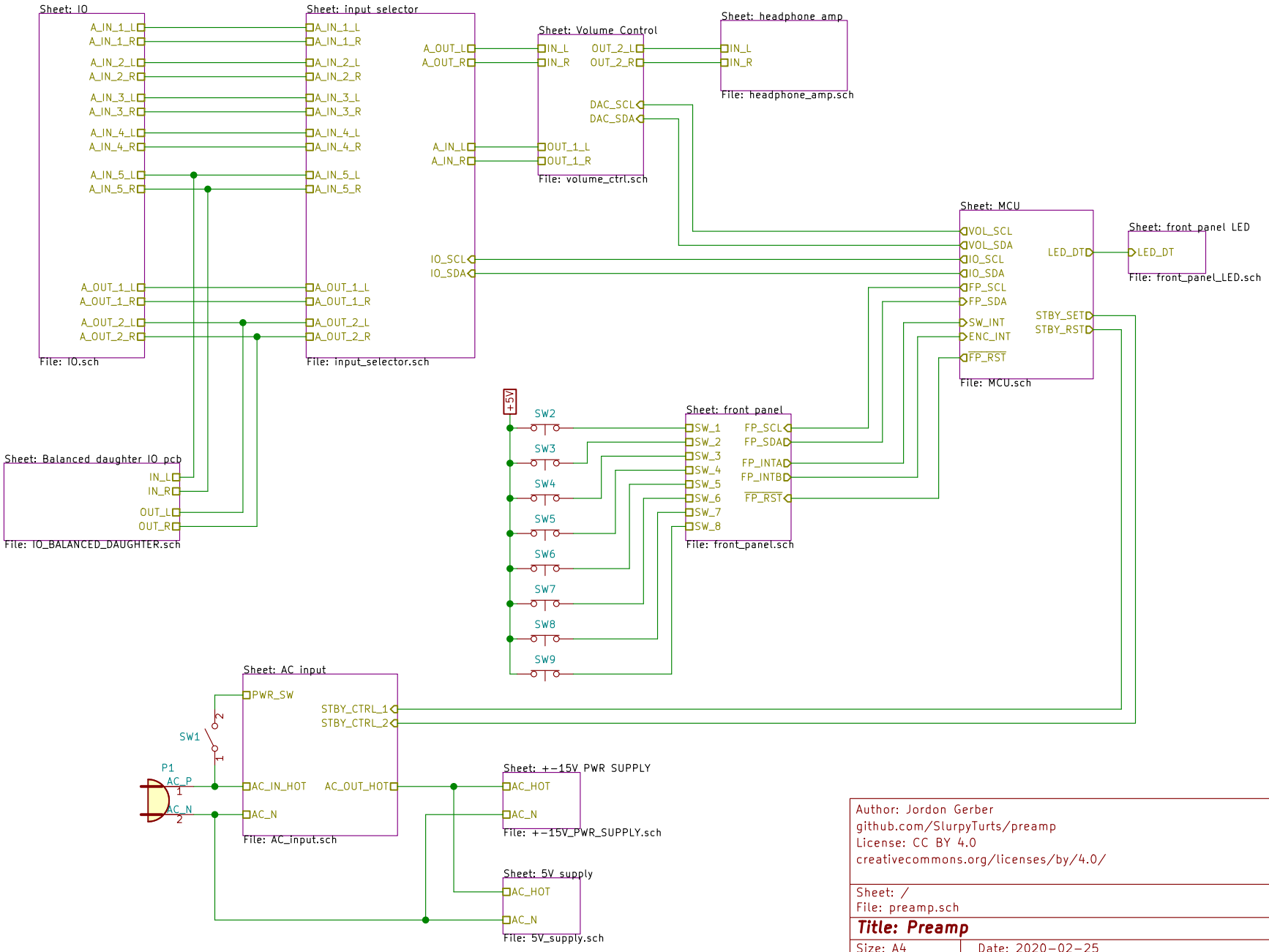

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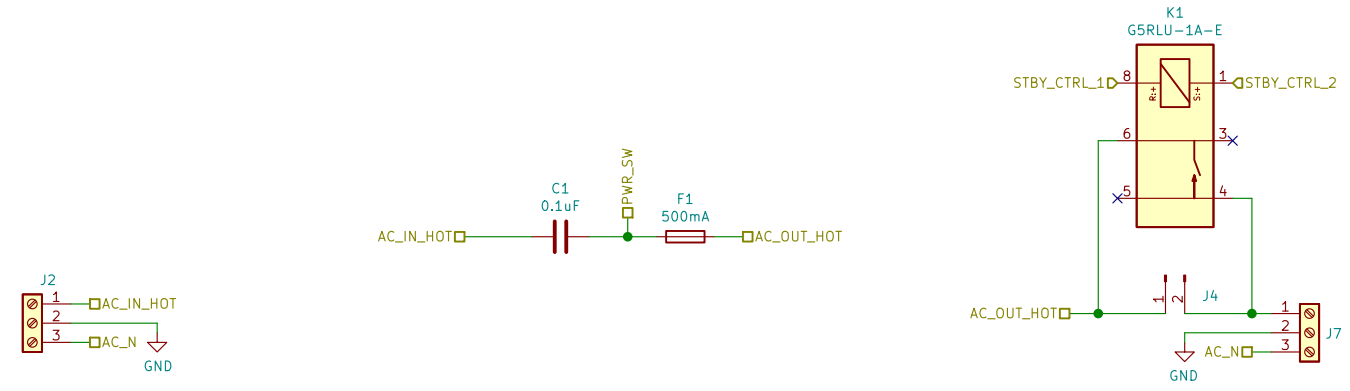
Sheet: /
File: preamp.sch

Title: Preamp

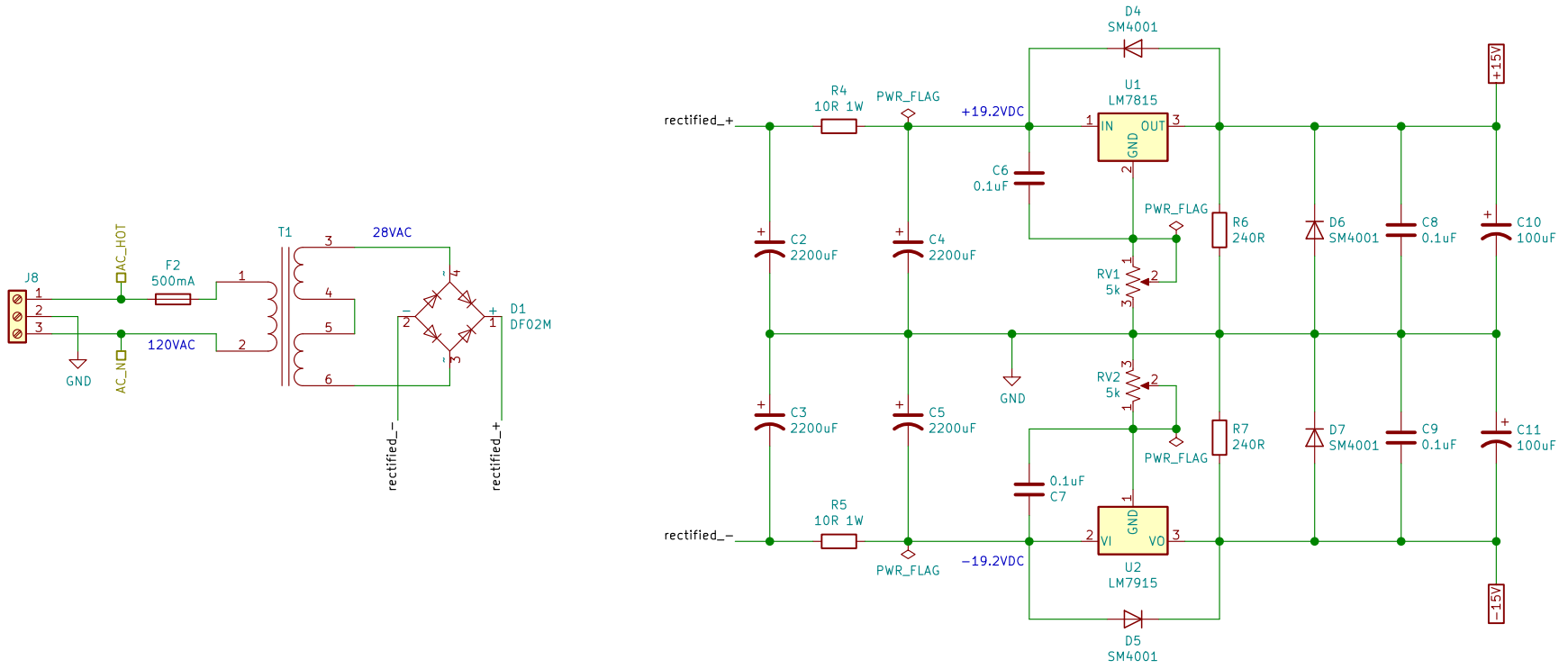
Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 1/13

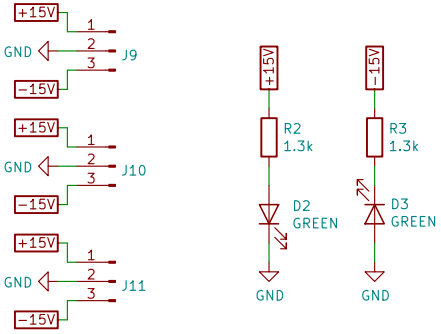


Sheet: /AC input/
File: AC_input.sch

Title:

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 2/13

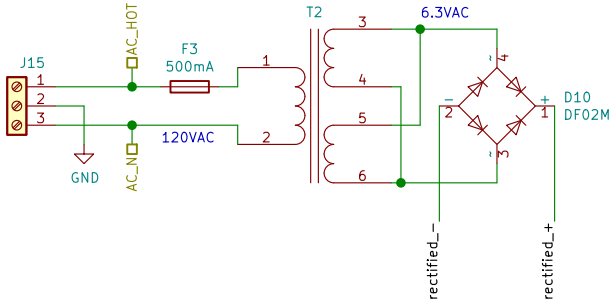


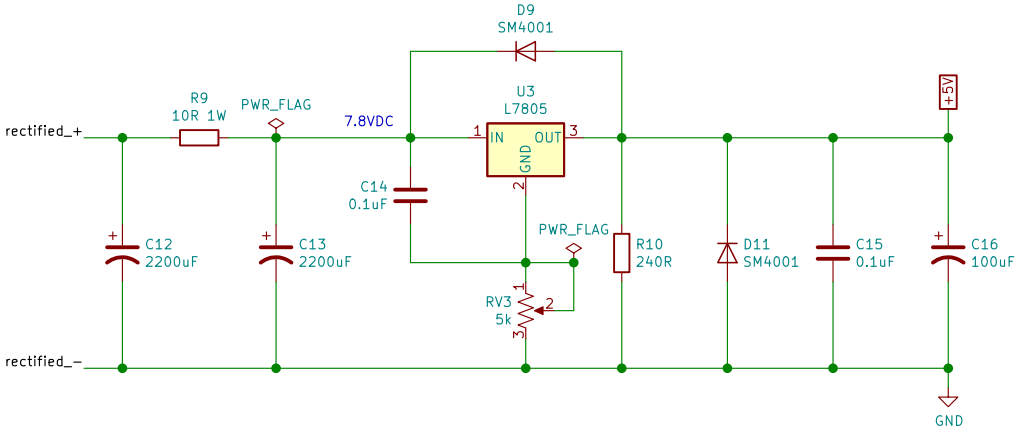


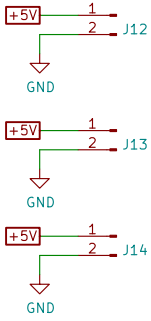
Sheet: /+−15V PWR SUPPLY/
File: +−15V_PWR_SUPPLY.sch

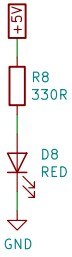
Title: 15V Power Supply

Size: A4	Date: 2020−02−25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5−0−10_14)		Id: 3/13









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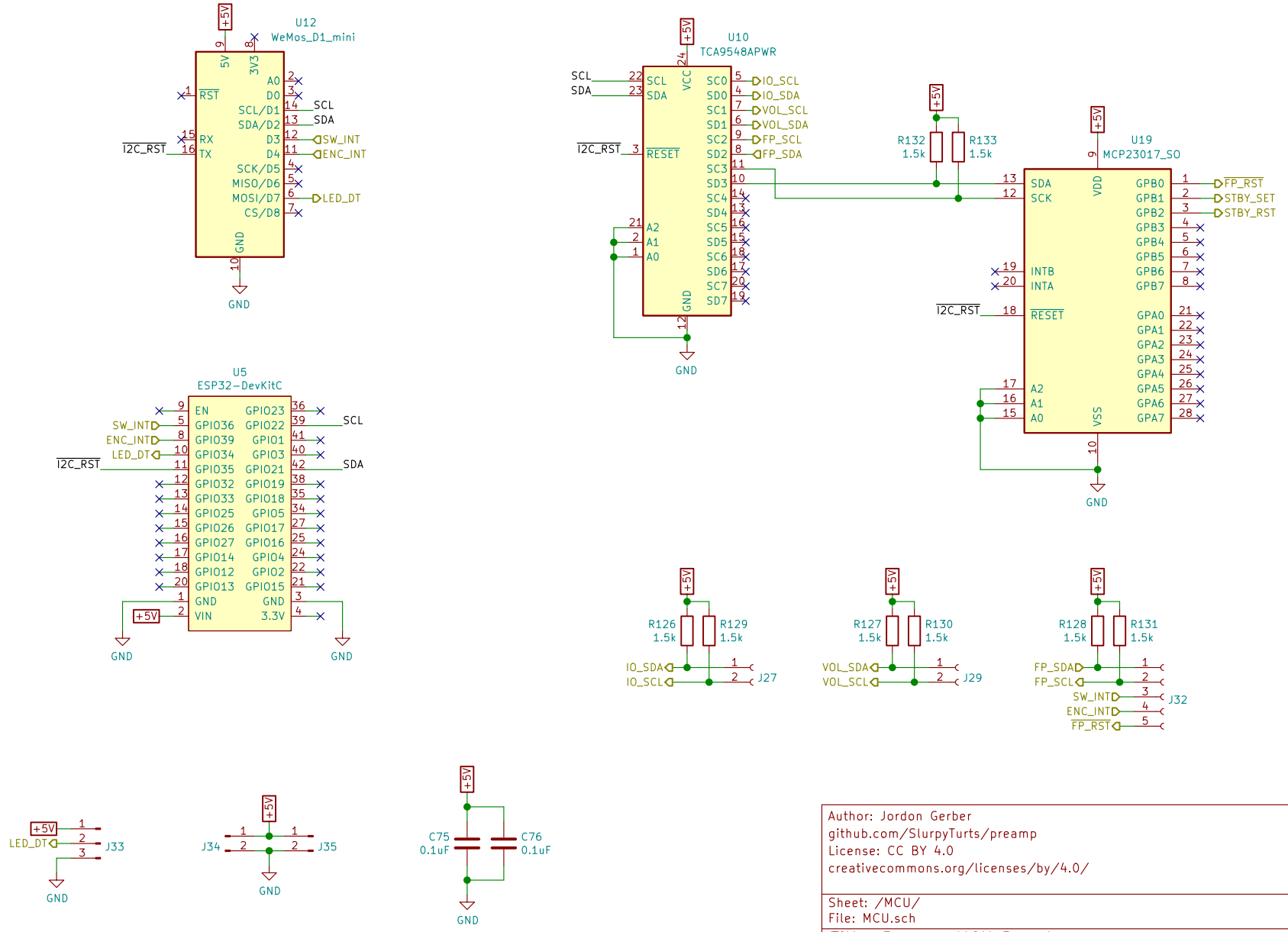
Sheet: /5V supply/
File: 5V_supply.sch

Title: 5V Power Supply

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 4/13



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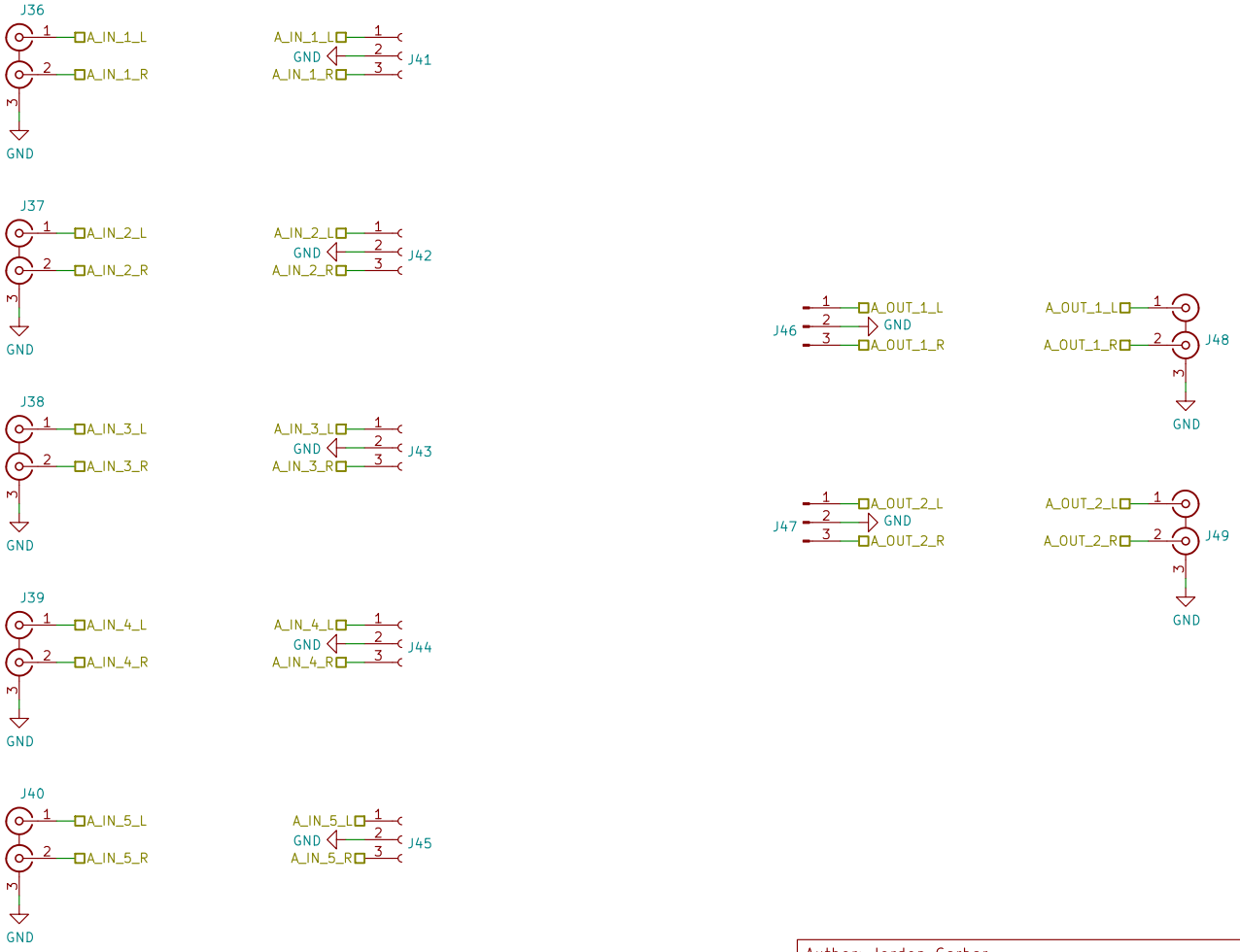
Sheet: /MCU/
File: MCU.sch

Title: Preamp MCU Board

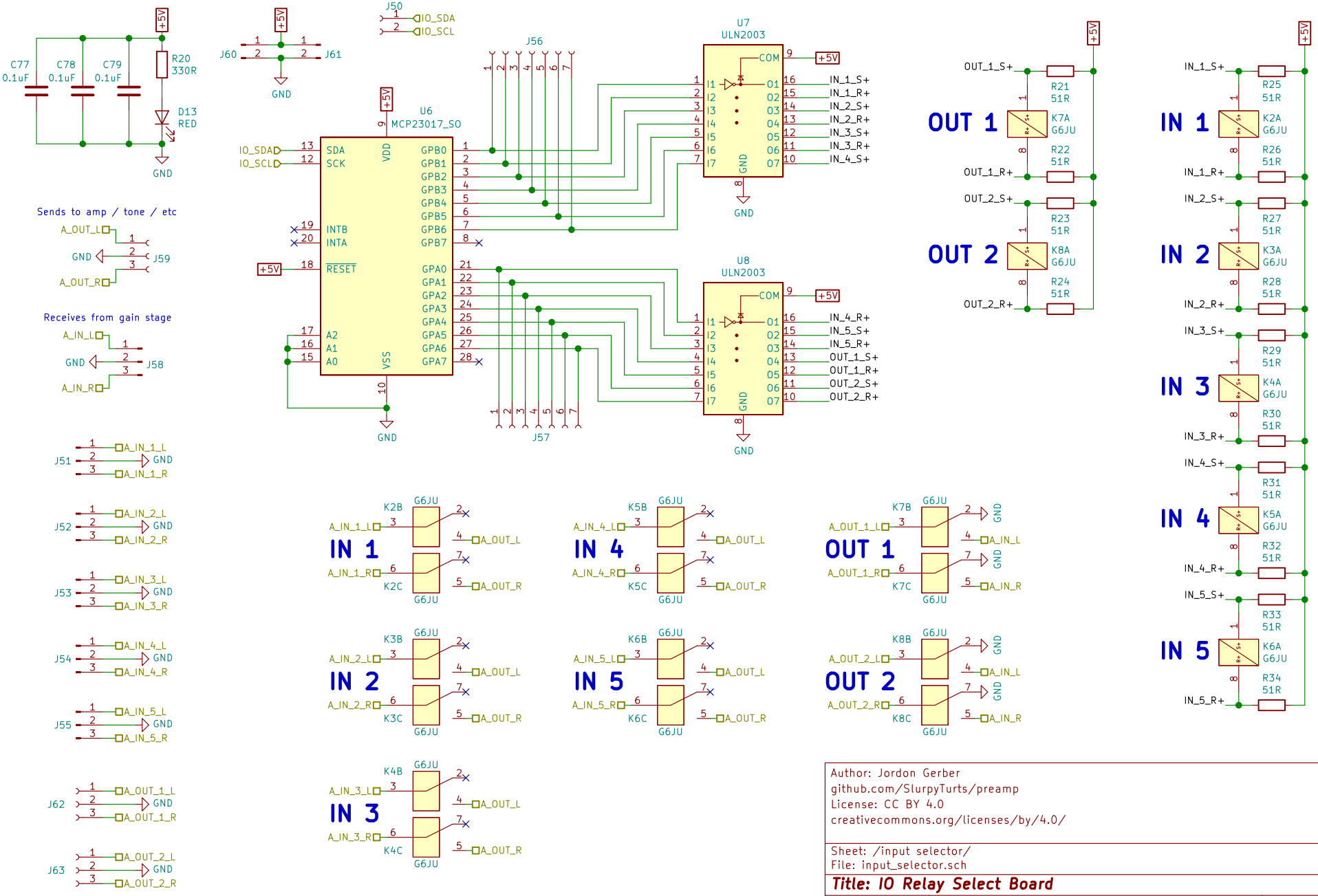
Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 5/13



Sheet: /IO/
File: IO.sch

Title: IO Main Board

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 6/13



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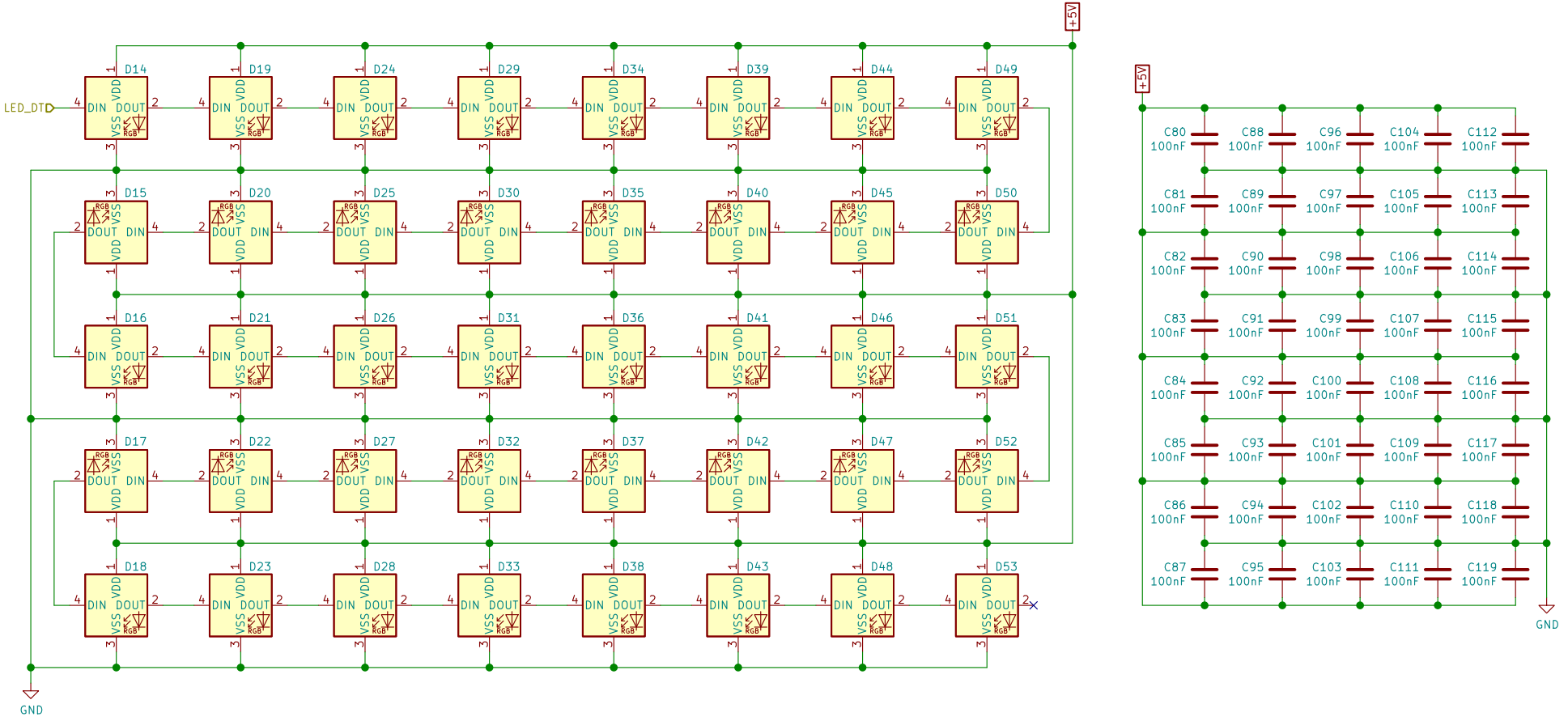
Sheet: /input selector/
File: input_selector.sch

Title: IO Relay Select Board

Size: A4	Date: 2020-02-25	Rev: A00
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 7/13



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Sheet: /front panel LED/
File: front_panel_LED.sch

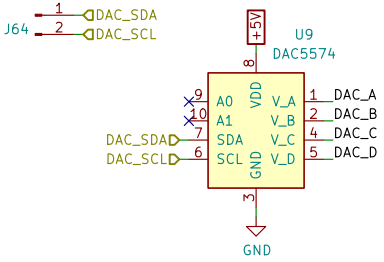
Title:

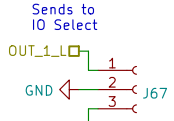
Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 8/13

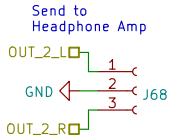
Buffered DAC output max approx. 0.78V
5V * (2k/(6.34k+6.49k))

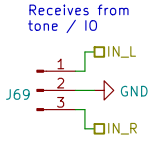
Per VCA Manufacturer's spec, 6mV per dB attenuation
for max 0.78V, 0.78/0.006 = 130dB range
130dB / 256 steps = 0.51dB / step

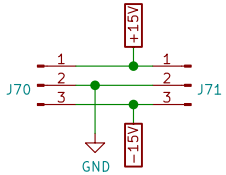
178k offset resistor shifts output up by approx. 30dB
control range becomes −100dB to +30dB

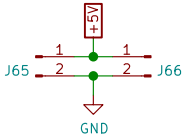


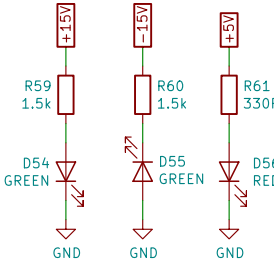


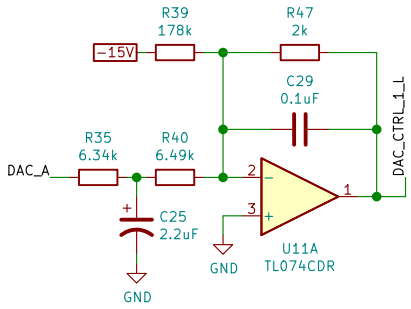


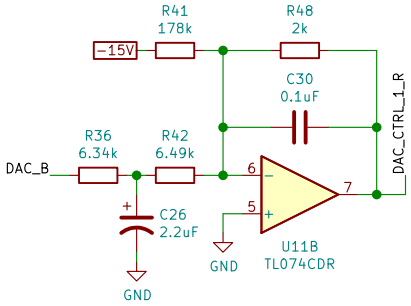


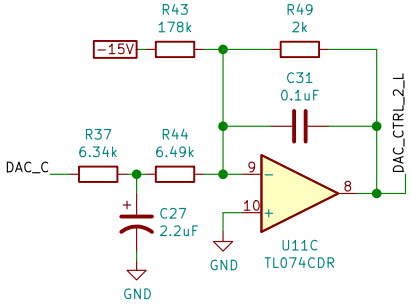


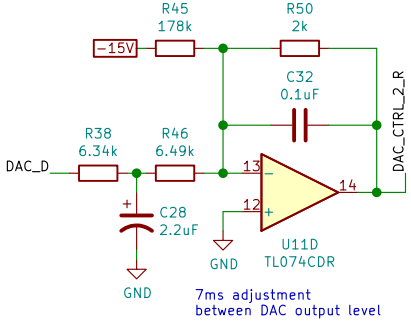


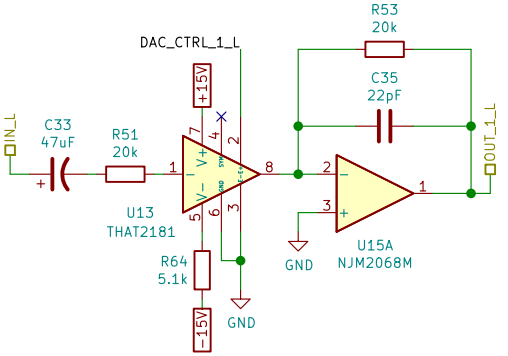


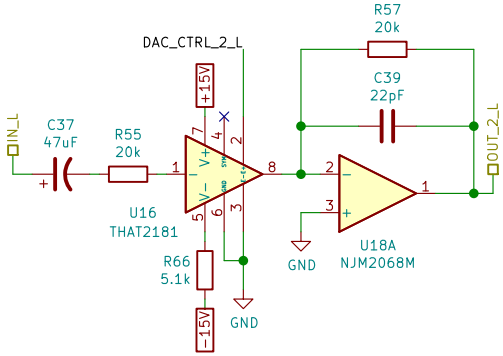


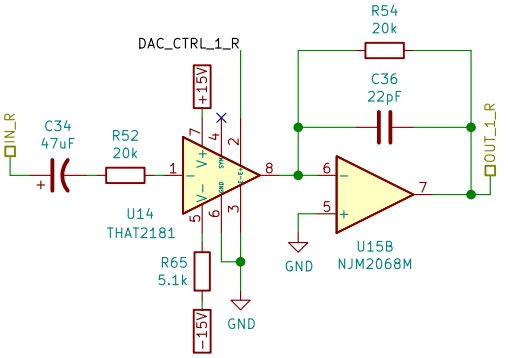


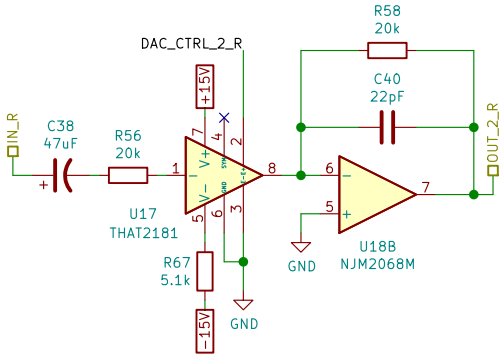


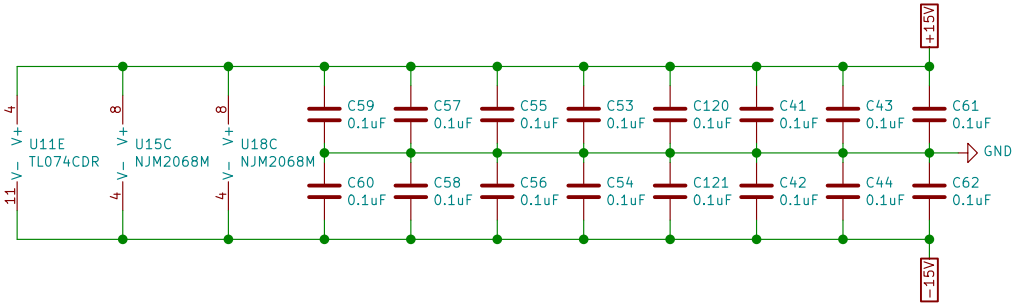












http://www.thatcorp.com/datashts/dn02.pdf

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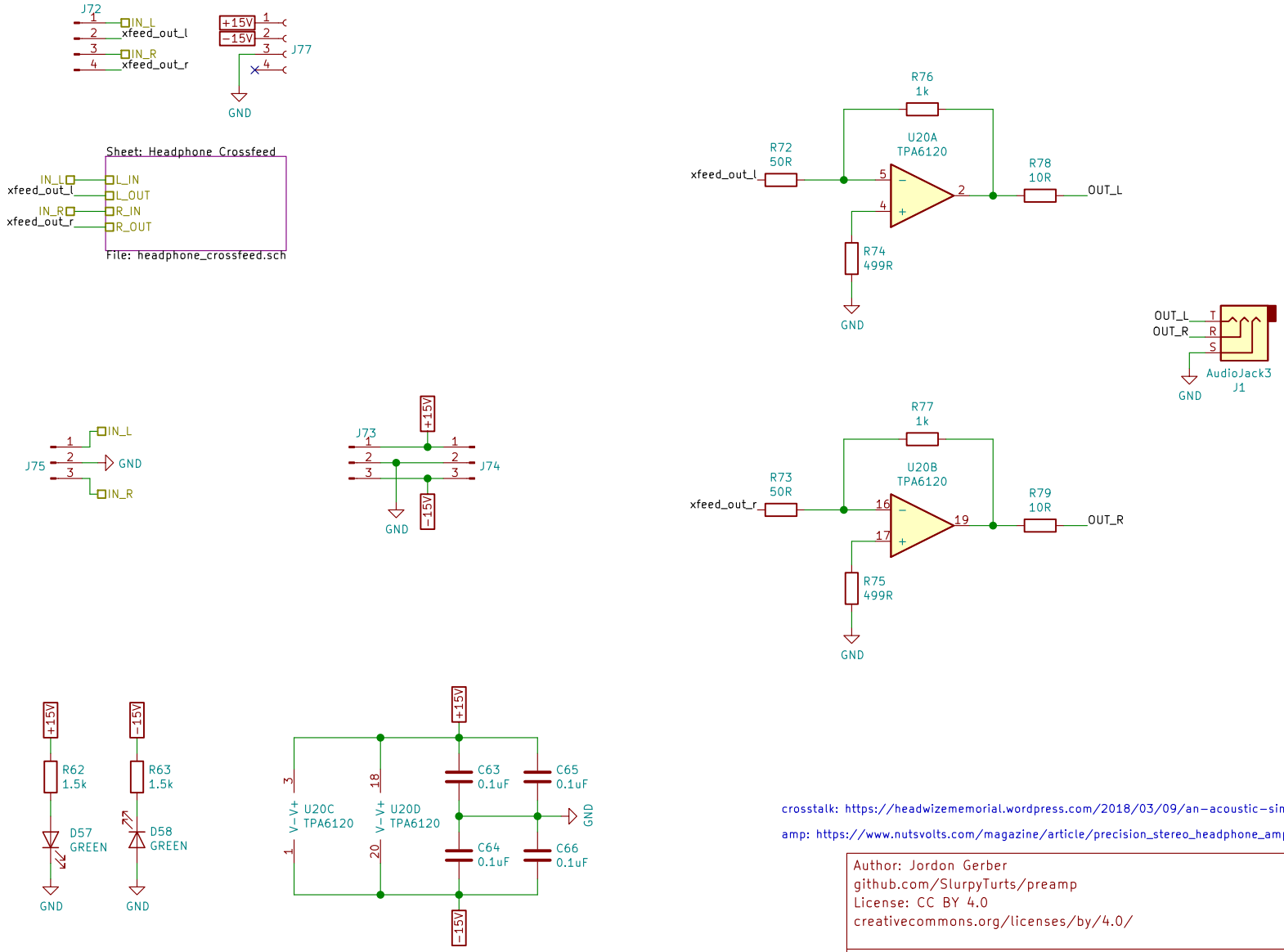
Sheet: /Volume Control/
File: volume_ctrl.sch

Title:

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 9/13



crosstalk: https://headwizememorial.wordpress.com/2018/03/09/an-acoustic-simulator-for-headphone-amplifiers/

amp: https://www.nutsvolts.com/magazine/article/precision_stereo_headphone_amplifier

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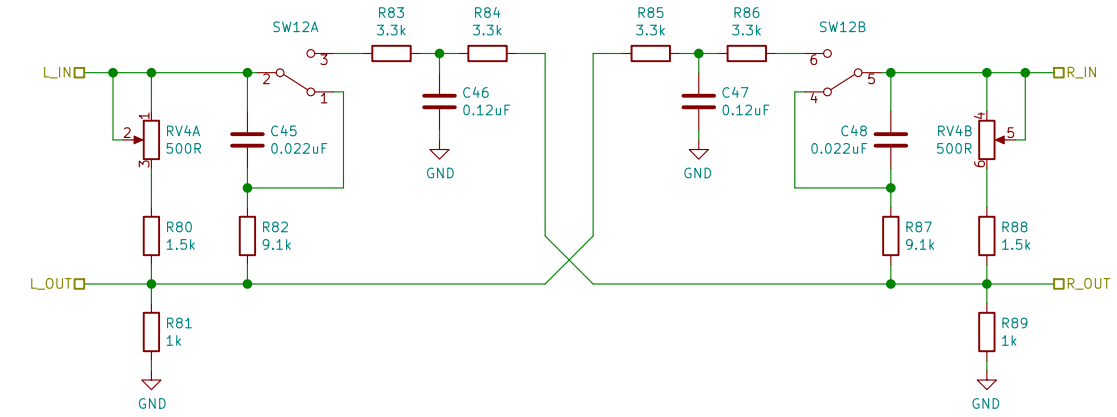
Sheet: /headphone amp/
File: headphone_amp.sch

Title: Headphone Amplifier Board

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 10/13



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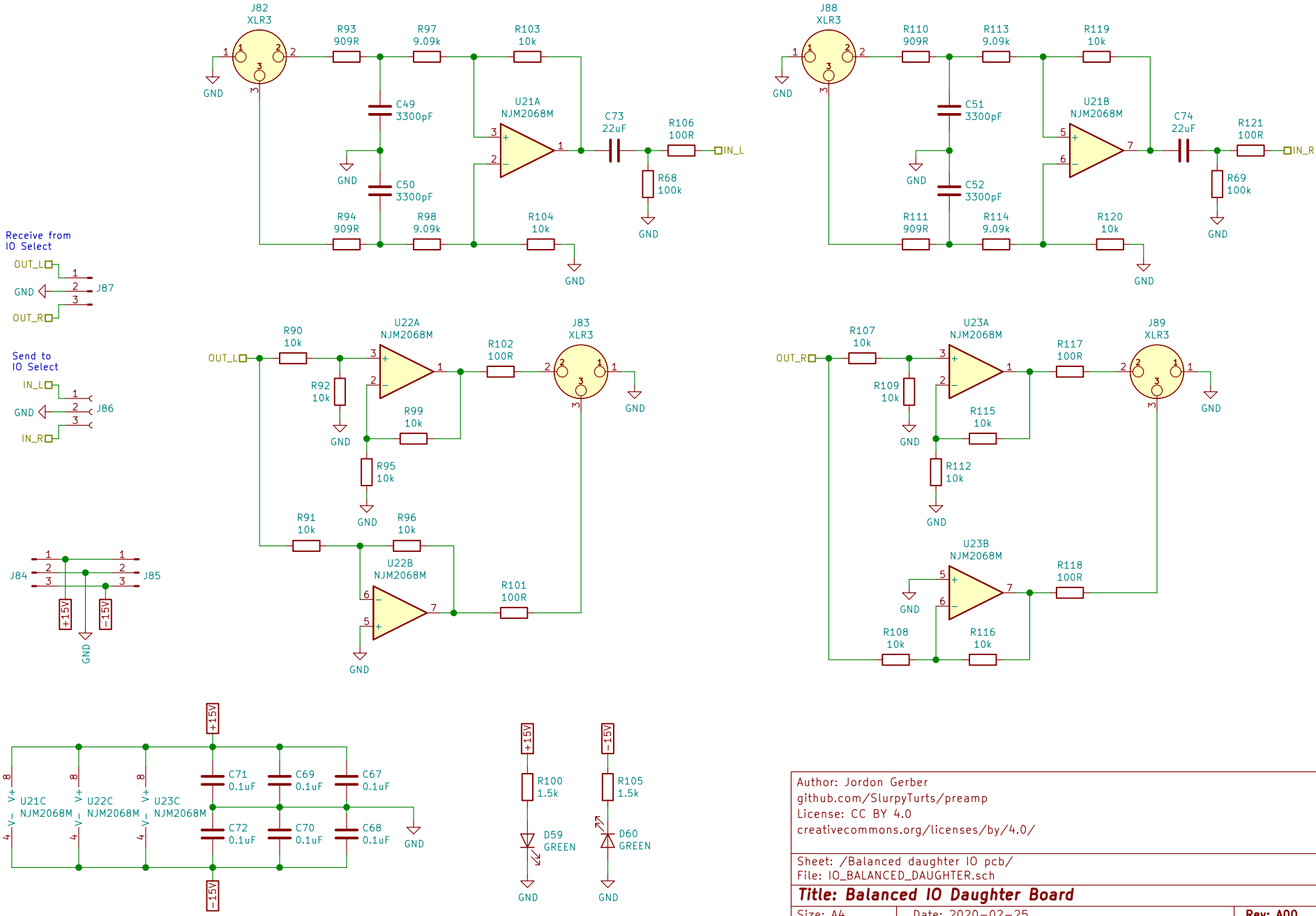
Sheet: /headphone amp/Headphone Crossfeed/
File: headphone_crossfeed.sch

Title: Headphone Crosstalk

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 11/13


J82
XLR3
R93
909R
R97
9.09k
R103
10k
C49
3300pF
C50
3300pF
U21A
NJM2068M
C73
22uF
R106
100R
IN_L
R68
100k
R94
909R
R98
9.09k
R104
10k
GND
J88
XLR3
R110
909R
R113
9.09k
R119
10k
C51
3300pF
C52
3300pF
U21B
NJM2068M
C74
22uF
R121
100R
IN_R
R69
100k
R111
909R
R114
9.09k
R120
10k
Receive from
IO Select
OUT_L
GND
OUT_R
J87
Send to
IO Select
IN_L
GND
IN_R
J86
J84
J85
+15V
-15V
GND
R90
10k
U22A
NJM2068M
R102
100R
J83
XLR3
OUT_L
R92
10k
R99
10k
R95
10k
R91
10k
R96
10k
U22B
NJM2068M
R101
100R
R107
10k
U23A
NJM2068M
R117
100R
J89
XLR3
OUT_R
R109
10k
R115
10k
R112
10k
U23B
NJM2068M
R118
100R
R108
10k
R116
10k
U21C
NJM2068M
U22C
NJM2068M
U23C
NJM2068M
C71
0.1uF
C69
0.1uF
C67
0.1uF
C72
0.1uF
C70
0.1uF
C68
0.1uF
R100
1.5k
D59
GREEN
R105
1.5k
D60
GREEN
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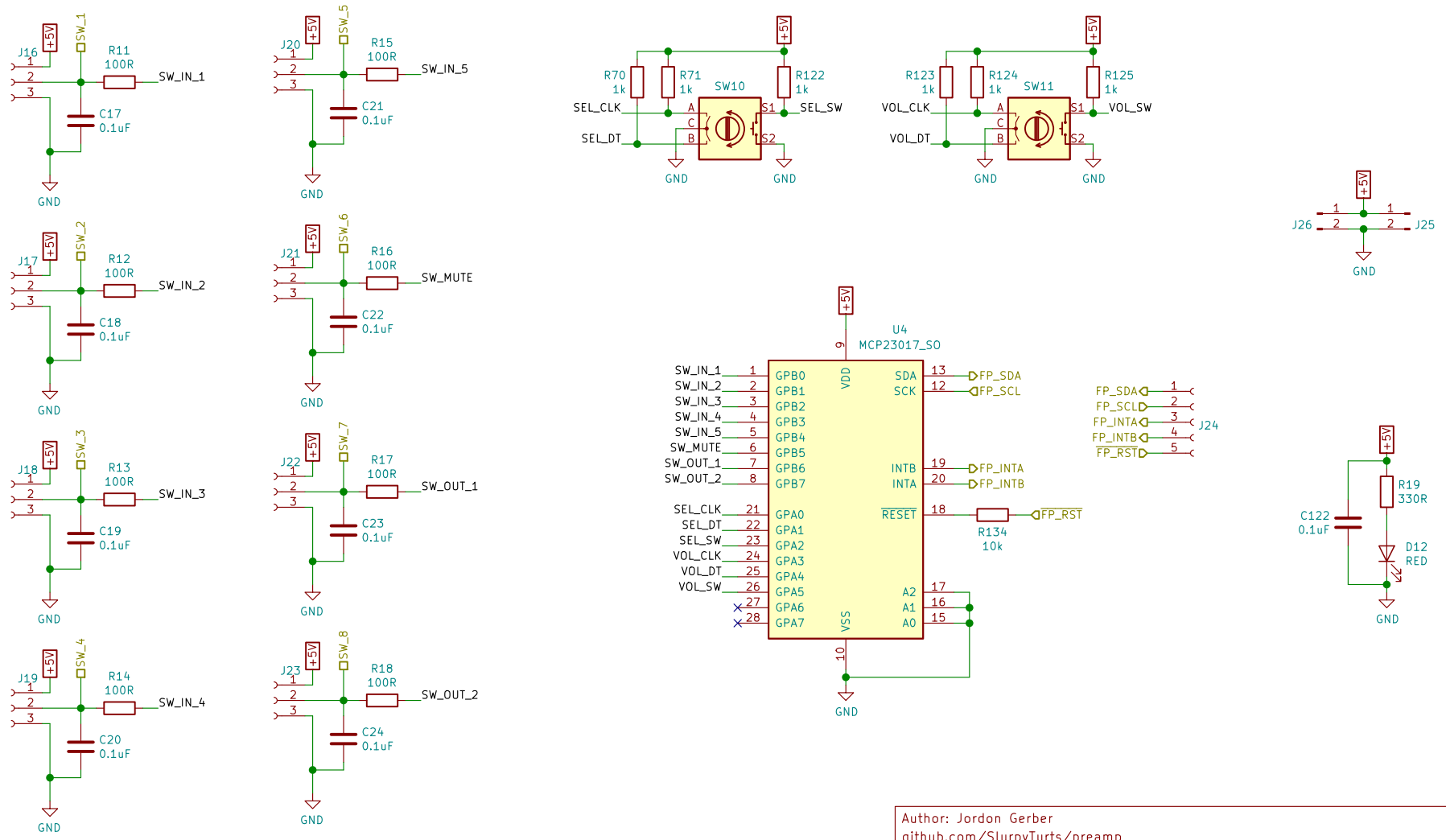
Sheet: /Balanced daughter IO pcb/
File: IO_BALANCED_DAUGHTER.sch
Title: Balanced IO Daughter Board
Size: A4
Date: 2020-02-25
Rev: A00
KiCad E.D.A. kicad (5.1.5-0-10_14)
Id: 12/13



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Sheet: /front panel/
File: front_panel.sch

Title: Front Panel

Size: A4	Date: 2020-02-25	**Rev: A00**
KiCad E.D.A. kicad (5.1.5-0-10_14)		Id: 13/13