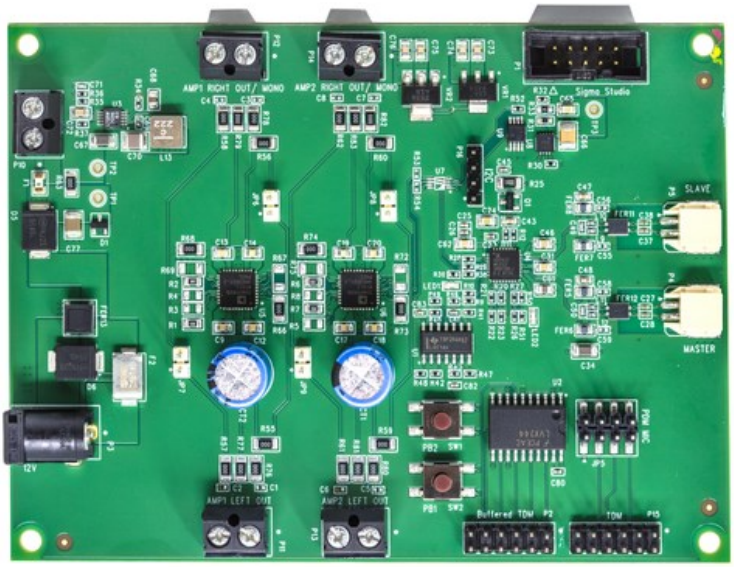
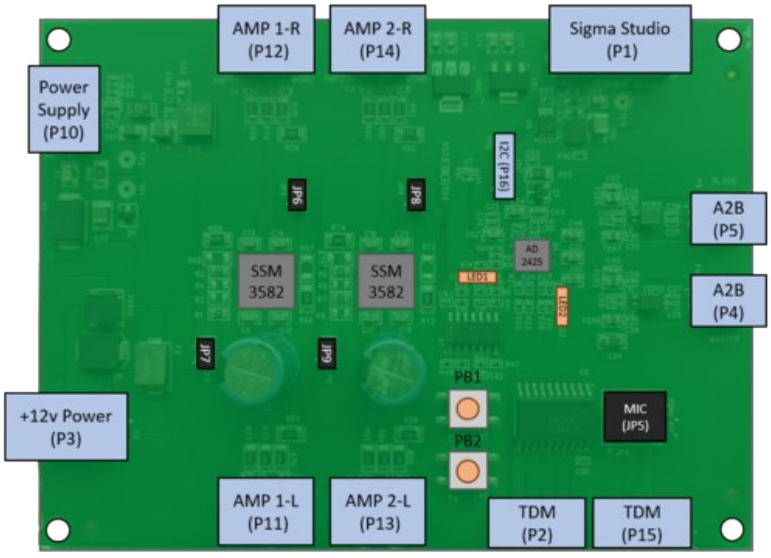
This version (13 Nov 2019 23:14) was ***approved*** by chadw.
The Previously approved version (18 Jan 2019 20:48) is available.

A2B Class-D Amplifier Module for SHARC Audio Module

The SHARC Audio Module A^2 B Class-D Amplifier Module is an A2B connected board that contains two Class-D SSM3582 amplifier ICs, providing 4 channels of audio output.



The A^2 B Class-D Amplifier Module



Block Diagram of the A^2 B Class-D Amplifier Module

Schematics, PCB Layout, Bill of Materials

SHARC Audio Module A^2 B Class-D Amplifier Module Design and Integration Files

- Schematics
- Bill of Materials (**Coming Soon**)

- Fabrication and Assembly Files (**Coming Soon**)

Automotive Audio Bus (A2B) Interface Duraclick (P4, P5)

The A^2 B bus uses crossover cables to connect nodes to each other. `P4` connects to upstream towards the Master Node in the network and `P5` connects downstream to the next slave in the network.

The A^2 B Class-D Amplifier Module uses the AD2428W IC.

SSM3582 Class-D Amplifier

There are two ADI SSM3582 Class-D amplifiers on the A^2 B Class-D Amplifier Module. Each is two channels.

At 16V, the max power per channel is ~24w of power.

P11 AMP1 Left Channel Output

`1`	Positive
`2`	Negative

P12 AMP1 Right Channel Output/MONO

`1`	Positive
`2`	Negative

P13 AMP2 Left Channel Output

`1`	Positive
`2`	Negative

P14 AMP2 Right Channel Output/MONO

`1`	Positive
`2`	Negative

Populate `JP6` & `JP7` to configure AMP1 into MONO Output on `P12`. Populate `JP8` & `JP9` to configure AMP2 into MONO Output on `P14`.

USBi Connector for SigmaStudio (P1)

The USBi Connector on the SHARC Audio Module allows for the use of the USBi adapter for SigmaStudio and bare metal programming.

+12v Input Power Jack (P3)

The A^2 B Class-D Amplifier Module is designed to run off a 12v to 16v supply. A 12v 2A DC power supply is included in the kit. The barrel connector on the A^2 B Class-D Amplifier Module can handle up to 3A current.

Power Supply Input (P10)

`P10` is a power supply input jack to connect up to 16v @ 8A MAX. There is an 8A fuse on the Positive input of the P10 connector.

Pushbuttons (PB1, PB2)

Two GPIO pushbuttons are provided on the A^2 B Class-D Amplifier Module. They are connected as follows:

- `PB1` is connected to `IO1` on AD2425W
- `PB2` is connected to `IO2` on AD2425W

GPIO LEDs (LED1, LED2)

There are two GPIO-controlled LEDs on the A^2 B Class-D Amplifier Module. They are connected as follows:

- `LED1` is connected to IO0 on the `AD2425W`
- `LED2` is connected to IO7 on the `AD2425W`

PDM/TDM Connectors

JP5 PDM MIC

3.3v	1	2	GND
DRX0	3	4	GND
DRX1	5	6	GND
BLCK	7	8	GND

P2 Buffered TDM Signals

B_DTX0	1	2	GND
B_DTX1	3	4	GND
B_DRX0	5	6	GND
B_DRX1	7	8	GND
B_FSYNC	9	10	GND
B_BLCK	11	12	GND

P15 Unbuffered TDM Signals

DTX0	1	2	GND
DTX1	3	4	GND
DRX0	5	6	GND
DRX1	7	8	GND
FSYNC	9	10	GND
BLCK	11	12	GND

EEPROM

The A^2 B Class-D Amplifier Module has a TWI 256k EEPROM for configuration data. The EEPROM used is the 24FC256I/MS.

Navigation - SHARC Audio Module

Prev.: Audio Project Fin | Up: Hardware Reference | Next.: Faust and the SHARC Audio Module

resources/tools-software/sharc-audio-module/hardware/class-d.txt · Last modified: 13 Nov 2019 23:14 by chadw