Audio Interface

Hallmar Gauti Halldórsson

Matrikel: 29404

Hochschule Ravensburg

06.07.2019

Contents

1 Abstract

This is a short documentation for a project which is a two input channel audio interface using a Teensy 3.2 microcontroller.
The heart of the whole thing is the Teensy, the Teensy takes the I^2S signal from the ADC and converts it into a USB-audio stream signal, and from there the connected computer can record that audio stream.
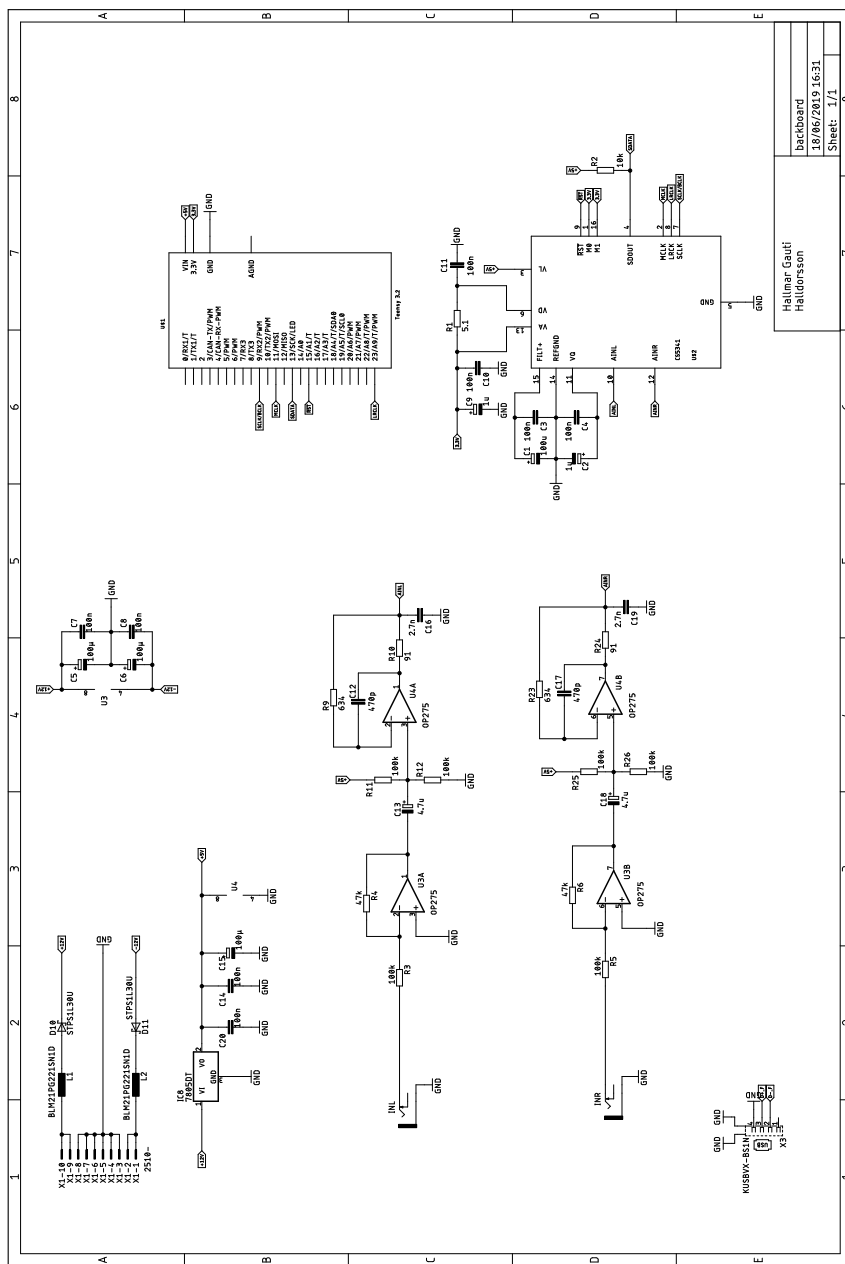
2   Schematic

Figure 1: Schematic for the circuit

3 Board Layout

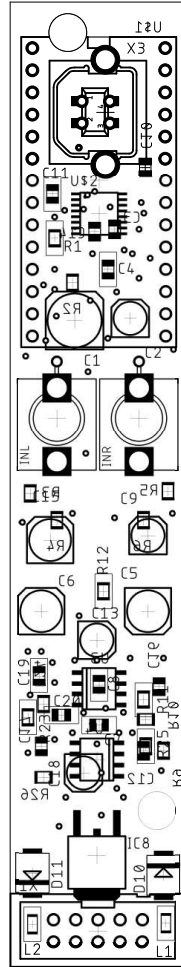Figure 2: Layout for the circuit

4 Firmware

```cpp
1 #include <Audio.h>
2 #include <Wire.h>
3 #include <SPI.h>
4 #include <SD.h>
5 #include <SerialFlash.h>
6
7 AudioInputI2S            i2s1;
8 AudioOutputUSB           usb1;
9 AudioConnection          patchCord1(i2s1, 0, usb1, 0);
10 AudioConnection          patchCord2(i2s1, 1, usb1, 1);
11 const short rst = 15;
12
13 void setup()
14 {
15   pinMode(rst, OUTPUT);
16   digitalWrite(rst,LOW);
17   delay(1);
18   digitalWrite(rst,HIGH);
19   AudioMemory(40);
20 }
21
22 // Add the main program code into the continuous loop()
       function
23 void loop()
24 {
25
26   //no code required here
27
28 }
```

5 BOM

BOM			
Part	**Value**	**Type**	**Package**
C1	100μ	Polarized Capacitor	0605
C2	1μ	Polarized Capacitor	0405
C3	100n	Capacitor	0805
C4	100n	Capacitor	0805
C5	100μ	Polarized Capacitor	0505
C6	100μ	Polarized Capacitor	0505
C7	100n	Capacitor	1206
C8	100n	Capacitor	1206
C9	1μ	Polarized Capacitor	0405
C10	100n	Capacitor	0805
C11	100n	Capacitor	0805
C12	470p	Capacitor	0805
C13	4.7μ	Polarized Capacitor	1206
C14	100n	Capacitor	0805
C15	100μ	Polarized Capacitor	1206
C16	2.7n	Capacitor	0805
C17	470p	Capacitor	0805
C18	4.7μ	Polarized Capacitor	1206
C19	2.7n	Capacitor	0805
C20	100n	Capacitor	0805
R1	5.1	Resistor	0805
R2	10k	Resistor	0805
R3	100k	Resistor	0805
R4	47k	Resistor	0805
R5	100k	Resistor	0805
R6	47k	Resistor	0805
R9	634	Resistor	0805
R10	91	Resistor	0805

BOM Continued			
Part	**Value**	**Type**	**Package**
R11	100k	Resistor	0805
R22	100k	Resistor	0805
R23	634	Resistor	0805
R24	91	Resistor	0805
R25	100k	Resistor	0805
R26	100k	Resistor	0805
U1	Teensy 3.2	Microcontroller	-
U2	CS5341	ADC converter	TSSOP16
U3	OP275	Op-Amp	SO08
U4	OP275	Op-Amp	SO08
IC8	7805	SMD Voltage regulator	TO252
X1	10 Pin	4-Wall Header	2500-10
X3	KUSBVX-BS1N	USB-B Receptacle	-
INL	MONO-Jack	3.5mm Jack	-
INR	MONO-Jack	3.5mm Jack	-
L1	BLM21PG221SN1D	Inductor	L2012C
L2	BLM21PG221SN1D	Inductor	L2012C
D10	STPS1L30U	Schottky Power Rectifier	SMB
D11	STPS1L30U	Schottky Power Rectifier	SMB

6 links

Mouser Cart