

FYDP – ANALOG MATRIX MULTIPLIER

UNIVERSITY OF WATERLOO

BLOCK DIAGRAM

File: Block_Diagram.kicad_sch

USBC RECEPTACLE

File: USBC_Receptacle.kicad_sch

POWER

File: power.kicad_sch

DAC INPUTS

File: DAC_Inputs.kicad_sch

DECODER 1

File: Decoder_1.kicad_sch

DECODER 2

File: Decoder_2.kicad_sch

ANALOG MULTIPLIER 1

File: Analog_Multiplier_1.kicad_sch

ANALOG MULTIPLIER 2

File: Analog_Multiplier_2.kicad_sch

ANALOG MULTIPLIER 3

File: Analog_Multiplier_3.kicad_sch

ANALOG MULTIPLIER 4

File: Analog_Multiplier_4.kicad_sch

ANALOG MULTIPLIER 5

File: Analog_Multiplier_5.kicad_sch

ANALOG MULTIPLIER 6

File: Analog_Multiplier_6.kicad_sch

ANALOG MULTIPLIER 7

File: Analog_Multiplier_7.kicad_sch

ANALOG MULTIPLIER 8

File: Analog_Multiplier_8.kicad_sch

ADC 1

File: ADC_1.kicad_sch

ADC 2

File: ADC_2.kicad_sch

ADC 3

File: ADC_3.kicad_sch

ADC 4

File: ADC_4.kicad_sch

Sheet: /
File: fyd.kicad_sch

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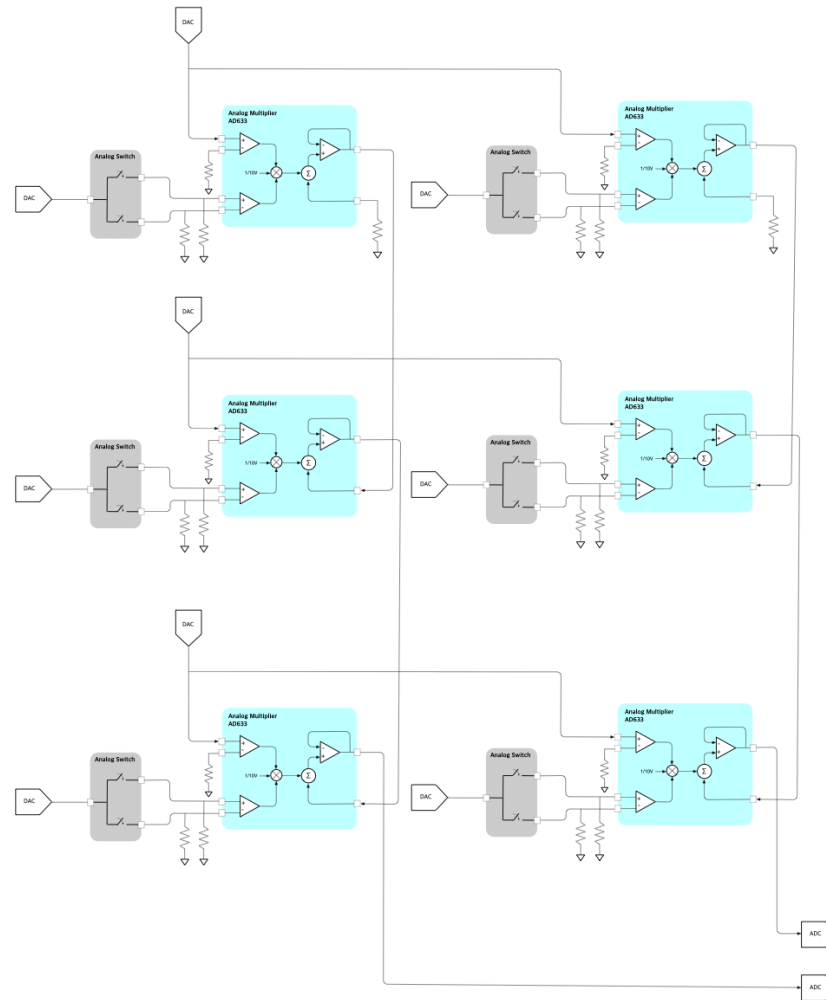
Size: A4
KiCad E.D.A. kicad 7.0.7

Date:

Rev:
Id: 1/19

BLOCK DIAGRAM

BASIC BLOCK DIAGRAM FOR A 3X2 MATRIX.
THIS PROJECT USES THE SAME IDEA AS THIS BLOCK DIAGRAM BUT EXPANDS IT TO A 4X4 CASE.



Sheet: /BLOCK DIAGRAM/
File: Block_Diagram.kicad_sch

Title:

Size: A4

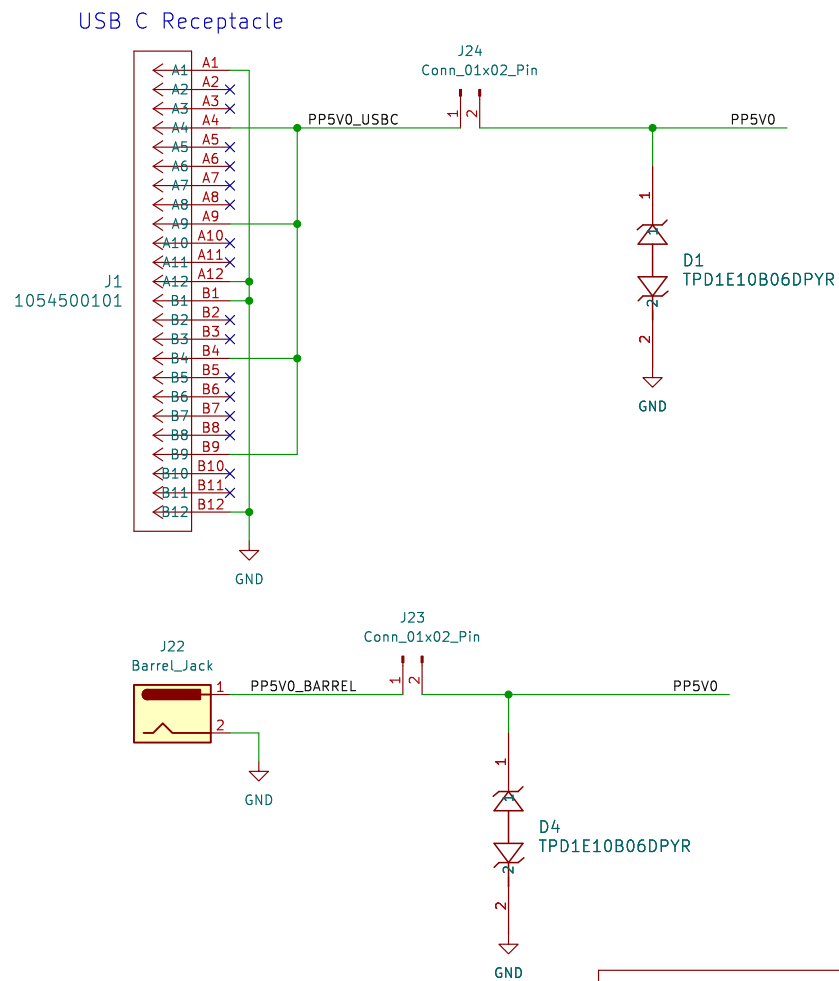
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KiCad E.D.A. kicad 7.0.7

Rev:

Id: 2/19

USB C Receptacle



Sheet: /USBC RECEPTACLE/
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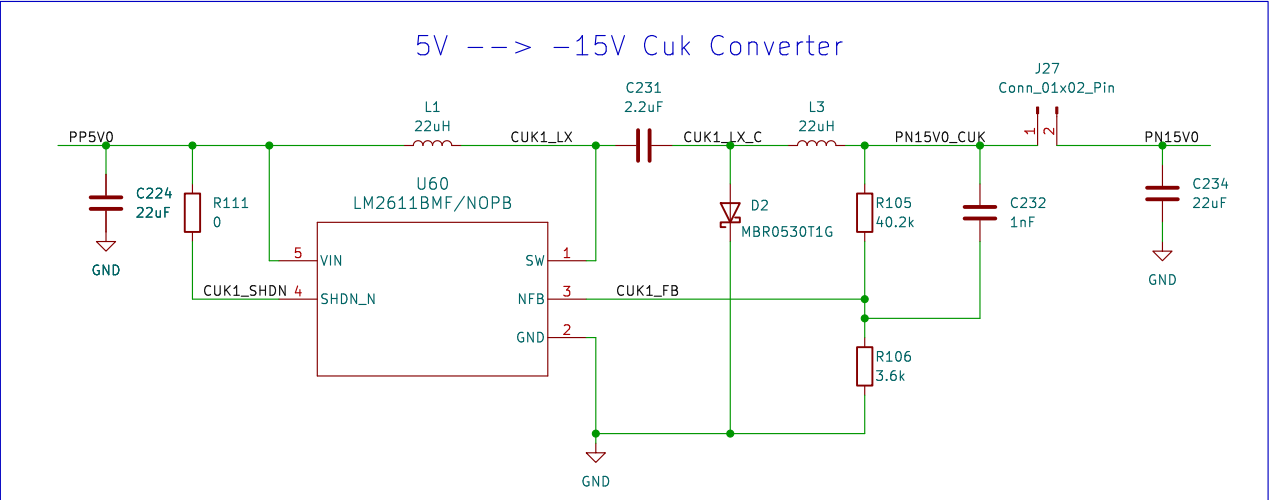
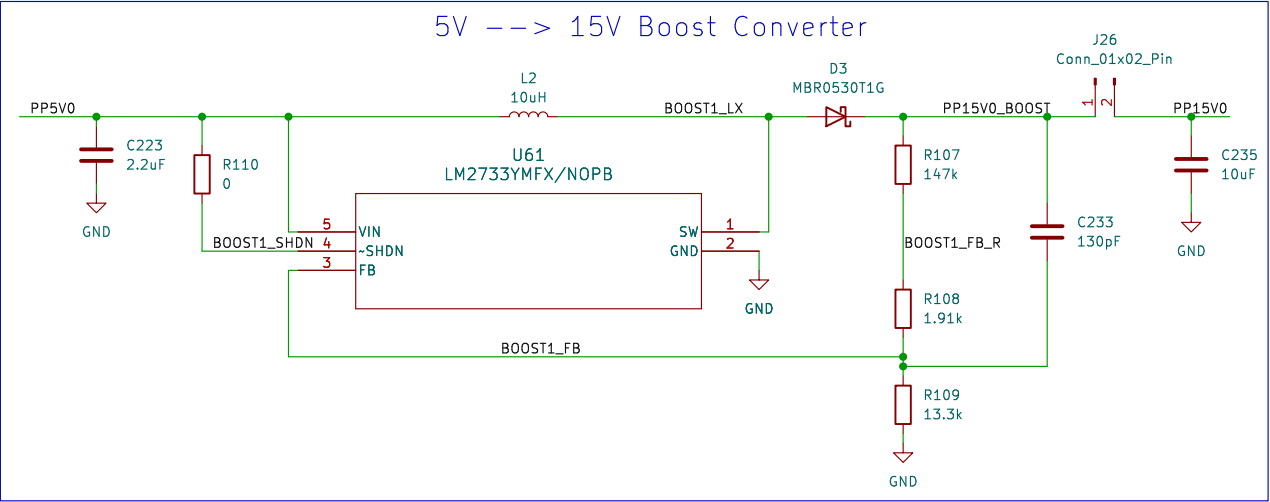
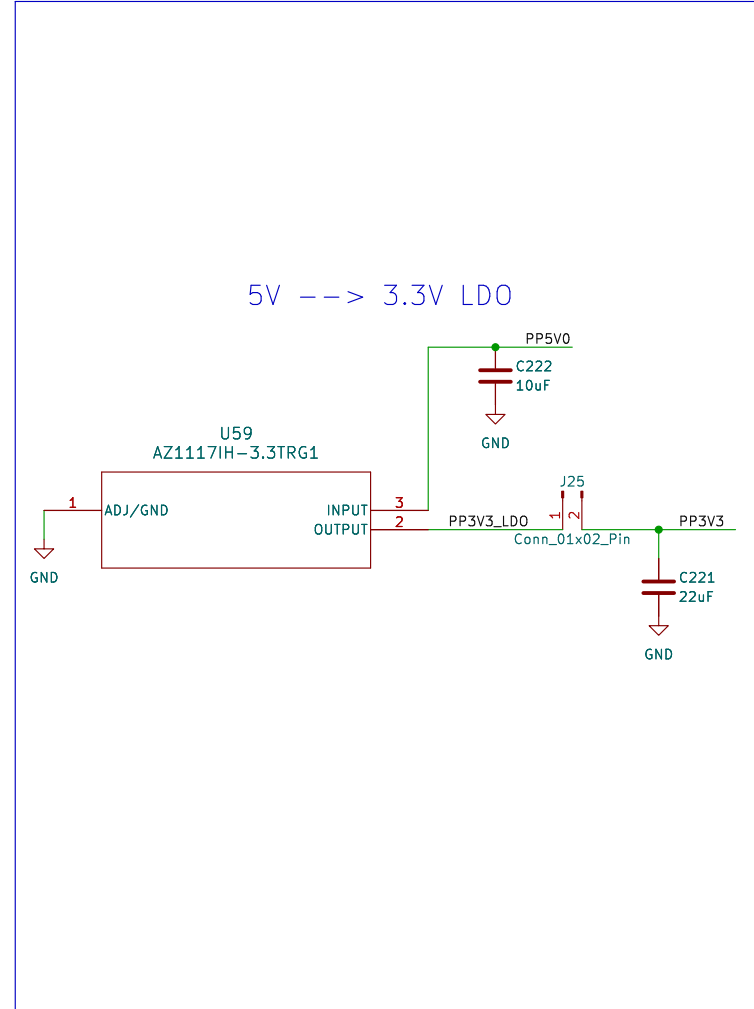
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Date:

KiCad E.D.A. kicad 7.0.7

Rev:

Id: 3/19

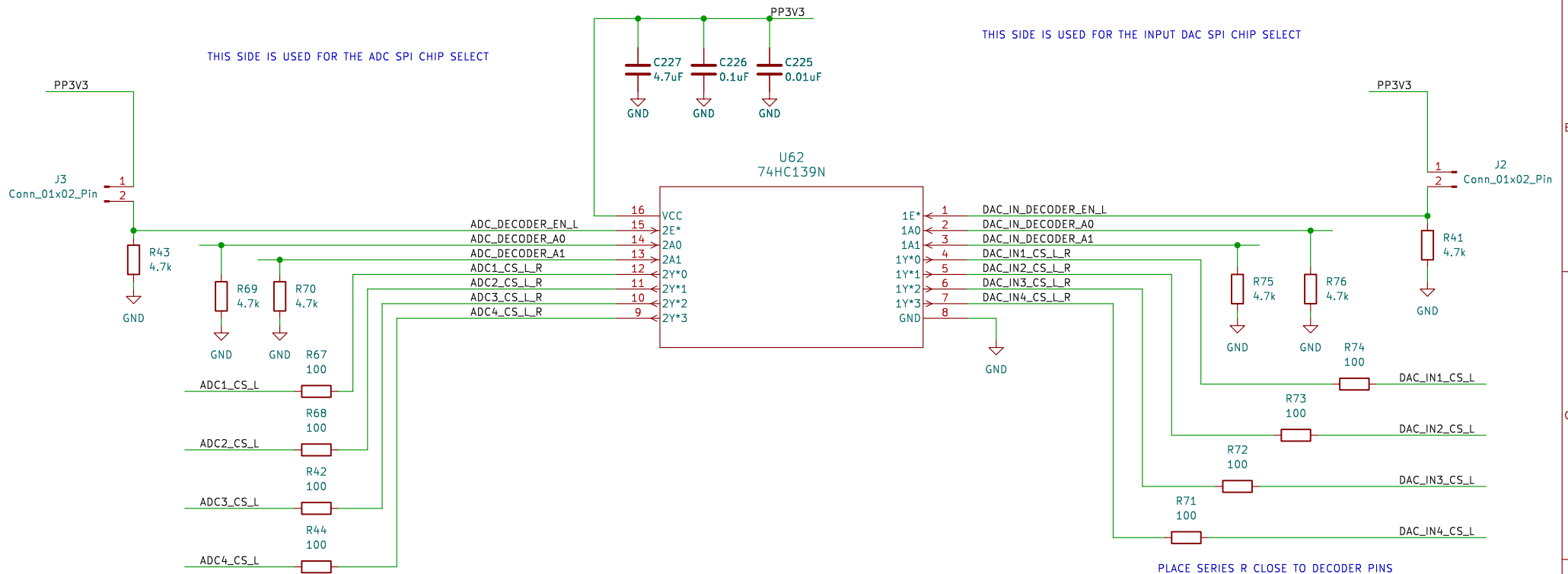


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Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.7		Id: 4/19

DAC INPUTS DECODER & ADC OUTPUT DECODER

HEADERS TO FPGA

DAC_IN_DECODER_A0	1
DAC_IN_DECODER_A1	2
ADC_DECODER_A0	3
ADC_DECODER_A1	4



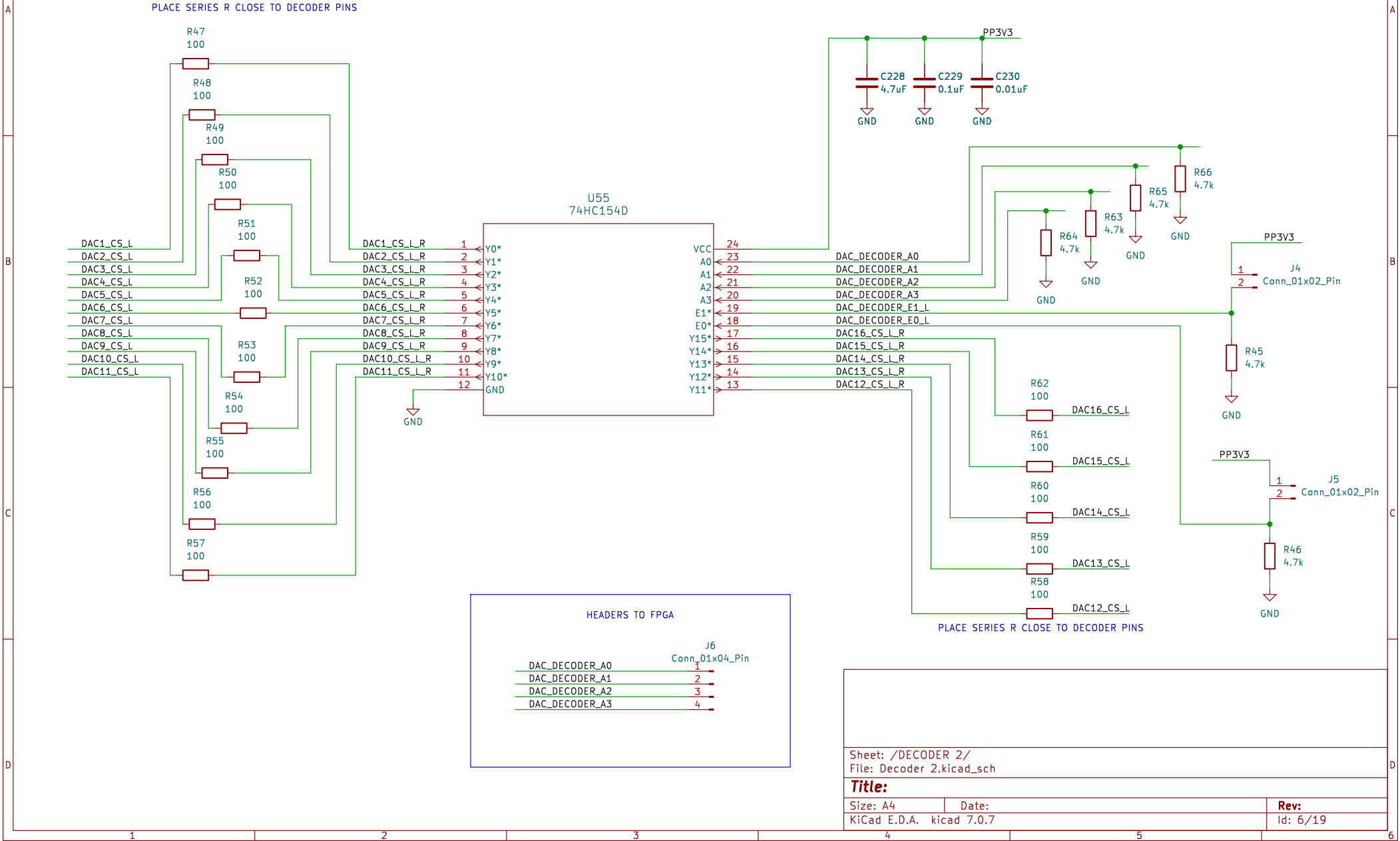
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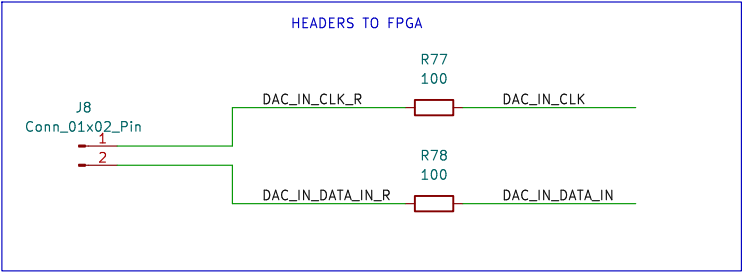
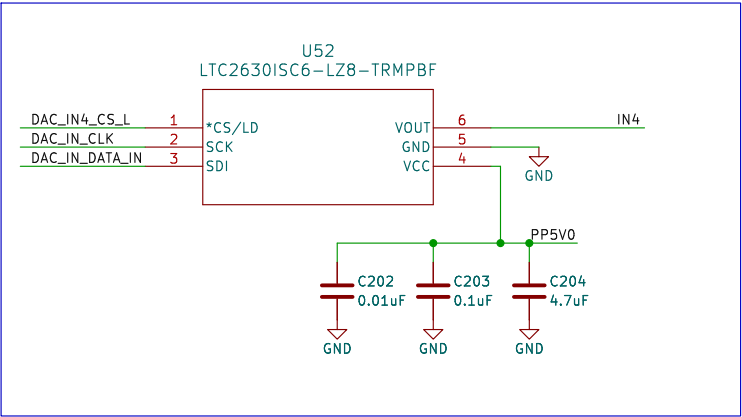
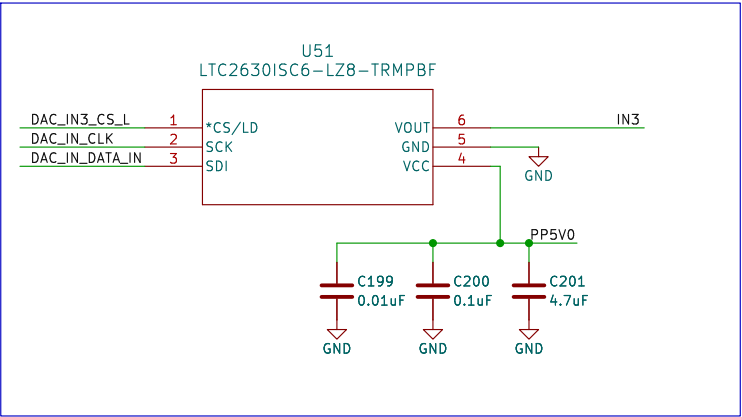
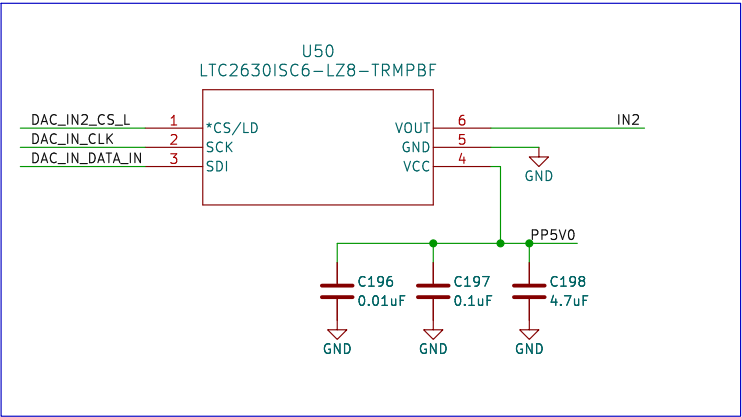
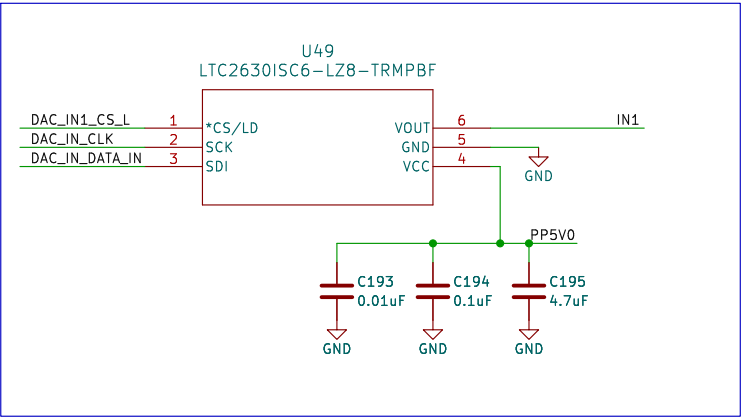
Size: A4 Date:
KiCad E.D.A. kicad 7.0.7

Rev:
Id: 5/19

DAC WEIGHTS DECODER



DAC INPUTS



Sheet: /DAC INPUTS/
File: DAC Inputs.kicad_sch

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Size: A4
KiCad E.D.A. kicad 7.0.7

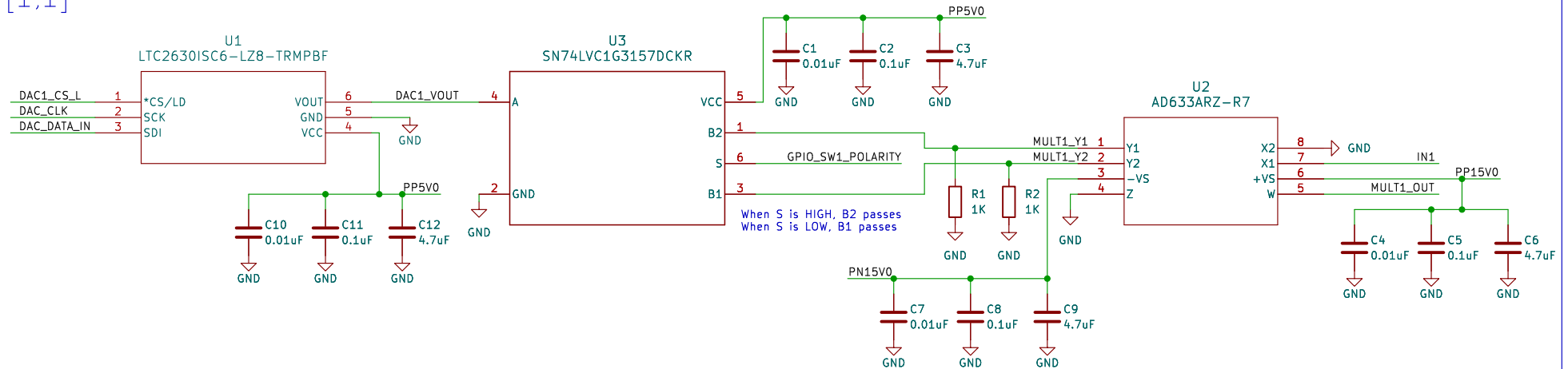
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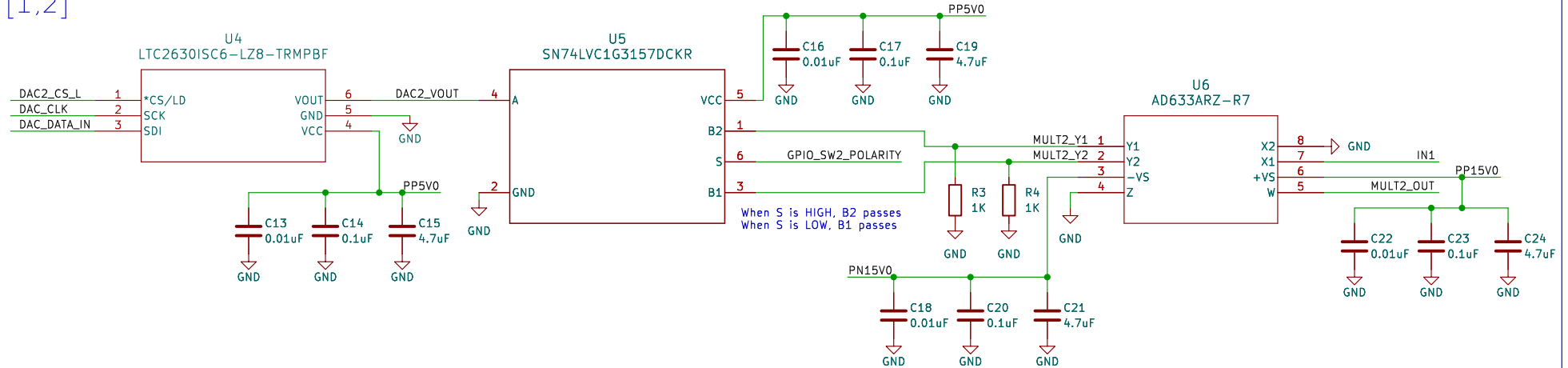
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ANALOG MULTIPLIER (1/8)

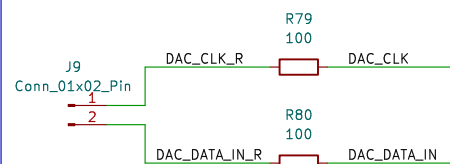
[1.1]



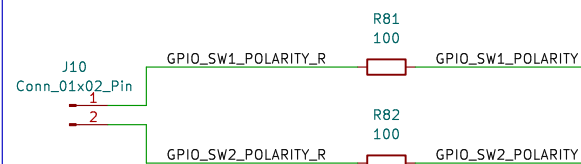
[1.2]



HEADERS TO FPGA



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 1/
File: Analog Multiplier 1.kicad_sch

Title:

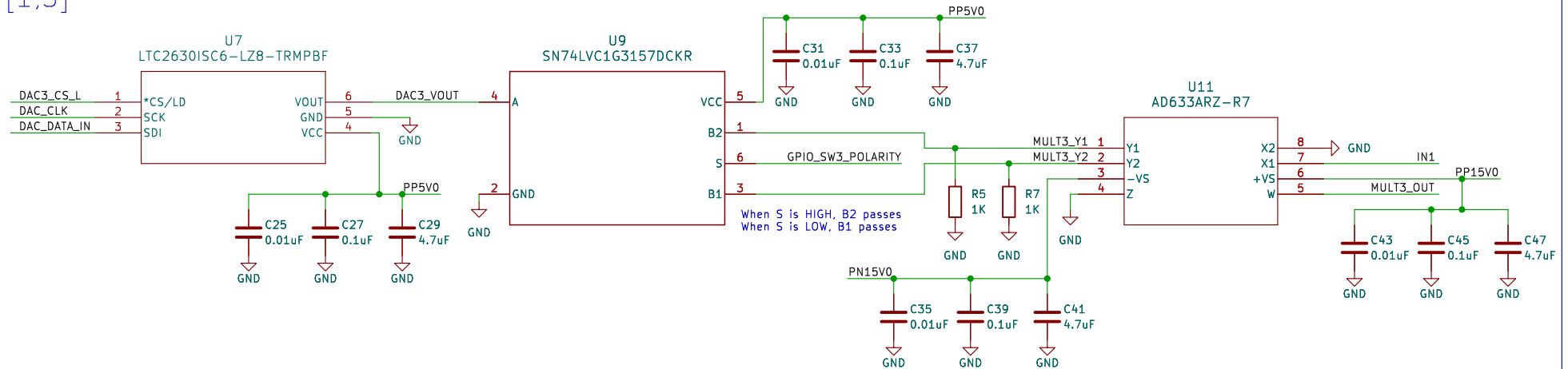
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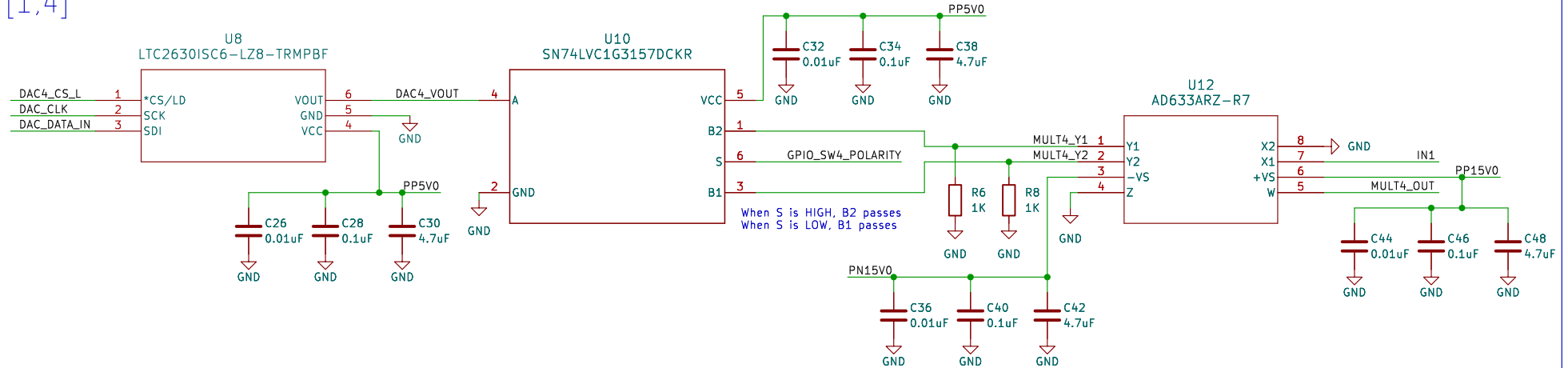
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Id: 8/19

ANALOG MULTIPLIER (2/8)

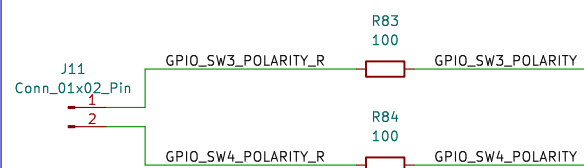
[1,3]



[1,4]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 2/
File: Analog Multiplier 2.kicad_sch

Title:

Size: A4

Date:

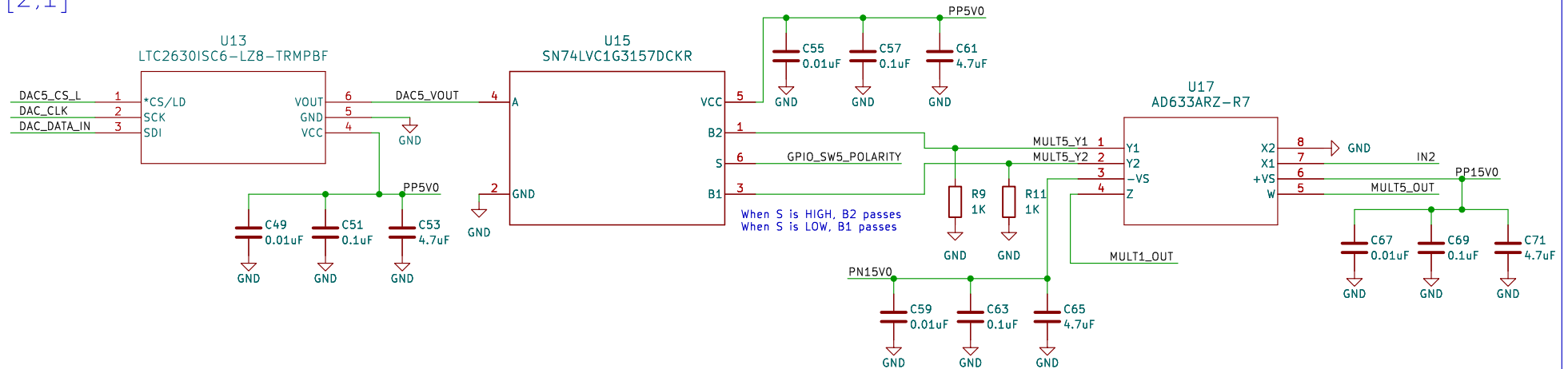
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Rev:

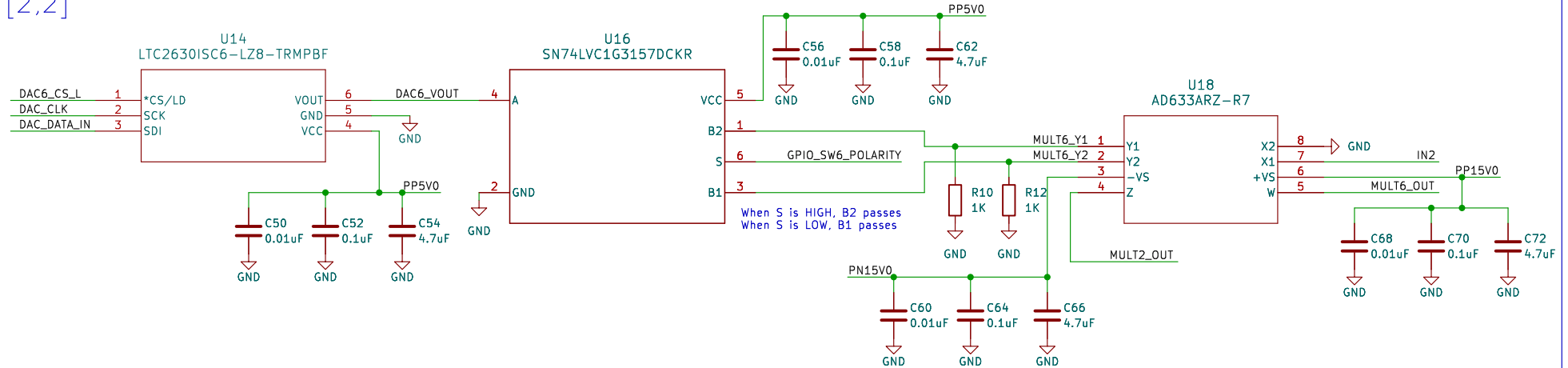
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ANALOG MULTIPLIER (3/8)

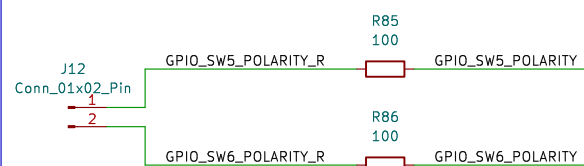
[2.1]



[2.2]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 3/
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Title:

Size: A4

Date:

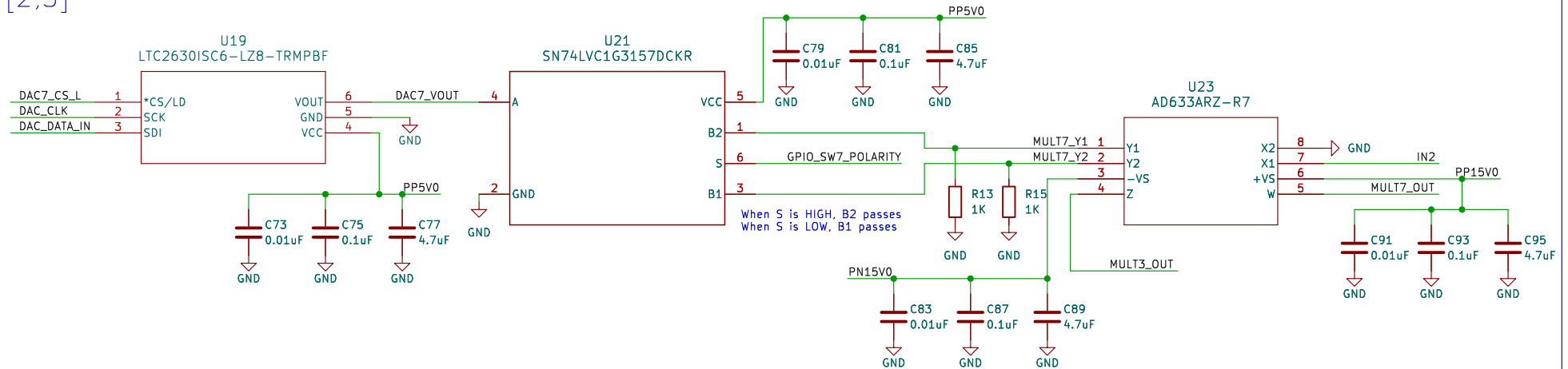
KiCad E.D.A. kicad 7.0.7

Rev:

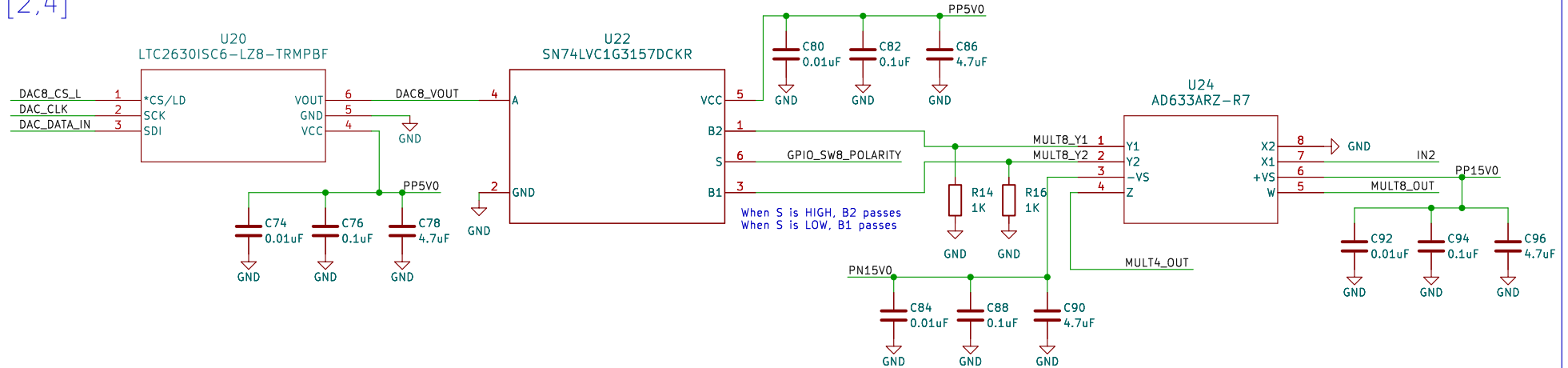
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ANALOG MULTIPLIER (4/8)

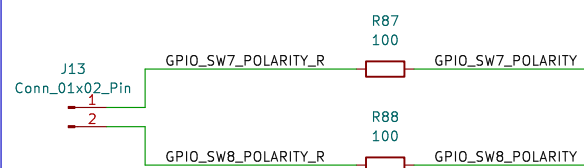
[2,3]



[2,4]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 4/
File: Analog Multiplier 4.kicad_sch

Title:

Size: A4

Date:

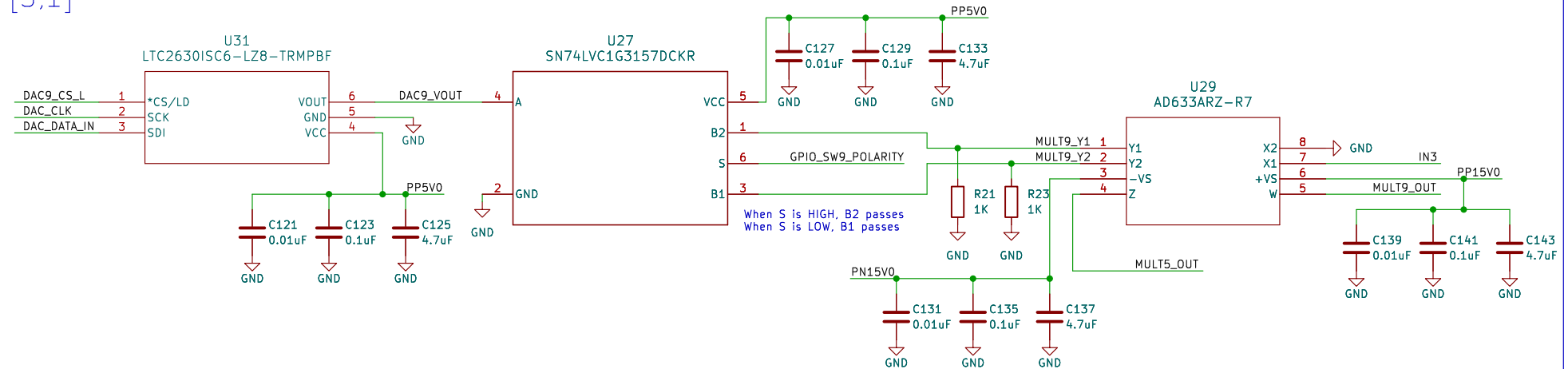
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Rev:

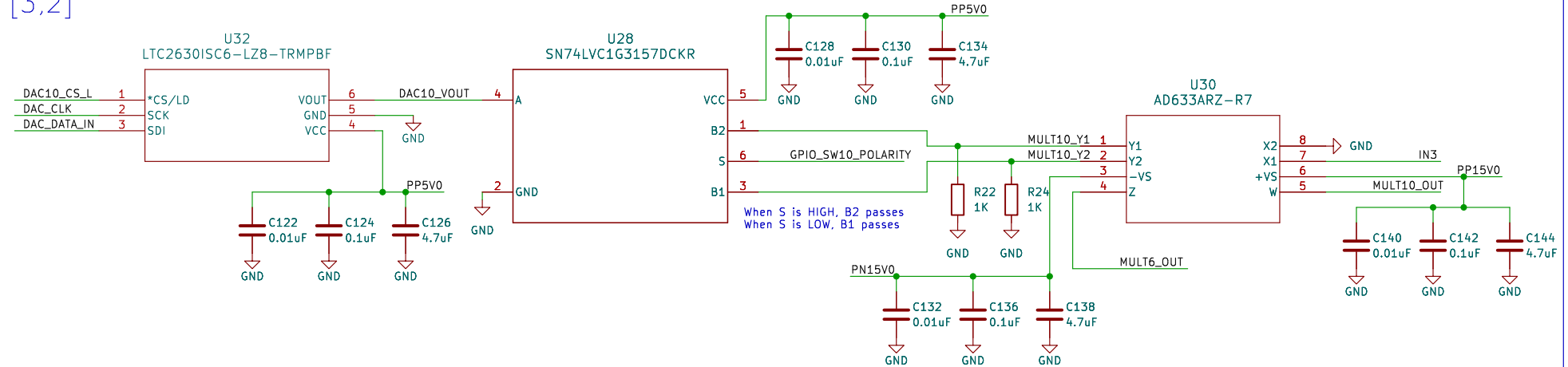
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ANALOG MULTIPLIER (5/8)

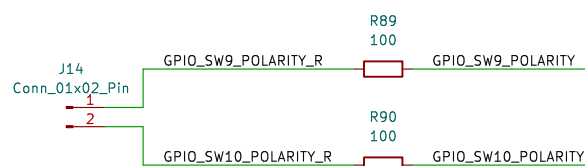
[3,1]



[3,2]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 5/
File: Analog Multiplier 5.kicad_sch

Title:

Size: A4

Date:

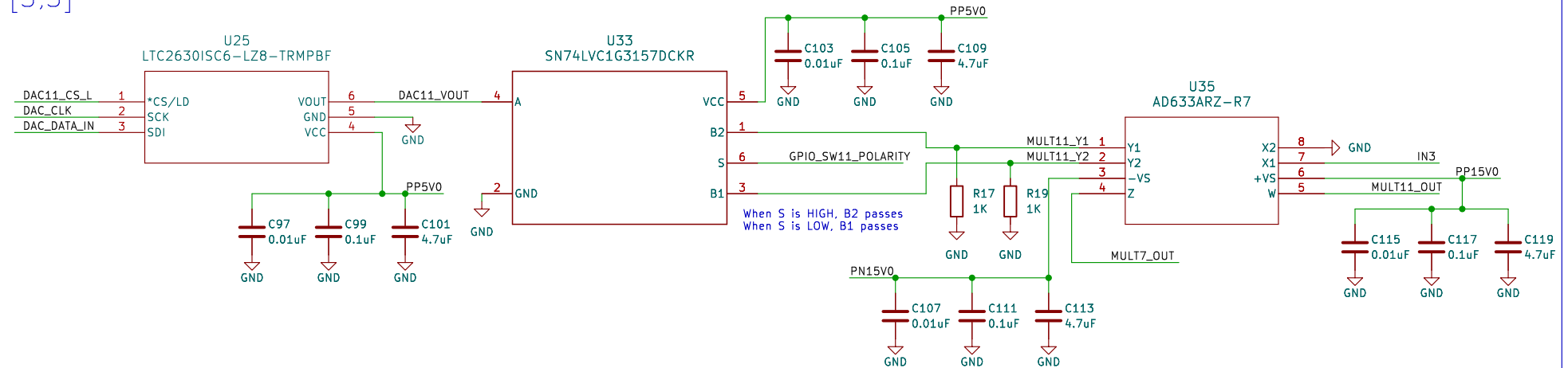
KiCad E.D.A. kicad 7.0.7

Rev:

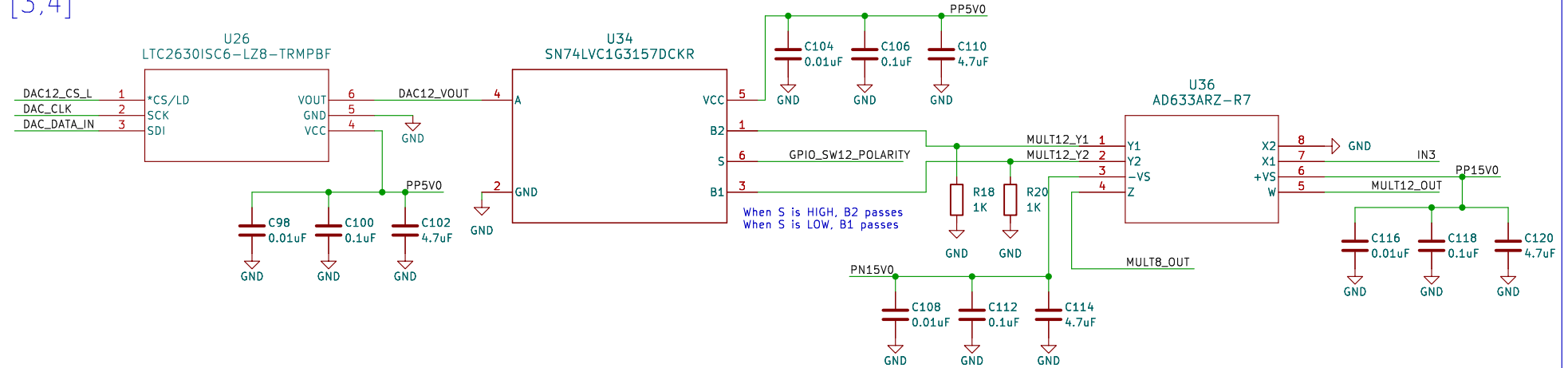
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ANALOG MULTIPLIER (6/8)

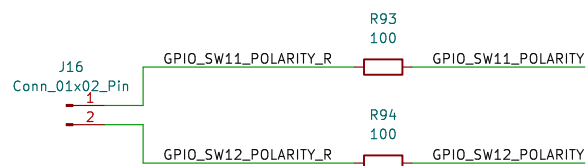
[3,3]



[3,4]



ANALOG SWITCH SELECT GPIO TO FPGA
 THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 6/
 File: Analog Multiplier 6.kicad_sch

Title:

Size: A4

Date:

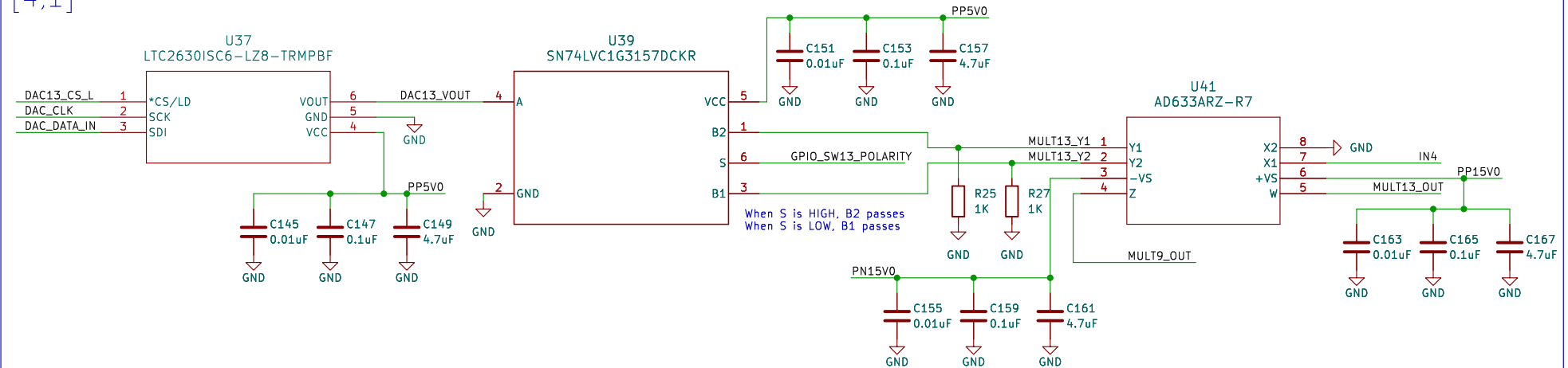
KiCad E.D.A. kicad 7.0.7

Rev:

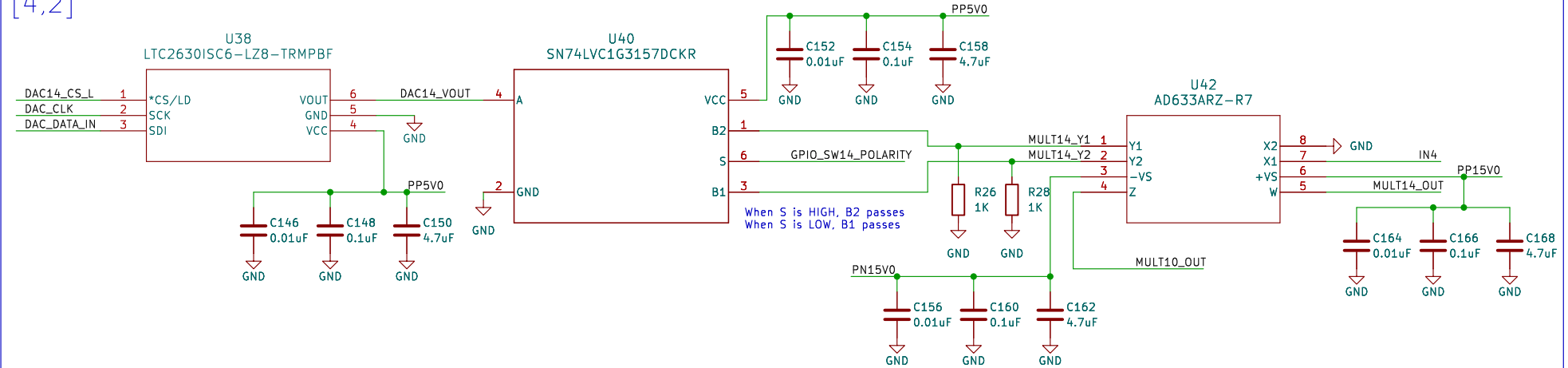
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ANALOG MULTIPLIER (7/8)

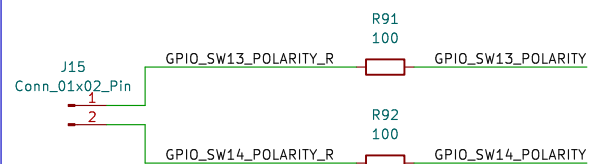
[4,1]



[4,2]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 7/
File: Analog Multiplier 7.kicad_sch

Title:

Size: A4

Date:

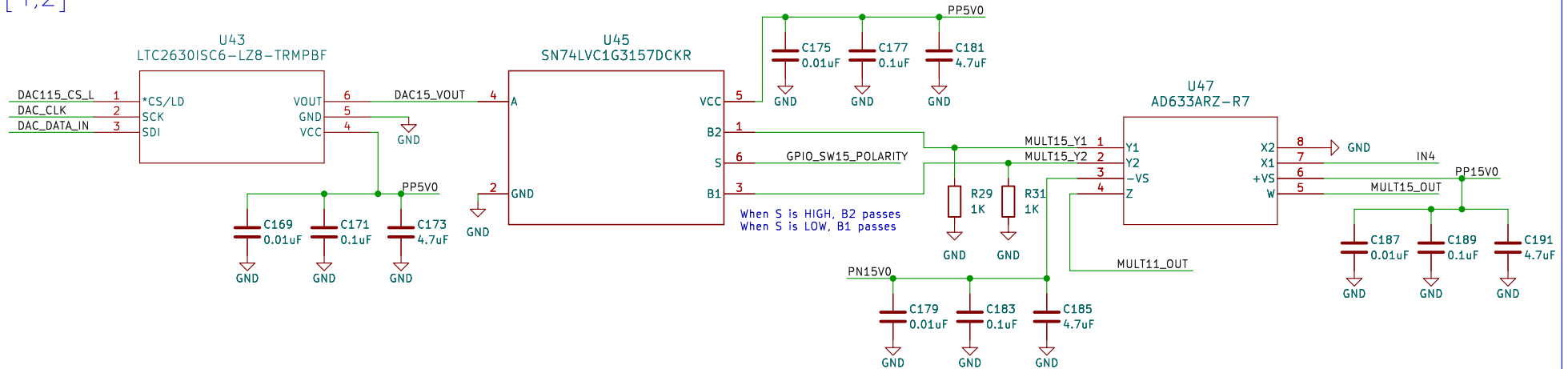
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Rev:

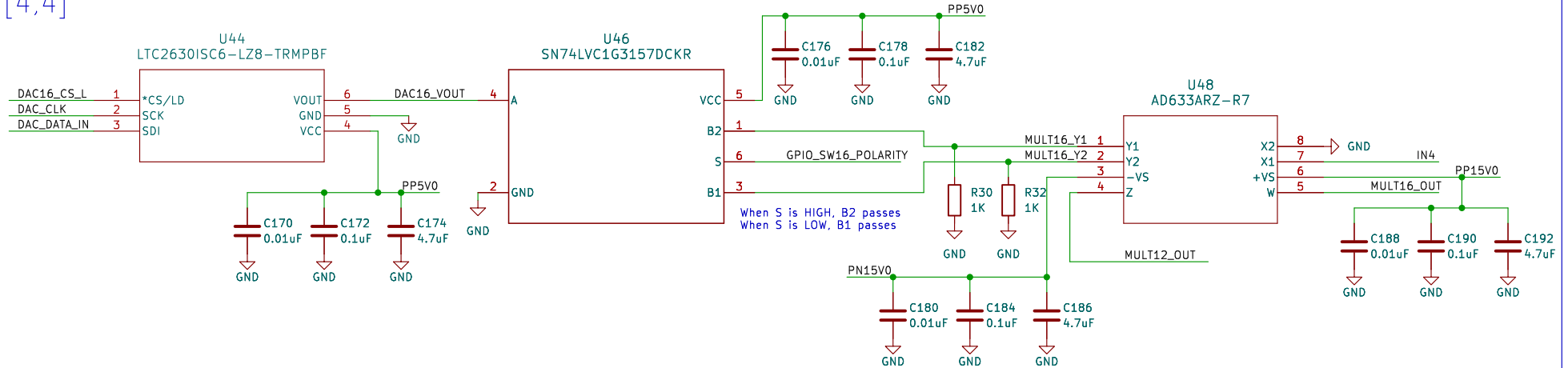
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ANALOG MULTIPLIER (8/8)

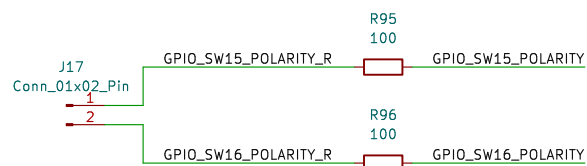
[4,2]



[4,4]



ANALOG SWITCH SELECT GPIO TO FPGA
THESE ARE 5V GPIOs



Sheet: /ANALOG MULTIPLIER 8/
File: Analog Multiplier 8.kicad_sch

Title:

Size: A4

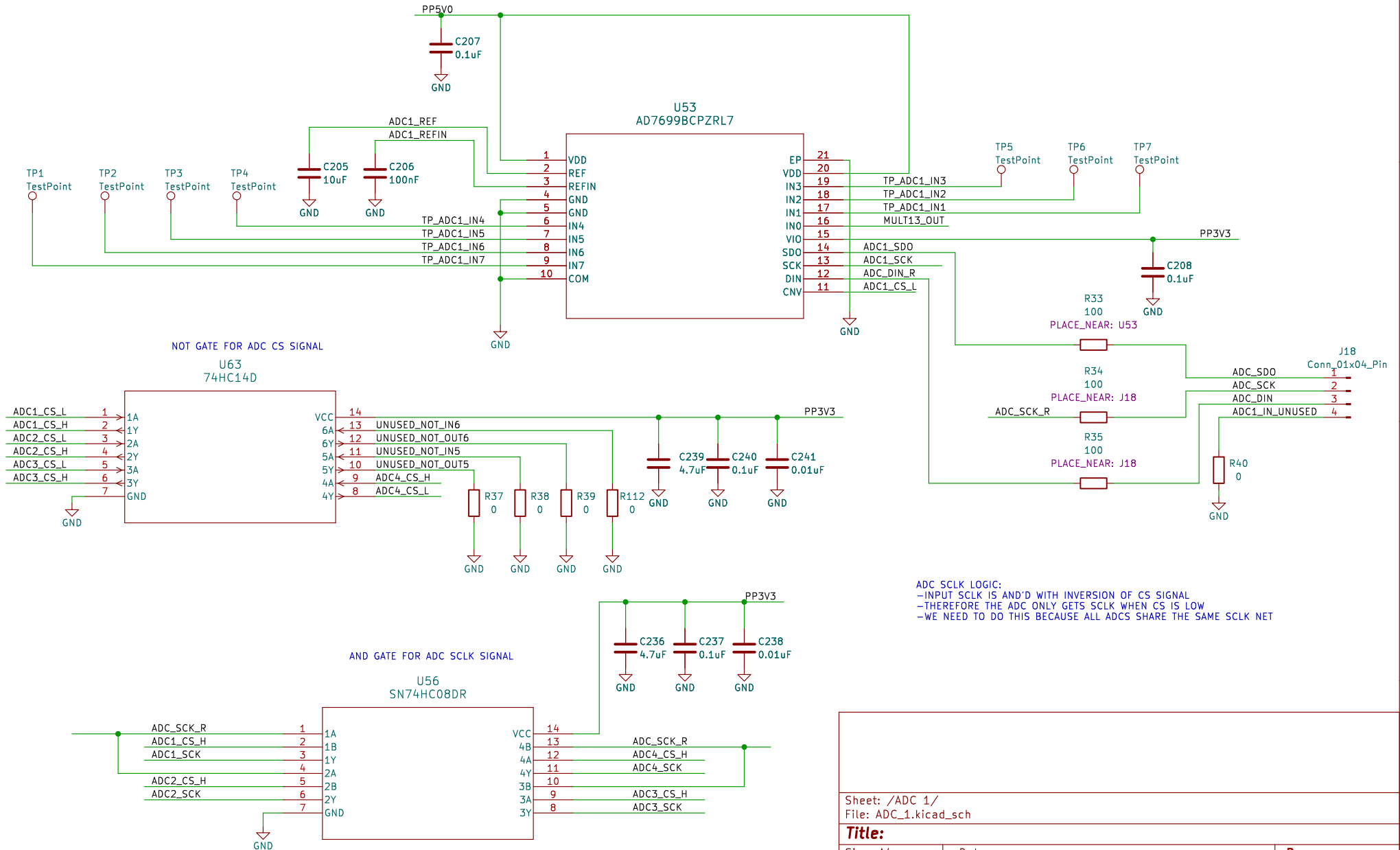
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KiCad E.D.A. kicad 7.0.7

Rev:

Id: 15/19

ADC (1/4)



Sheet: /ADC 1/
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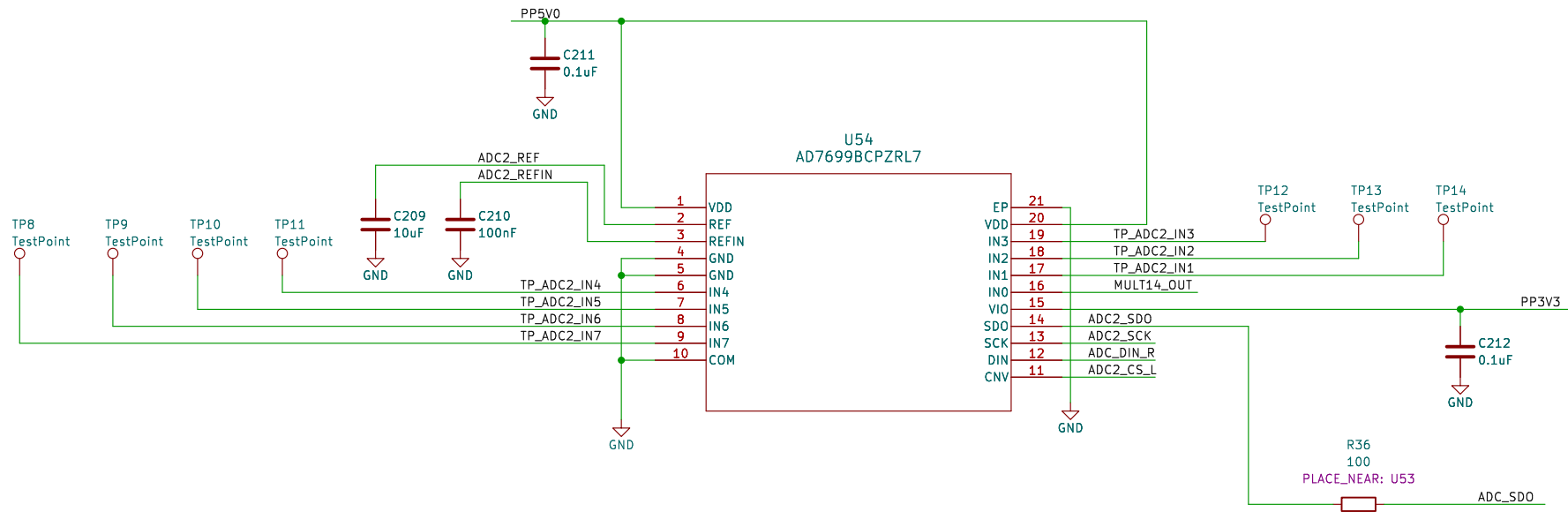
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KiCad E.D.A. kicad 7.0.7

Rev:

Id: 16/19

ADC (2/4)



Sheet: /ADC 2/
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Size: A4

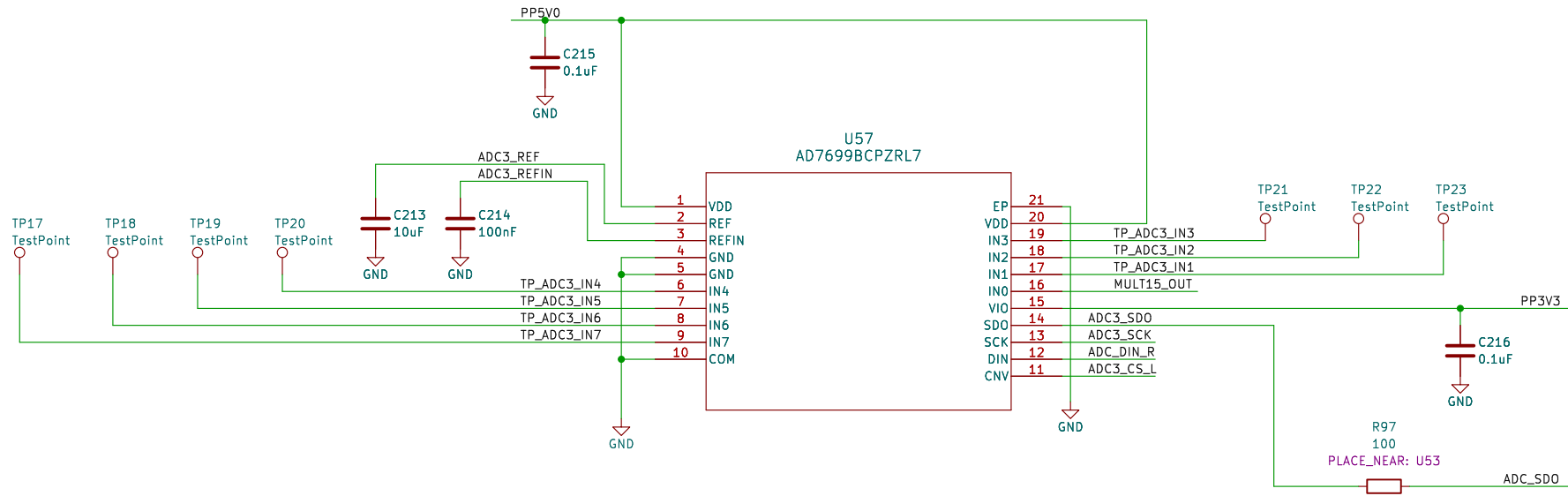
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KiCad E.D.A.	kicad 7.0.7

Rev:

Id: 17/19

ADC (3/4)



Sheet: /ADC 3/
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Title:

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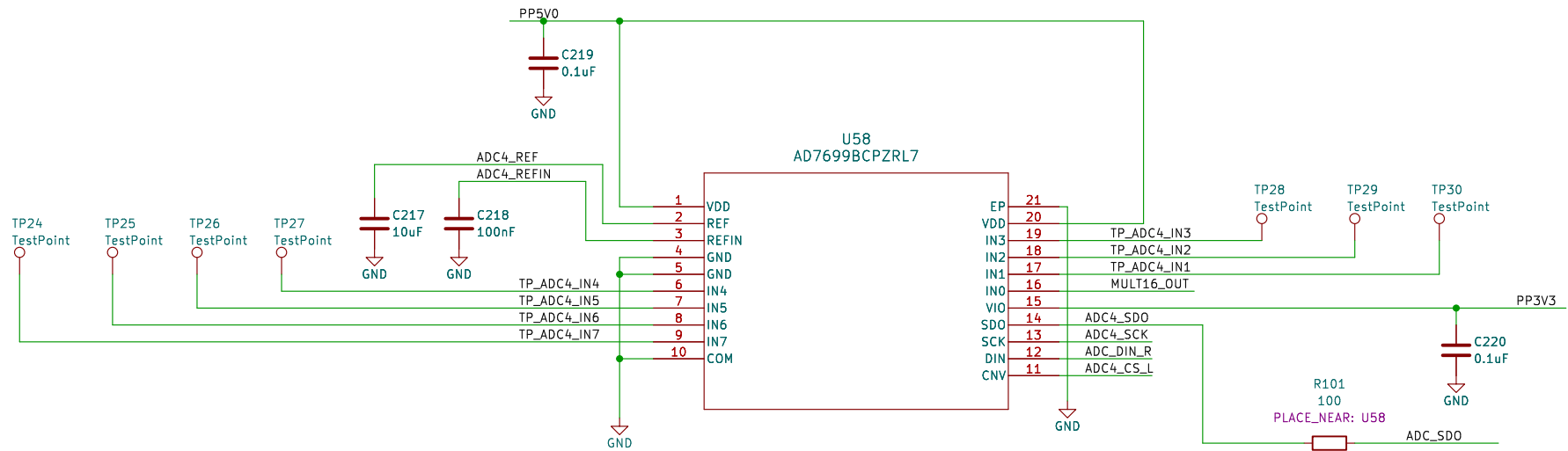
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KiCad E.D.A. kicad 7.0.7

Rev:

Id: 18/19

ADC (4/4)



Sheet: /ADC 4/
File: ADC_4.kicad_sch

Title:

Size: A4

Date:

Size: 7.71	Date:
KiCad E.D.A.	kicad 7.0.7

Rev:

Id: 19/19