2 jumper should set as shown above.

Bypass setting if no FPGA/DSP option is installed.



If no FPGA/DSP module is fitted the I2S format is forwarded to connected DAC module.

In case that your dac accepts the RJ24 format only, it is allowed to set J2 for the DSP setting.

Special OEM versions of the DAI One board

In case of 50 + quantities the board can have your own logo and pcb color.

Specifications

Description.	DAI One. Digital audio interface board.
Power requirements.	2x 9 -10 VAC
Power consumption.	1.5 Watts in standby mode. 3 Watts activated no options installed
Recommended transformer.	15 VA or more. (A dedicated transformer is available)
Coaxial S/PDIF Inputs.	S/PDIF 75 Ohms max. sampling rate 192kHz.
Toslink optical Input	Sampling rate max 96 kHz.
USB input	Sampling rate max. 384 kHz.
USB power	Internal powered by the DAI One module
Data Output.	I2S or RJ24 depending on jumper settings
Size.	120 x 146 mm

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