

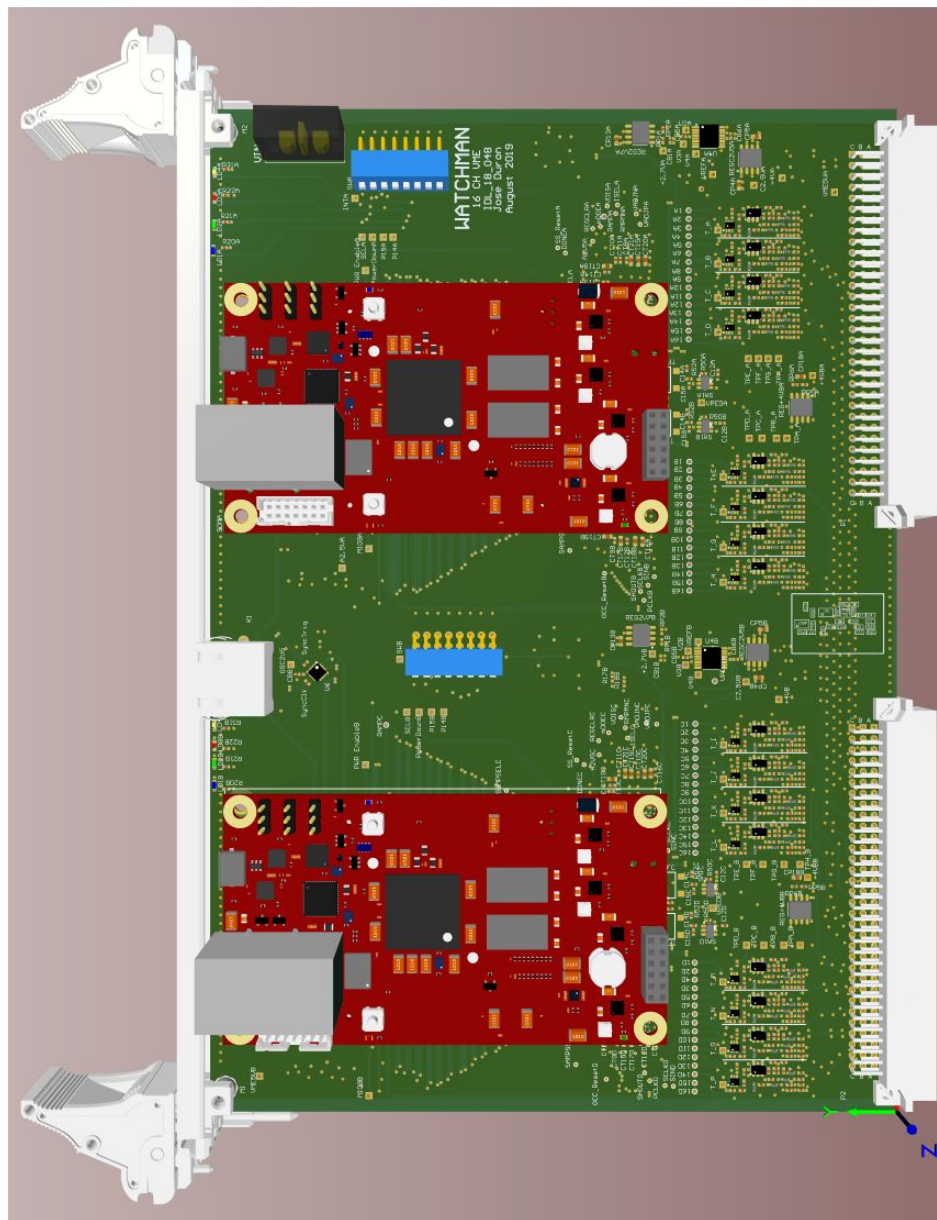


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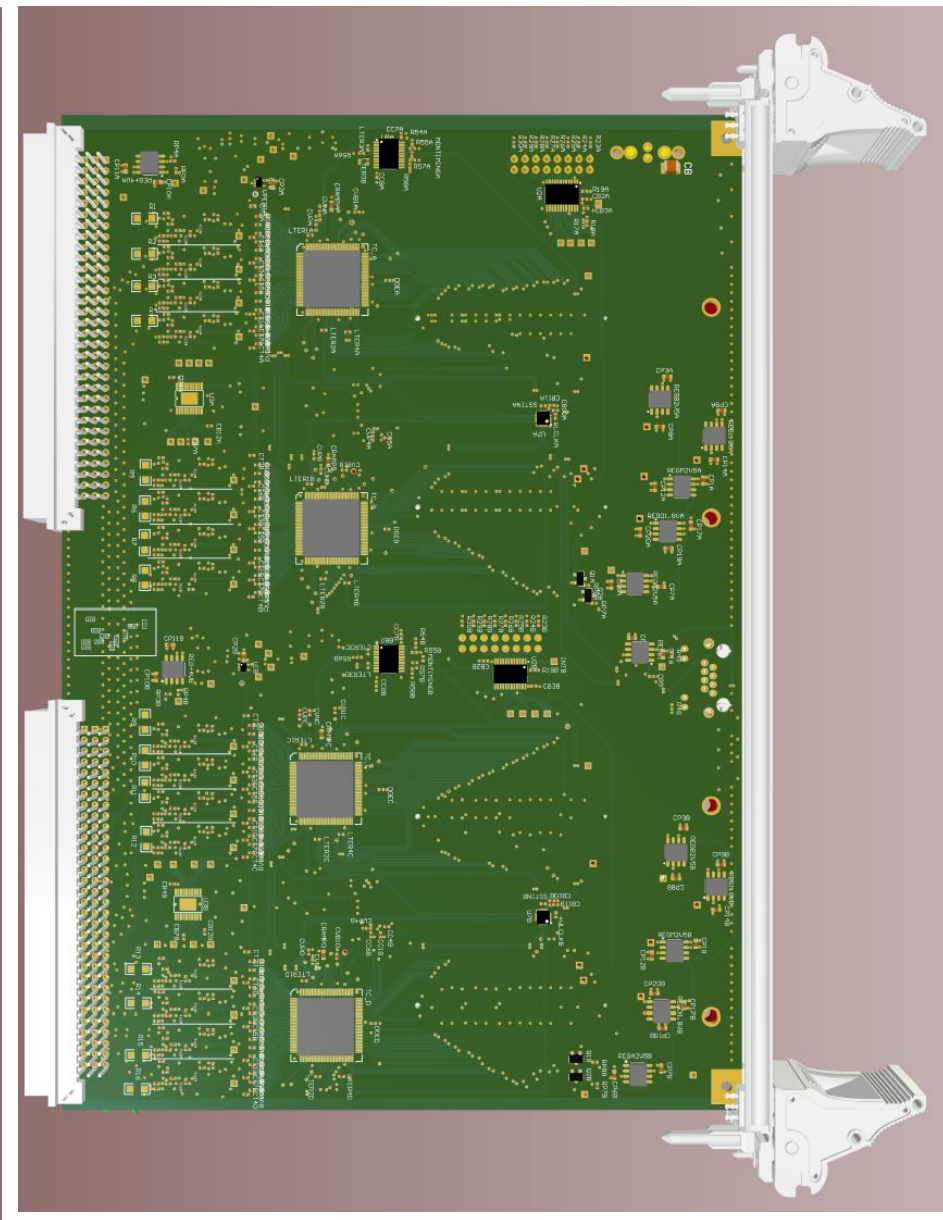
**Project Name:** WATCHMAN\_6UVME  
**Board Name:** WATCHMAN TARGETC VME 6U  
**IDL num:** IDL\_18\_048  
**Revision:** A  
**Variant:** [No Variations]

**Designer:** Jose Duron  
**Drawn by:** Jose Duron  
**Approved by:** Gary S. Varner

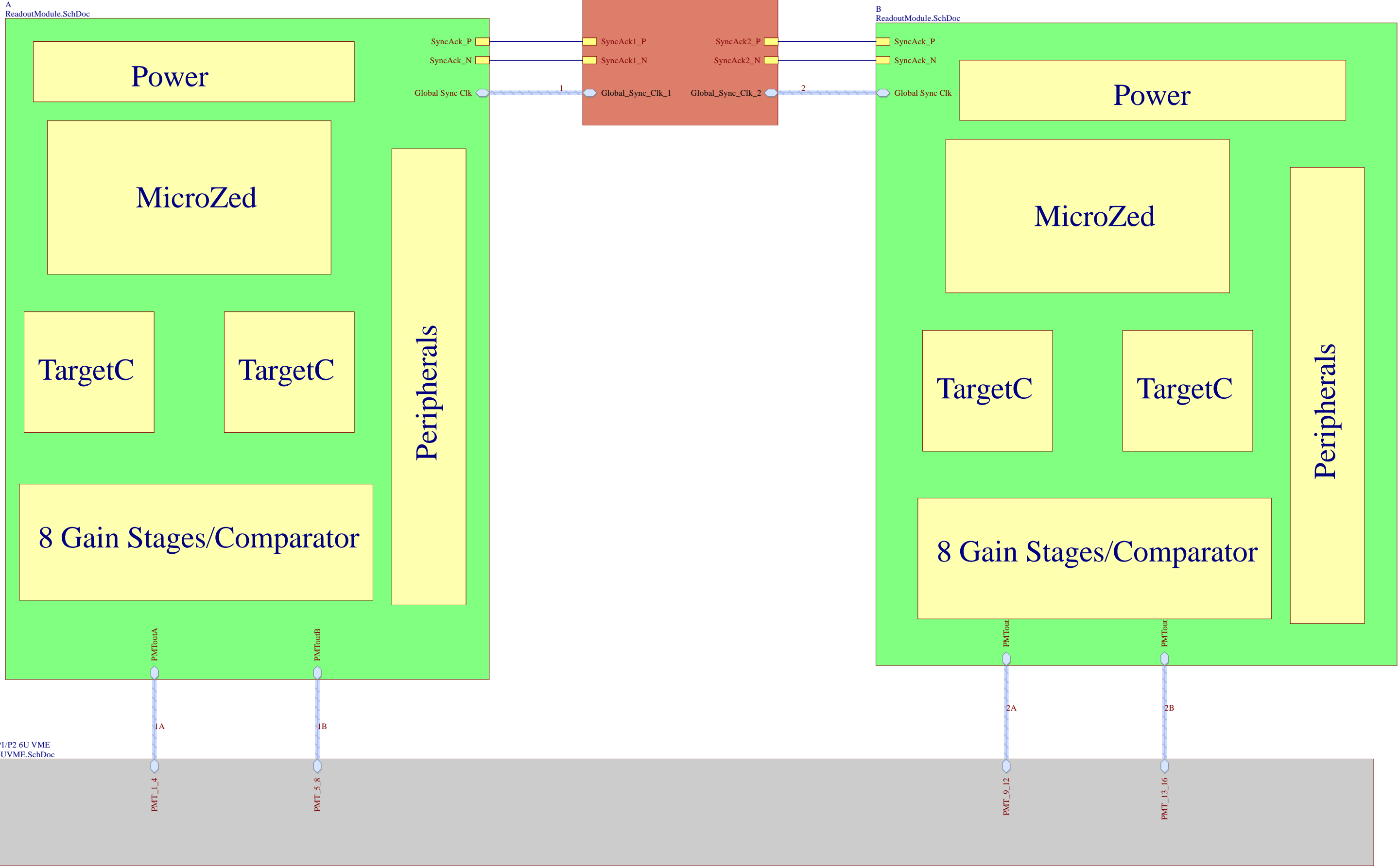
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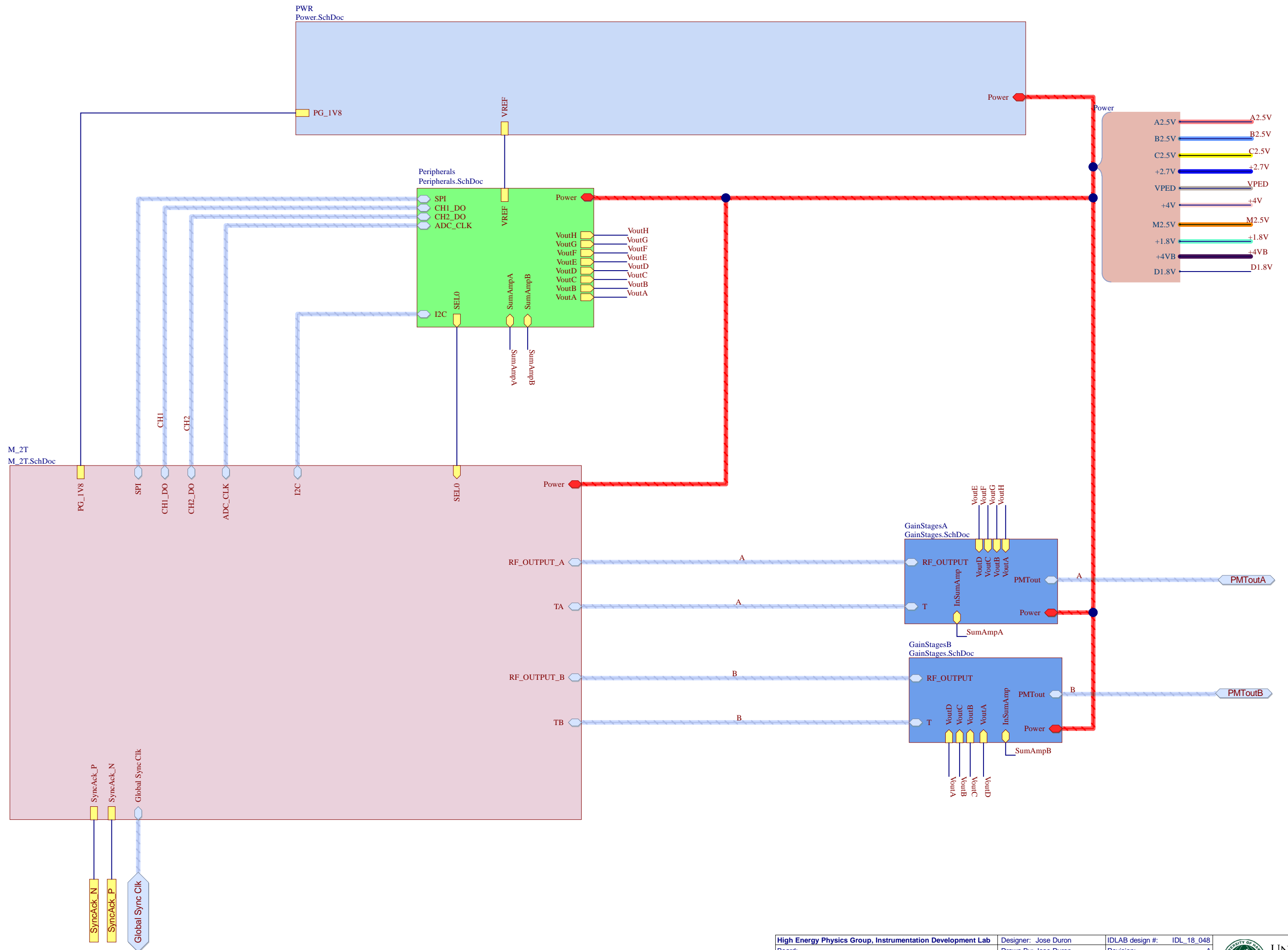
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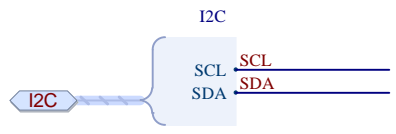
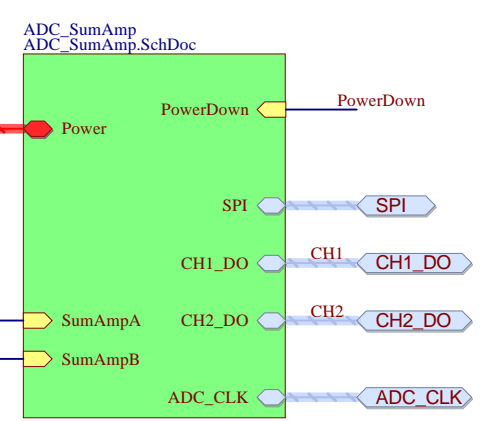
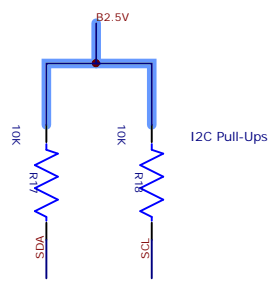
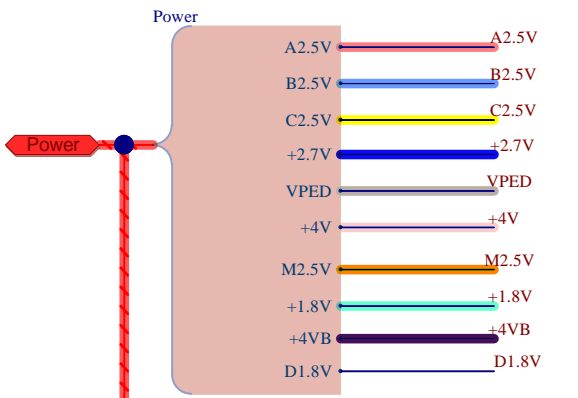


High Energy Physics Group, Instrumentation Development Lab	Designer: Jose Duron	IDLAB design #: IDL_18_048
Project name: <b>WATCHMAN_6UVME</b>	Drawn By: Jose Duron	Revision: A
Board name: <b>WATCHMAN TARGETC VME 6U</b>	Approved By: Gary S. Varner	Variant: [No Variations]
		Modif. Date: 8/20/2019
		Sheet 1 of 18

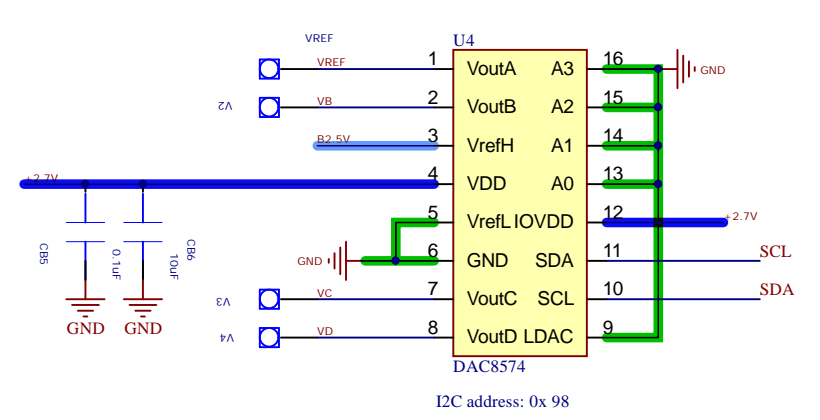
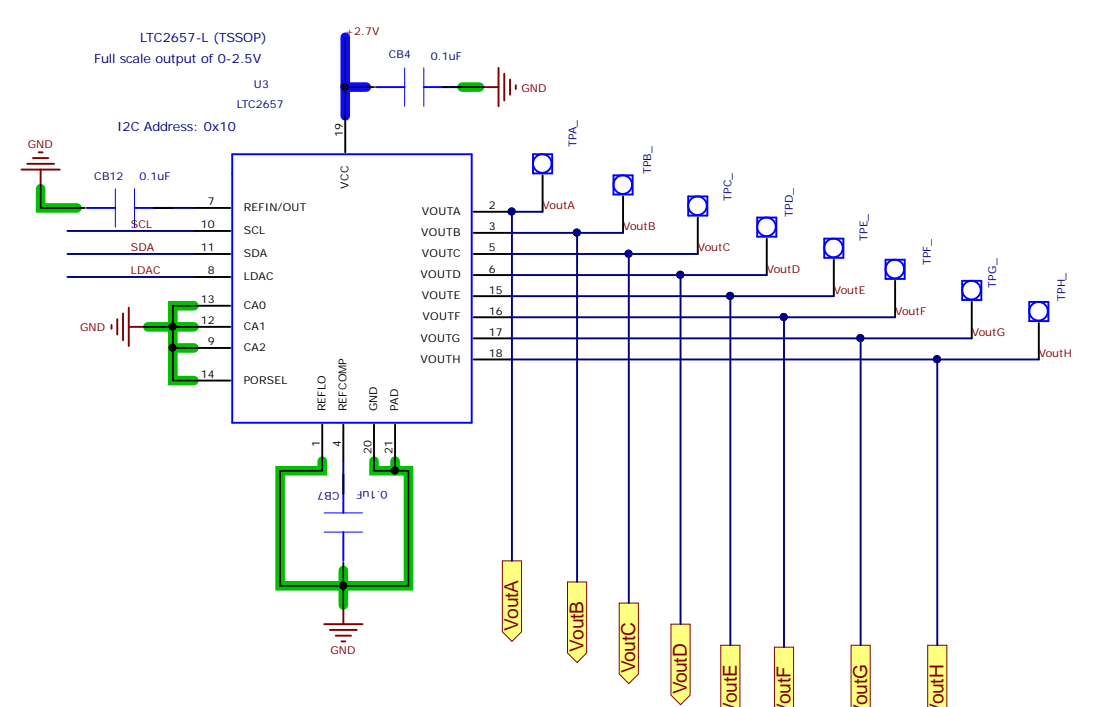
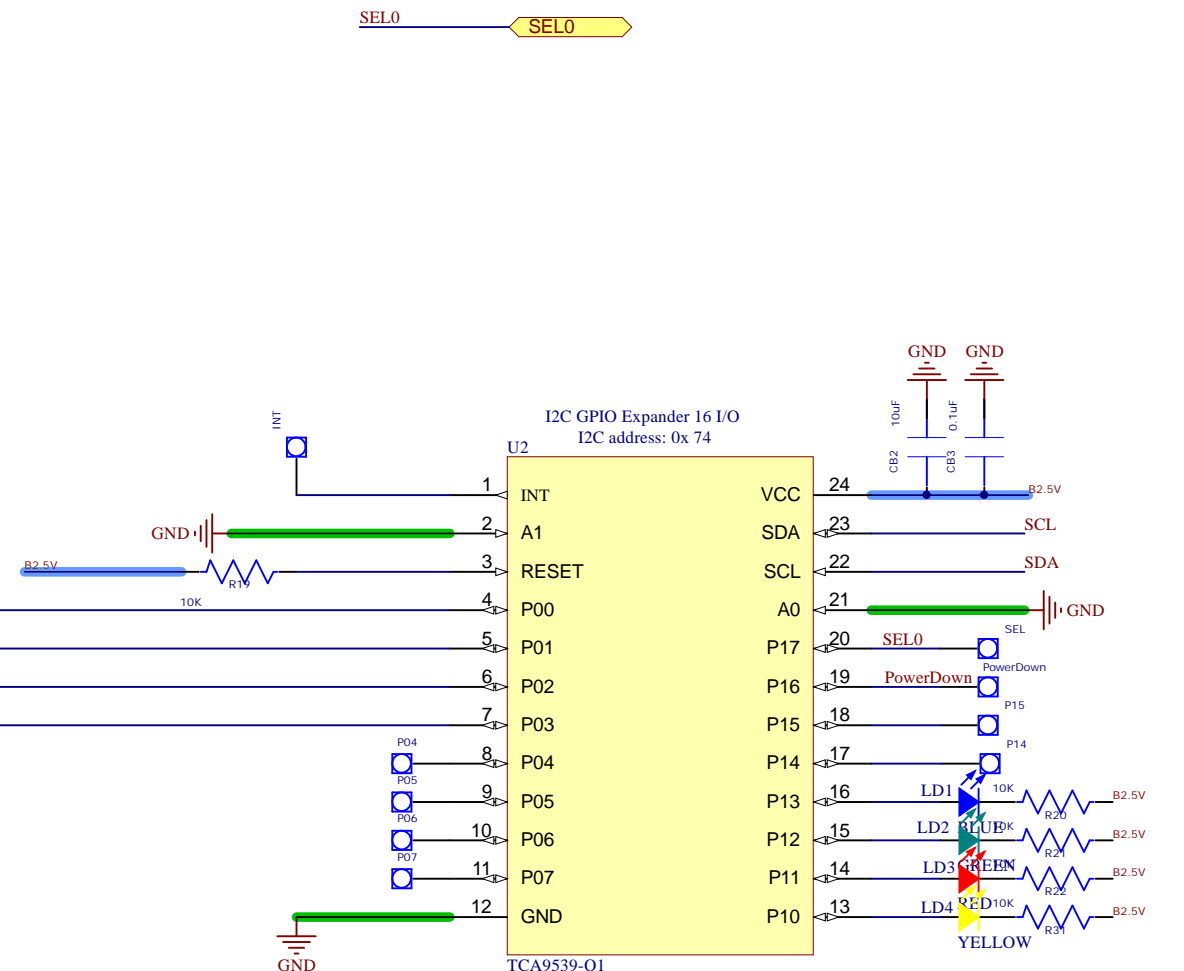
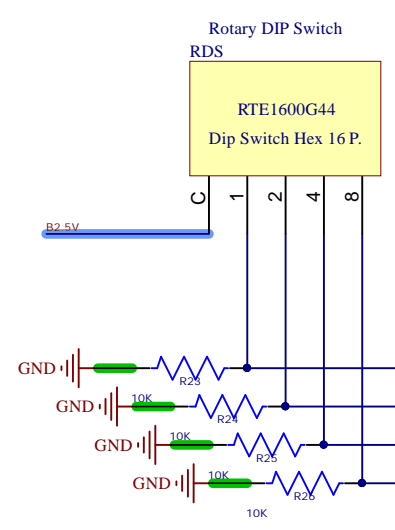


P1/P2 6U VME  
6UVME.SchDoc

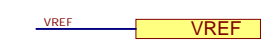


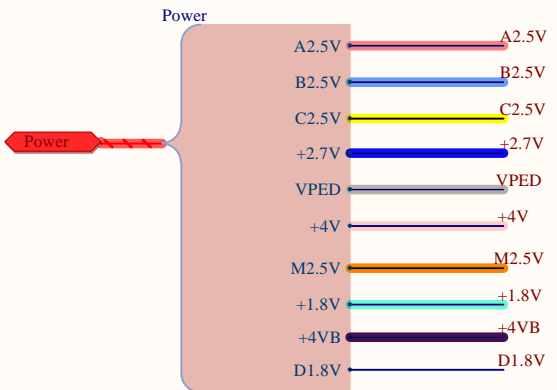
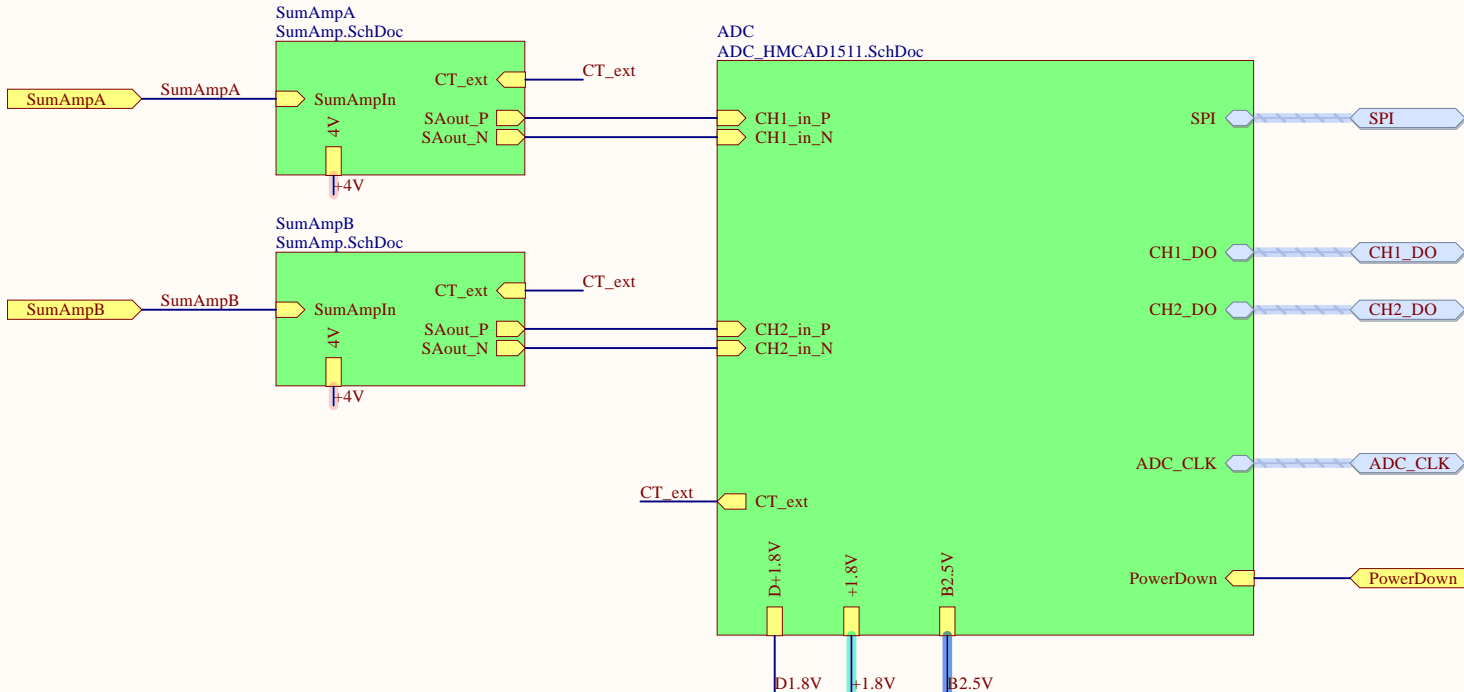


I2C Address Table	
Comparator DAC LTC2657:	0x10
GPIO Expander TCA9539:	0x74
VPED DAC 8574:	0x98



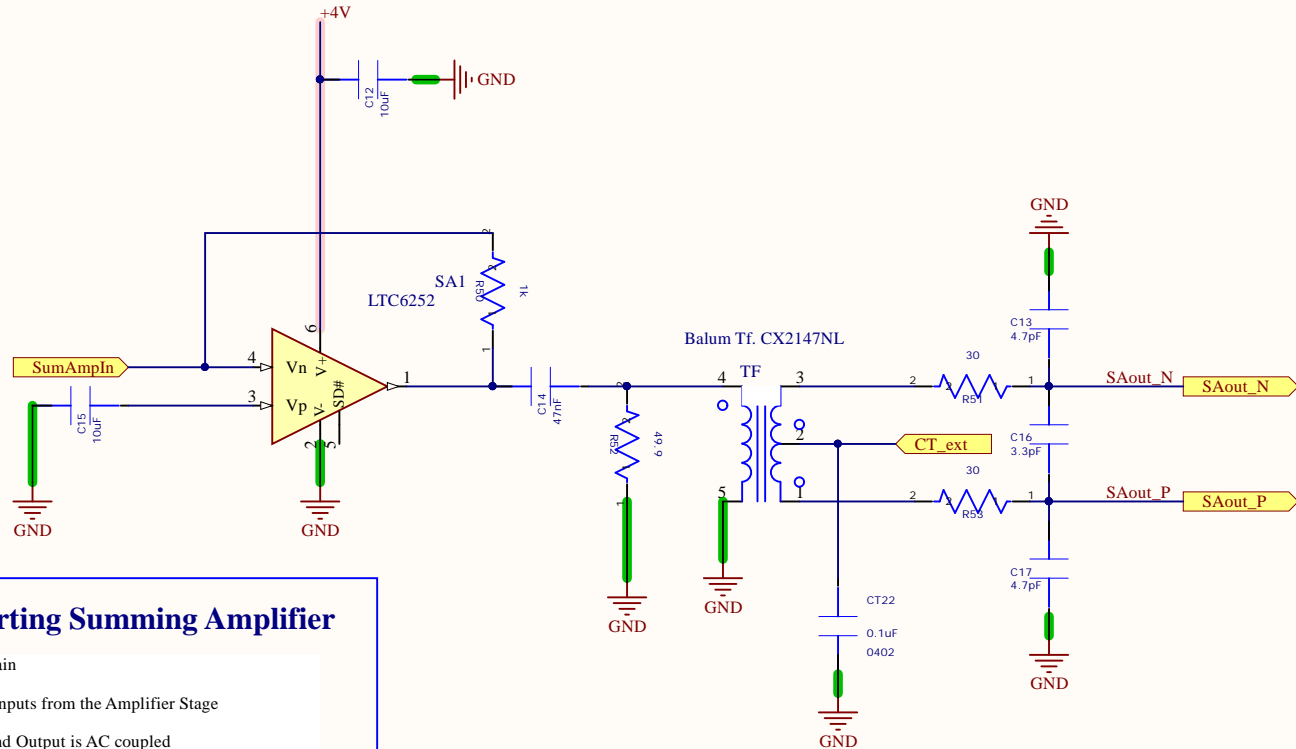
### Peripherals





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Date:	9/5/2019	Sheet of
File:	C:\Users\...\ADC_SumAmp.SchDoc	Drawn By:

4V +4V



**Inverting Summing Amplifier**

Unity Gain

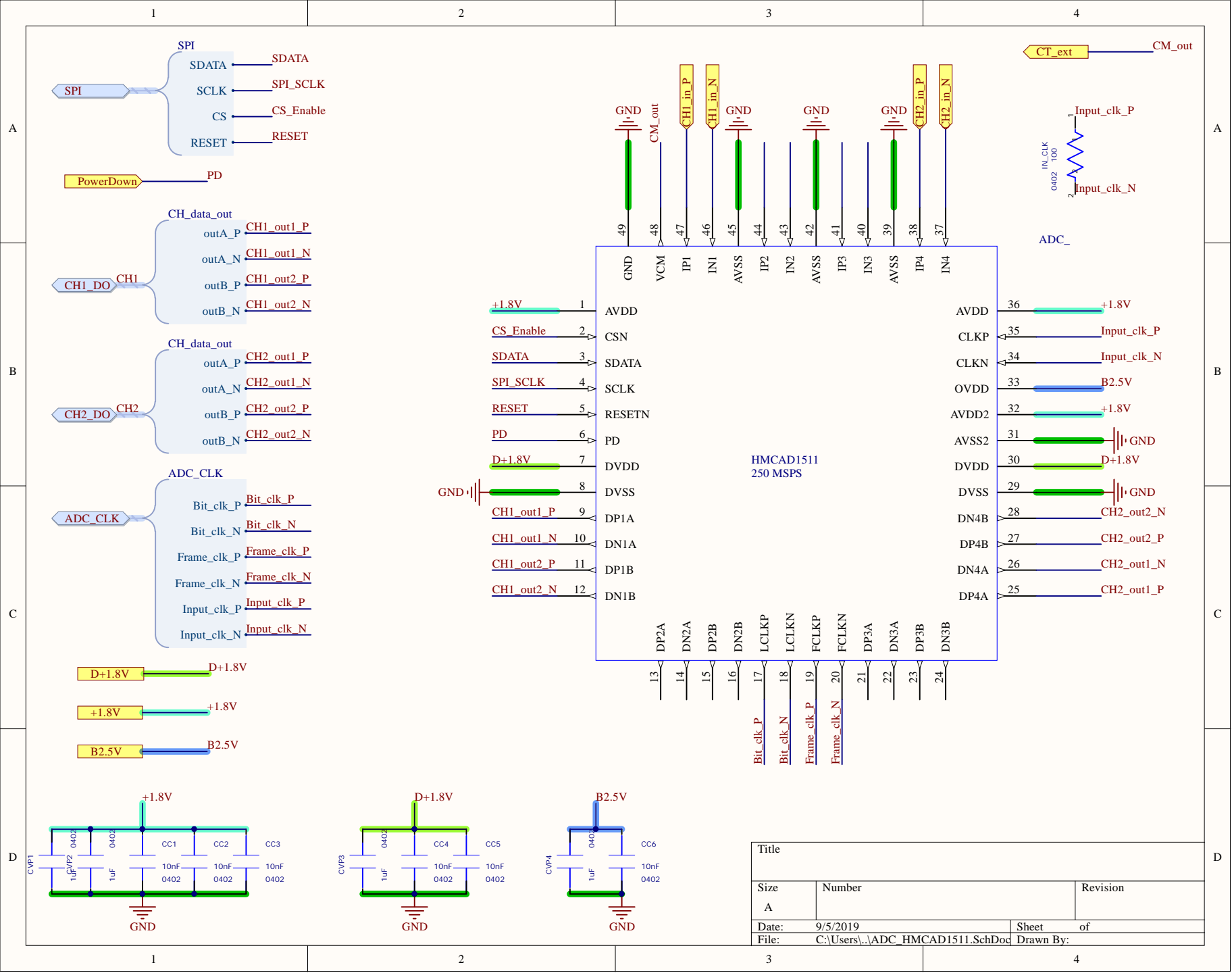
Adds 4 Inputs from the Amplifier Stage

Inputs and Output is AC coupled

Balun Transformer with Center Tap is used for Single to Differential Pair Output

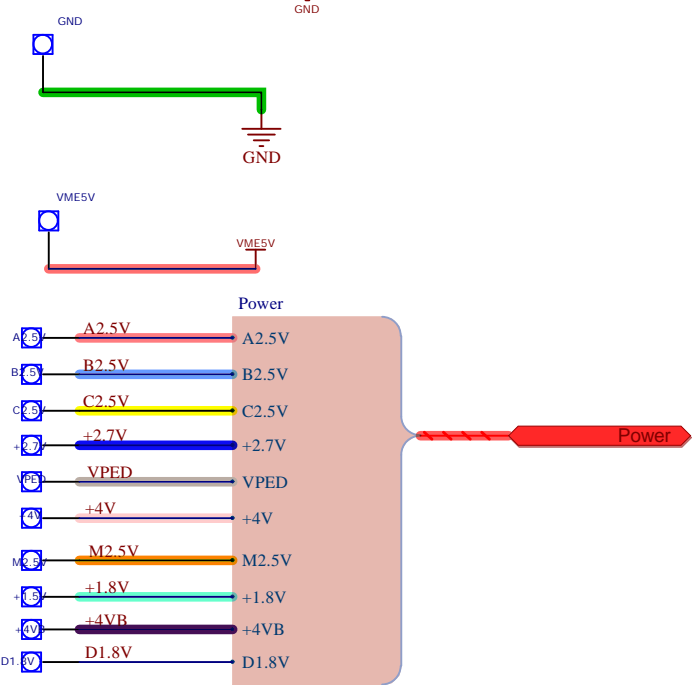
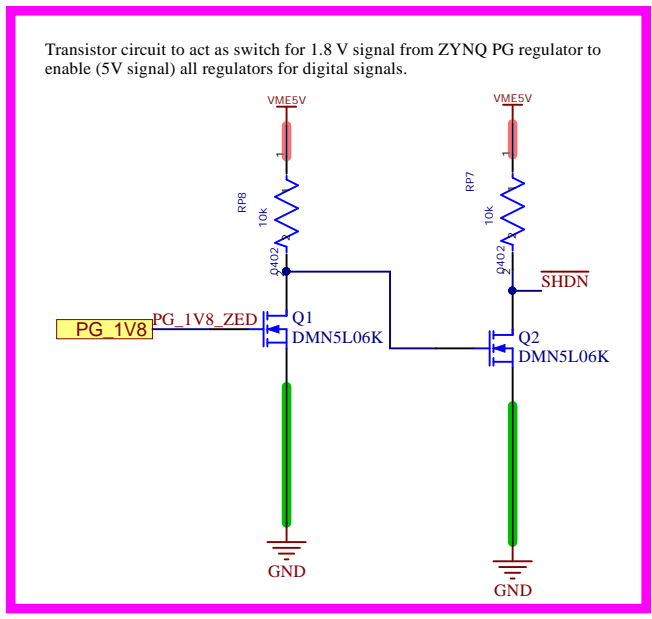
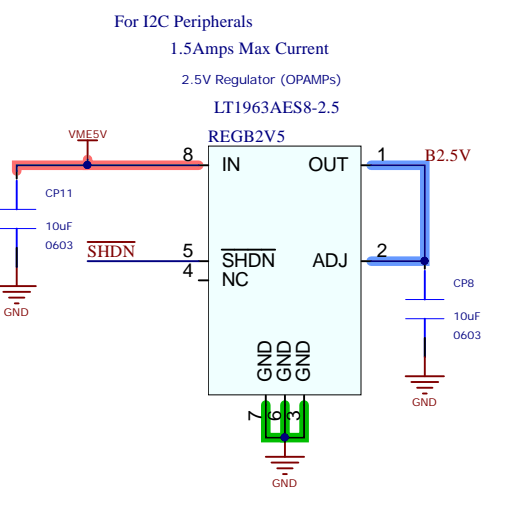
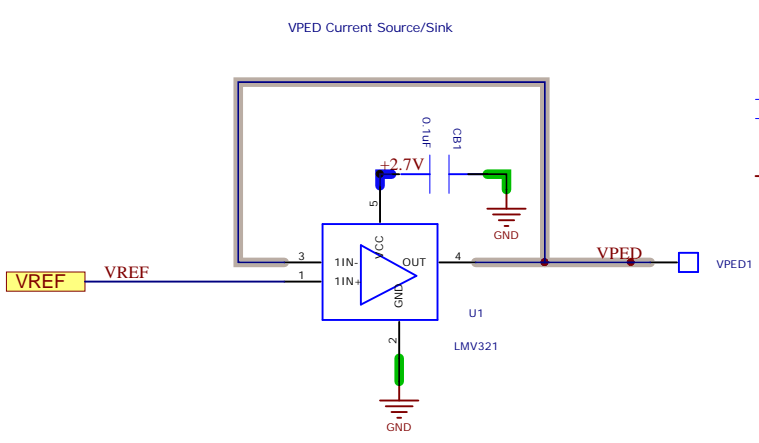
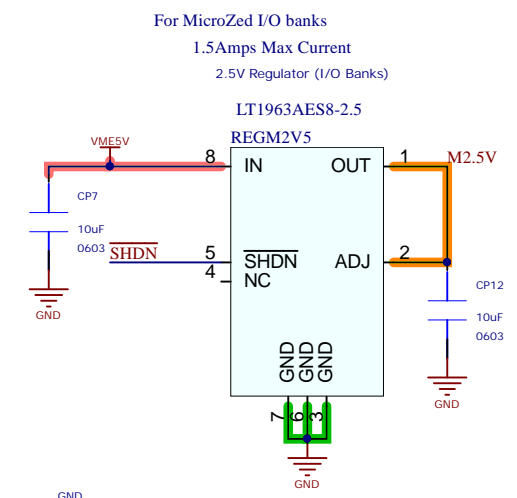
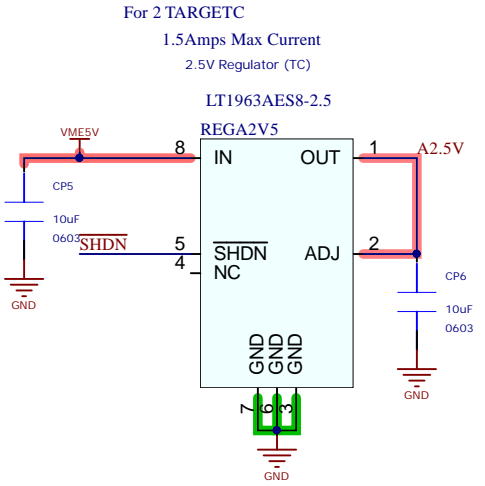
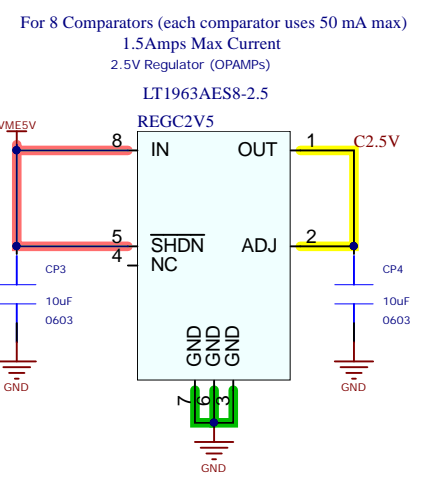
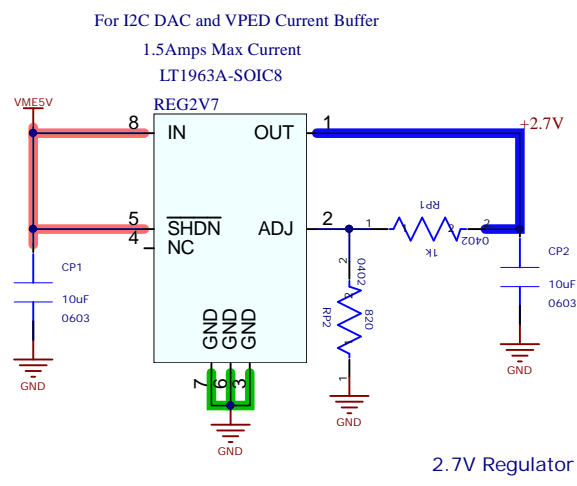
Due to the polarity of the Balun Tf, inverted the net for SAout\_P and SAout\_N

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File:	C:\Users\...\SumAmp.SchDoc	Drawn By:



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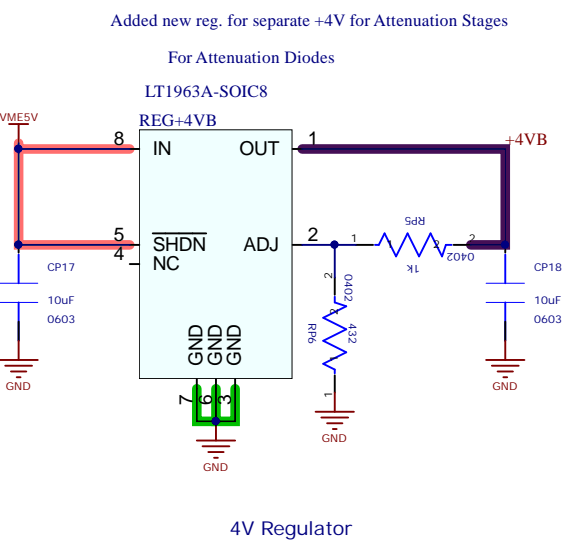




LT1963A has a 1.5A supply current  
Each LMH6629 has a supply current of 18.2mA max x8 = 145.6mA  
LTC6252 = 3.5mA current x2 = 7mA  
Total current draw for 10 Amps = 152.6mA

For 10 Amplifiers  
1.5A Output current  
LT1963A-SOIC8

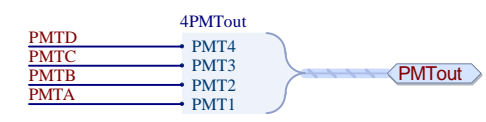
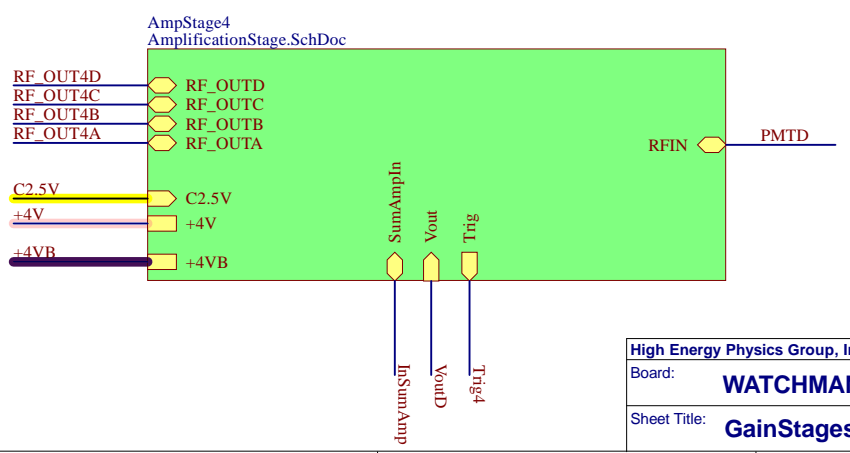
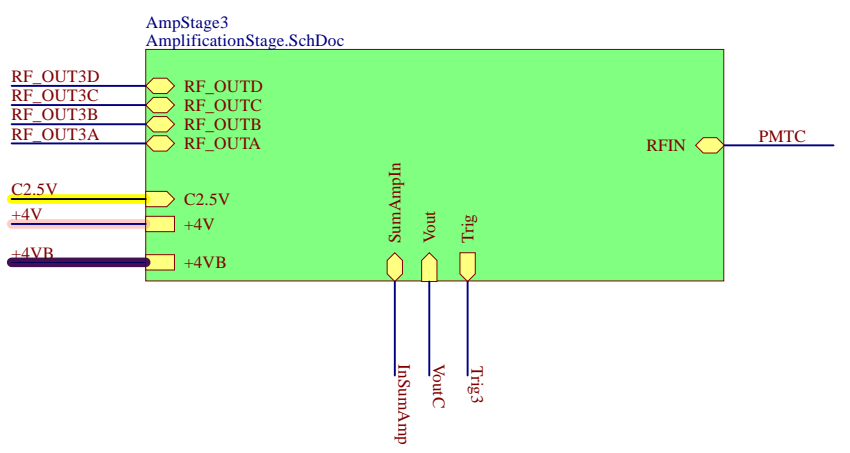
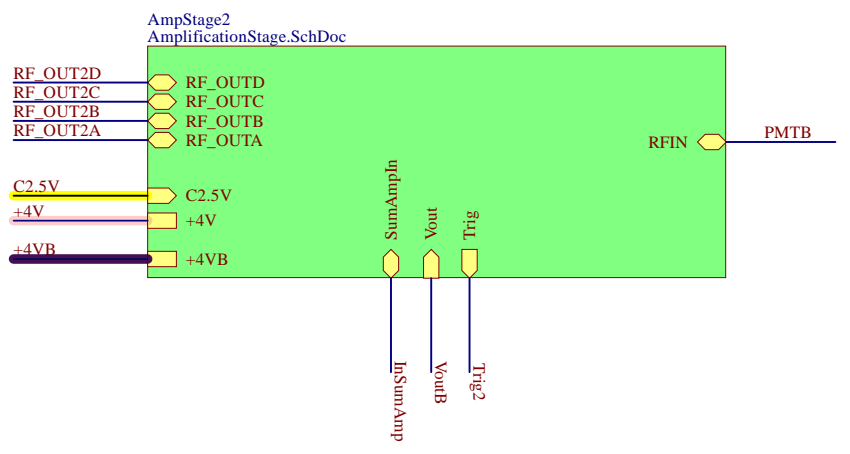
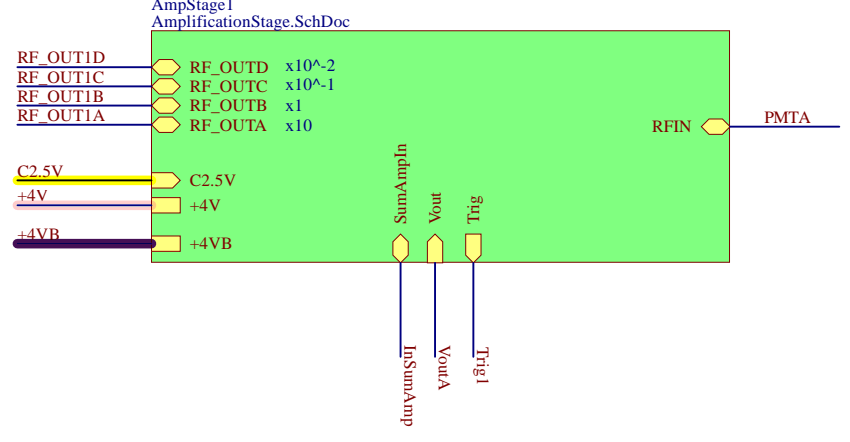
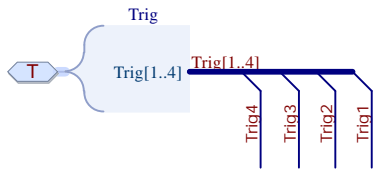
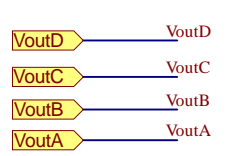
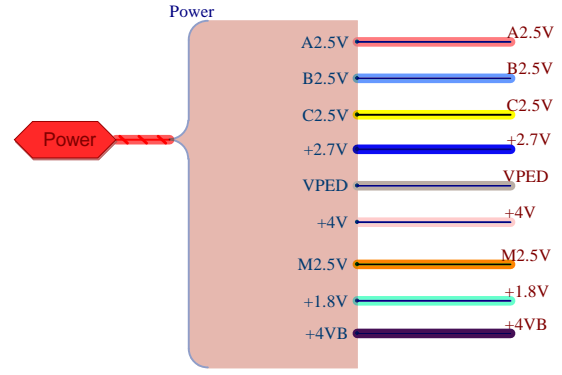
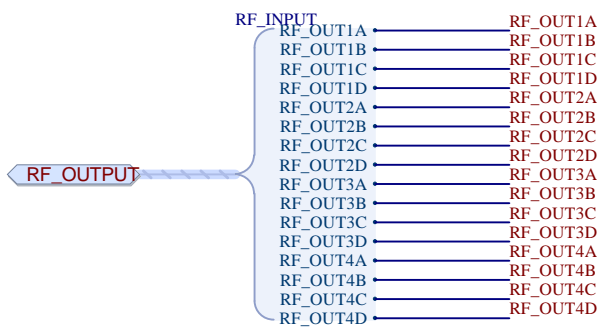
4V Regulator



For Analog supply for ADC  
1.5Amps Max Current  
1.8V Regulator (OPAMPs)  
LT1963ES8-1.8

For Digital supply for ADC  
1.5Amps Max Current  
1.8V Regulator (OPAMPs)  
LT1963ES8-1.8

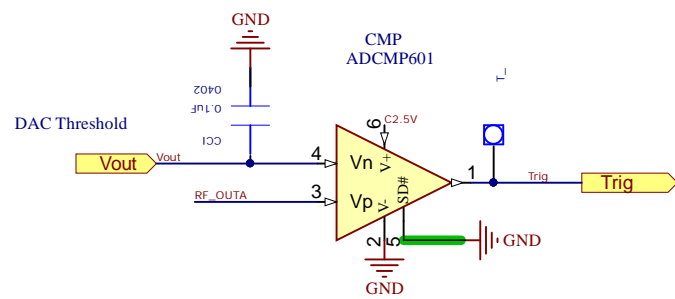




# Comparator

C2.5V

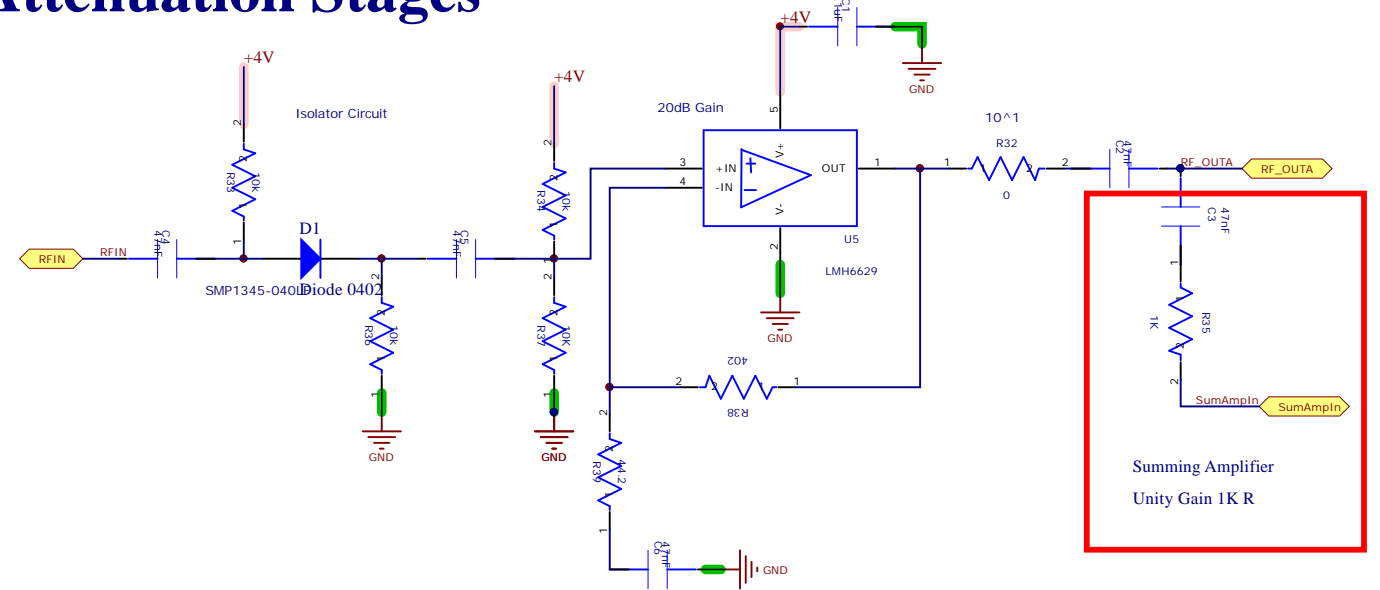
Connected Hysteresis to GND directly



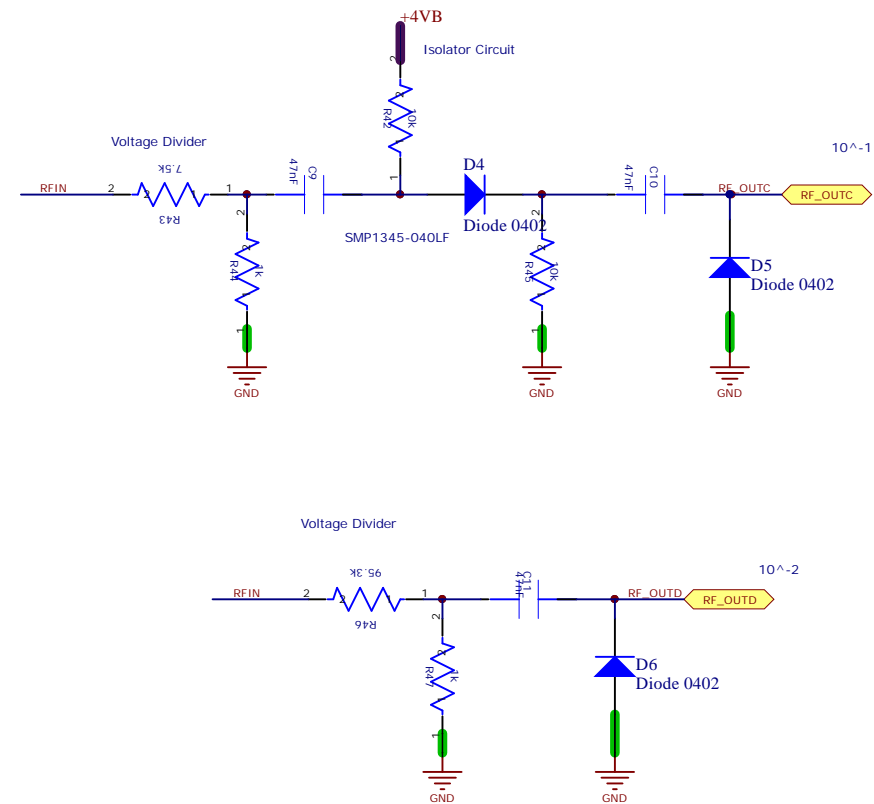
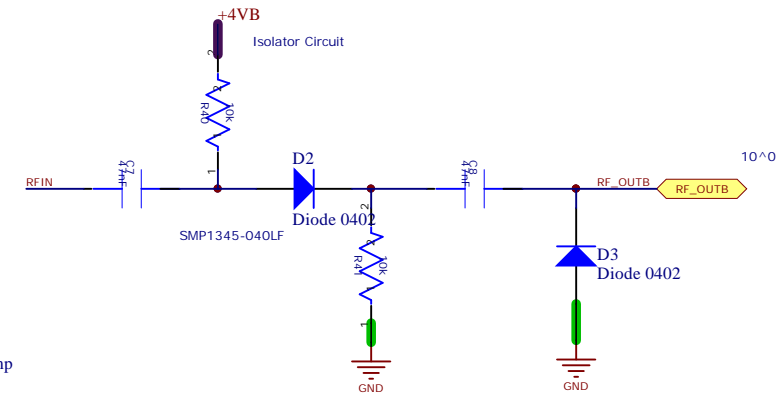
# Amplifier and Attenuation Stages

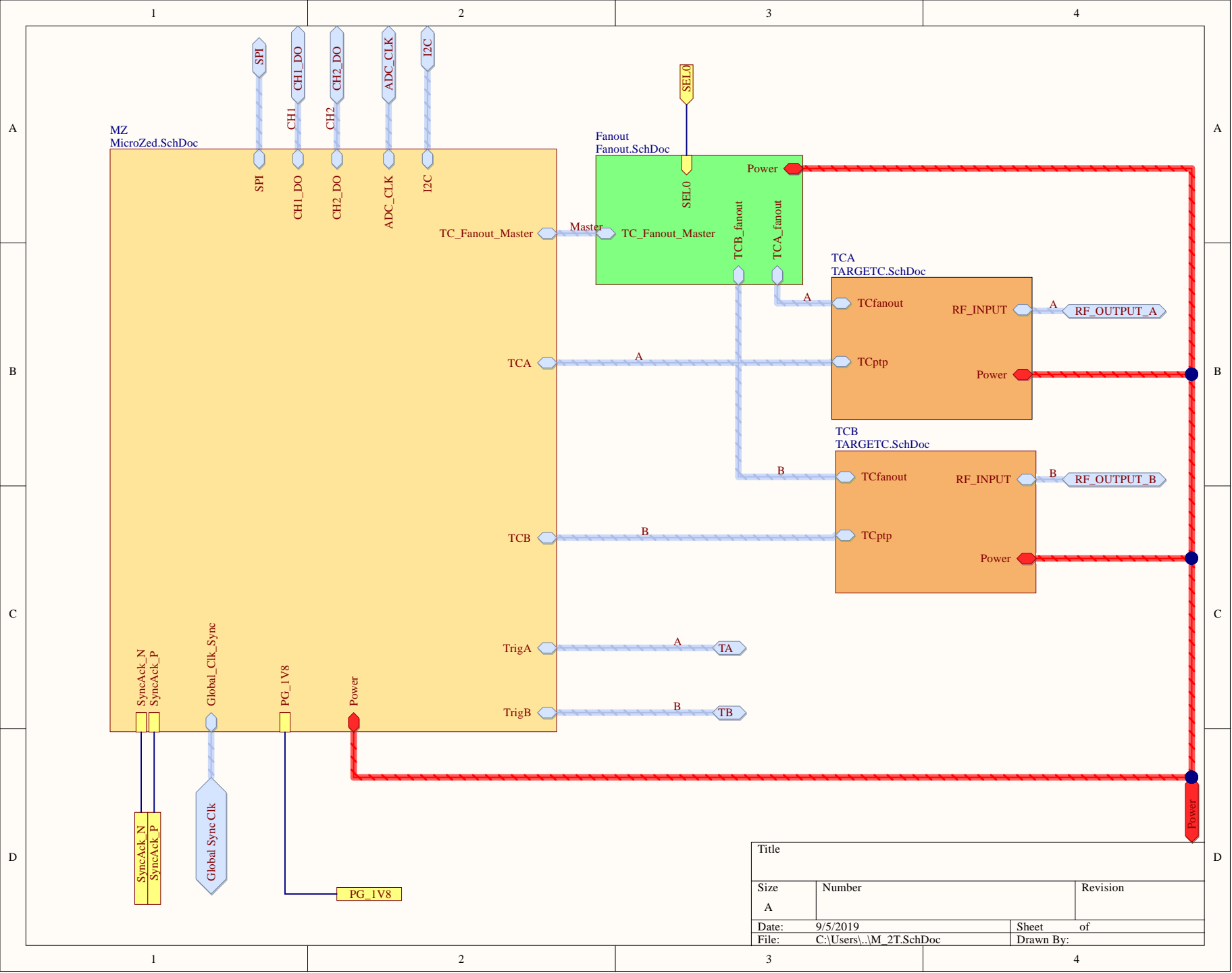
+4VB → +4VB  
+4V → +4V

Changed the Feedback Loop → AC coupled  
Amp baseline is set to +4V/2

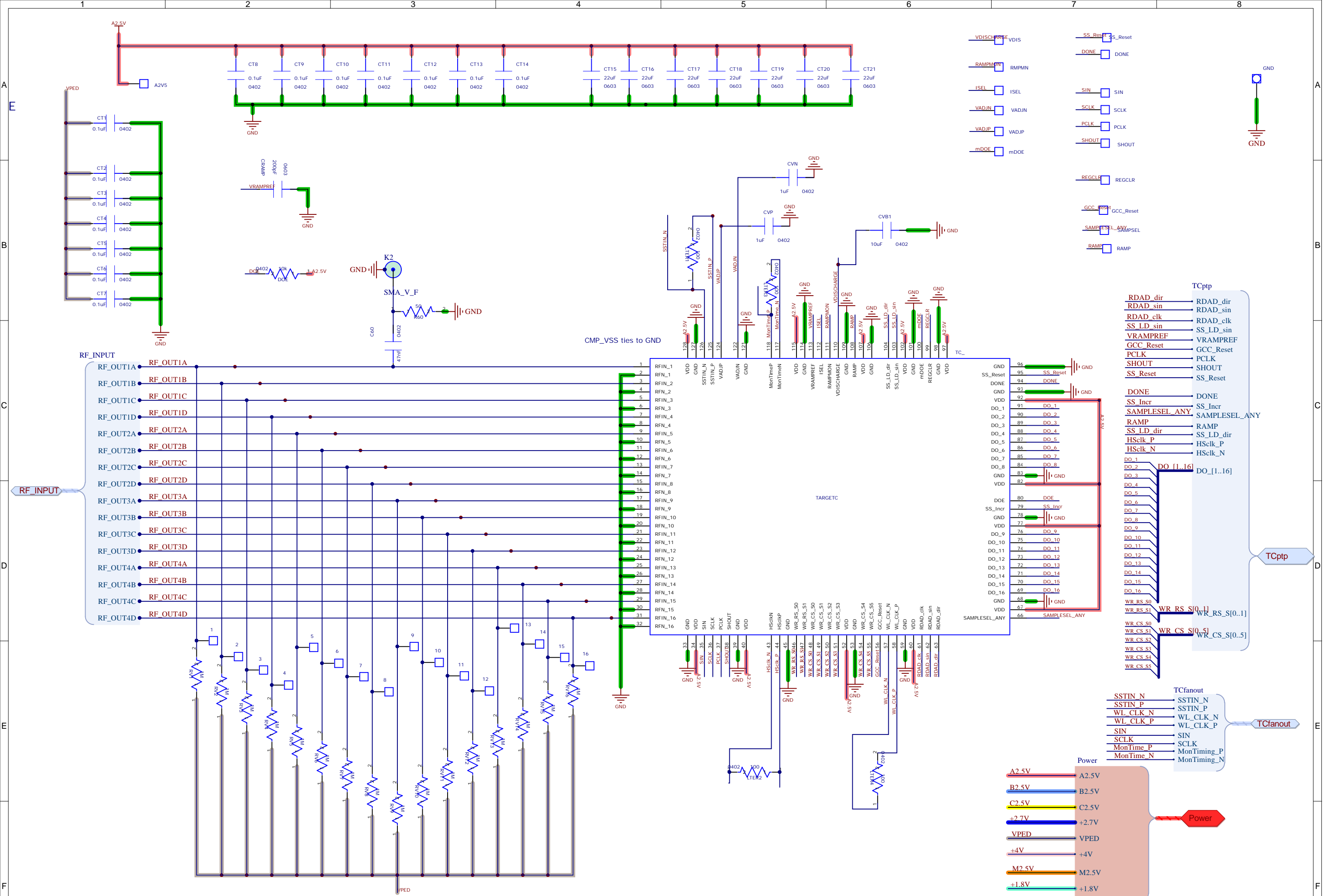


New power line is set to attenuator stages to turn on diodes, independent of amp



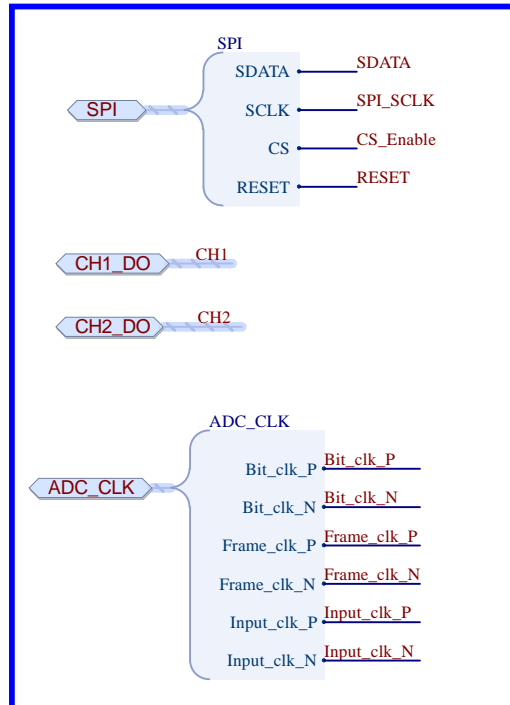


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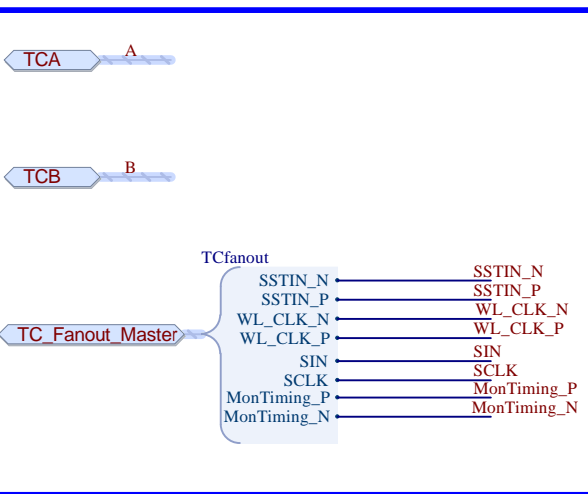


# MICROZED

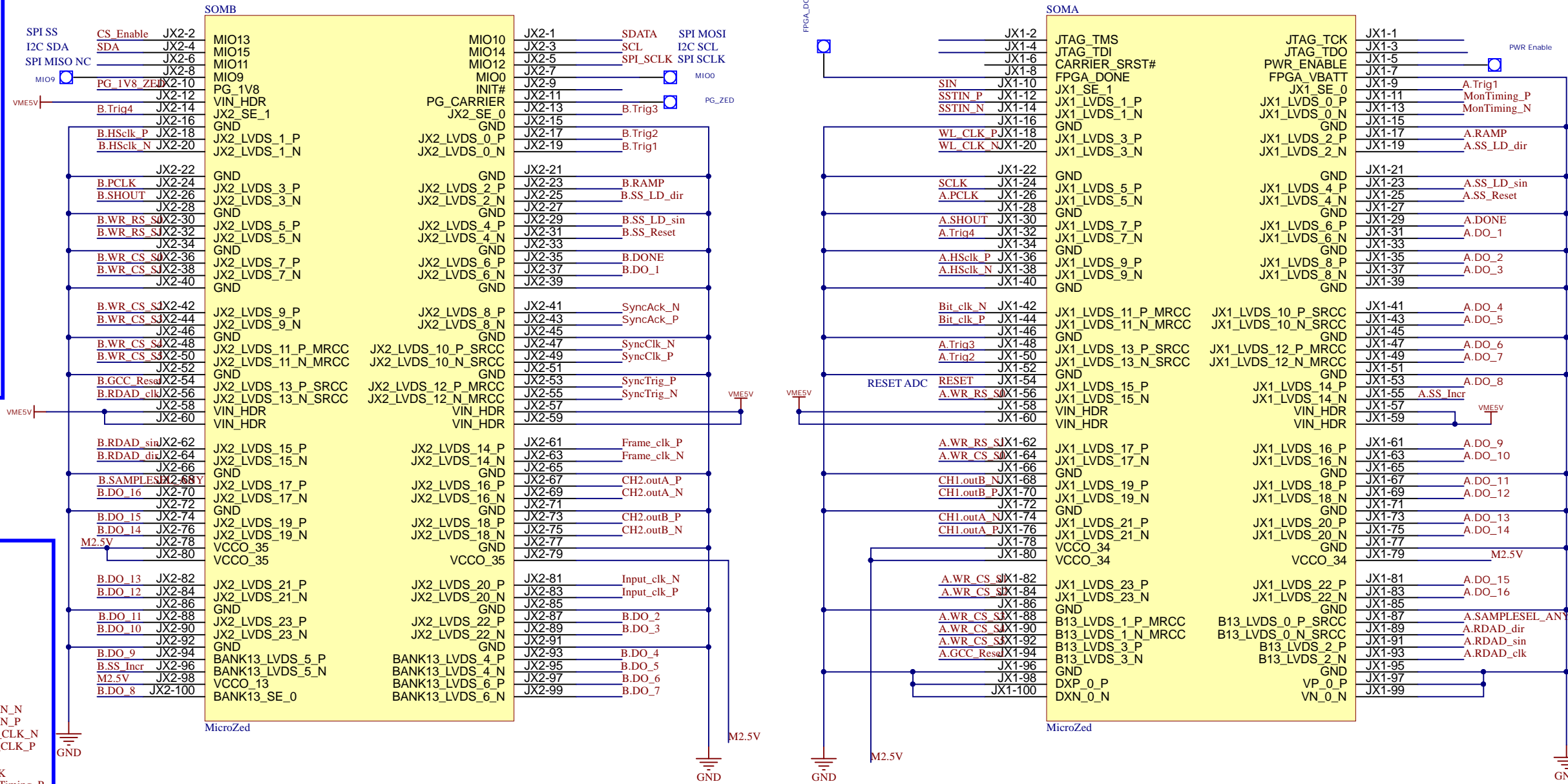
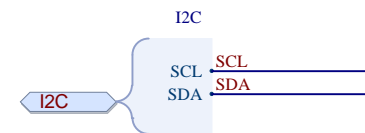
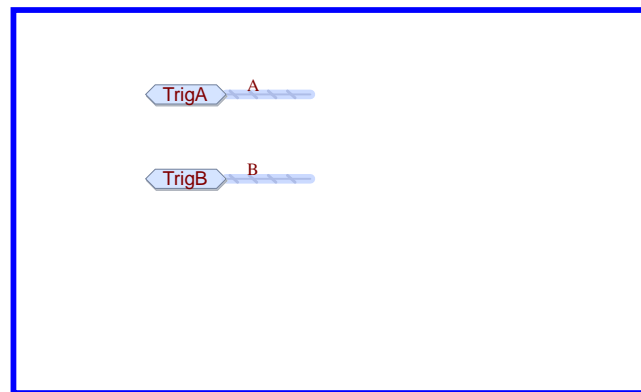
## HMCAD1511 ADC



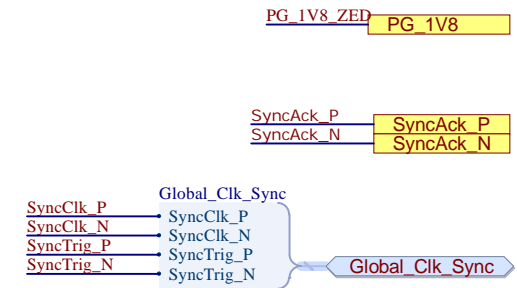
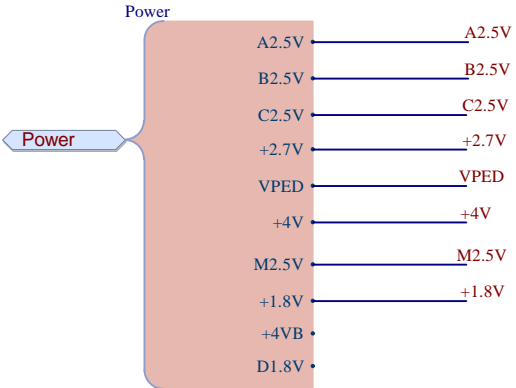
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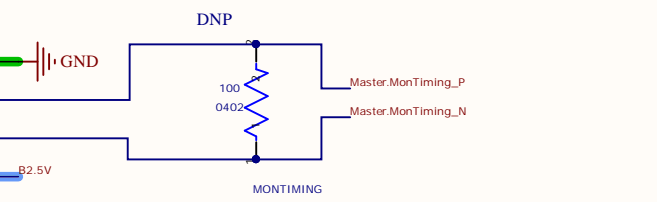
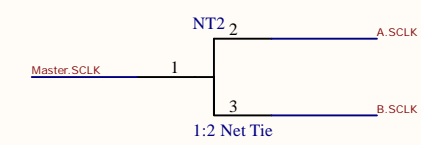
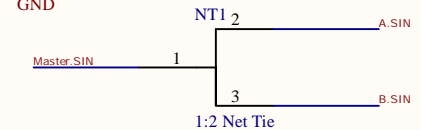
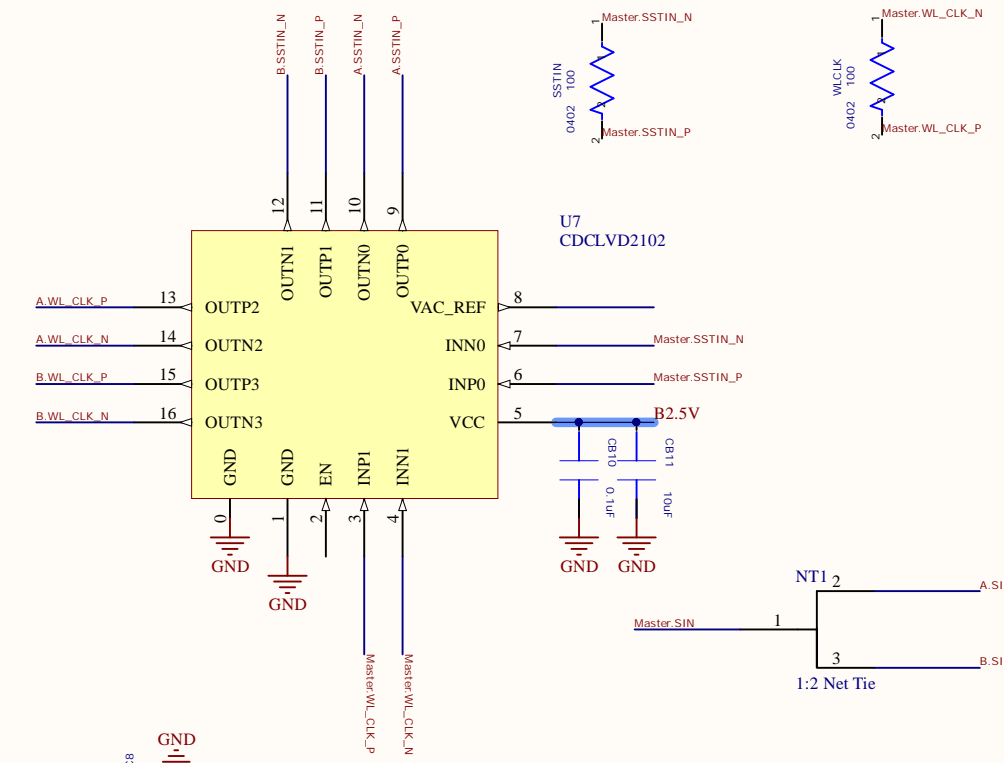
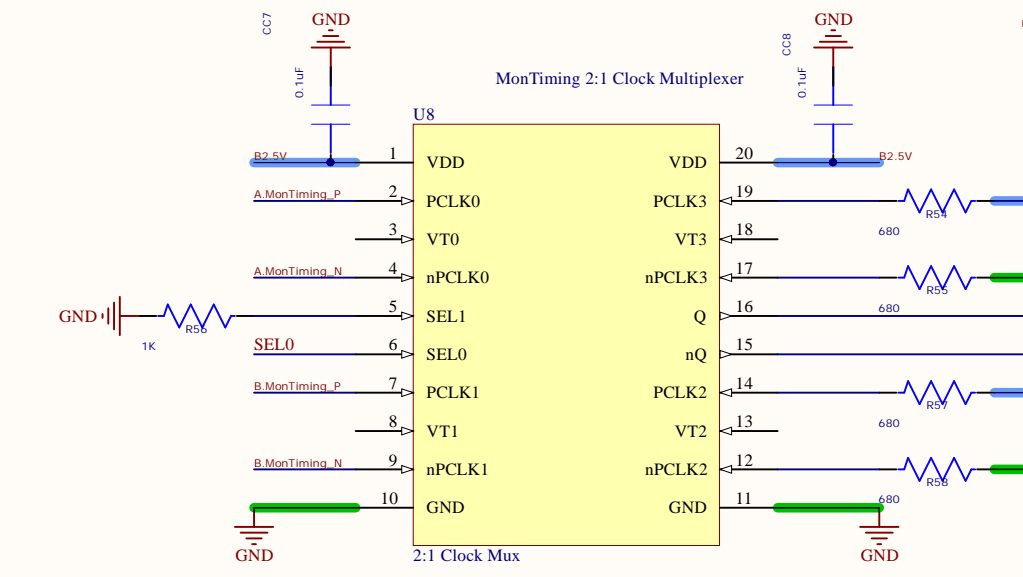
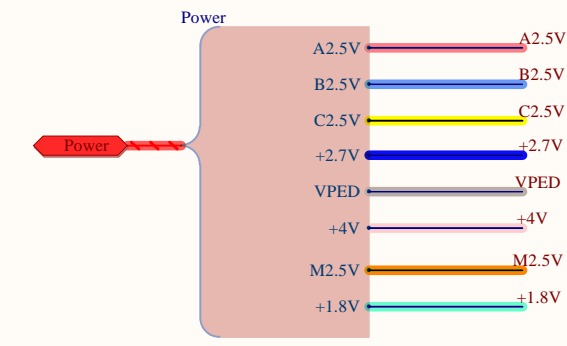
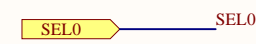
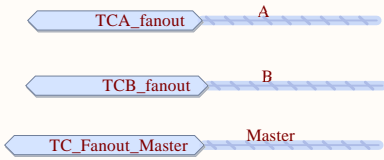


## Trigger



Input Clock  
 Bit Clock  
 Ch1 Clocks  
 Sync Clock  
 Sync Ack  
 are inverted  
 (P and N swapped)



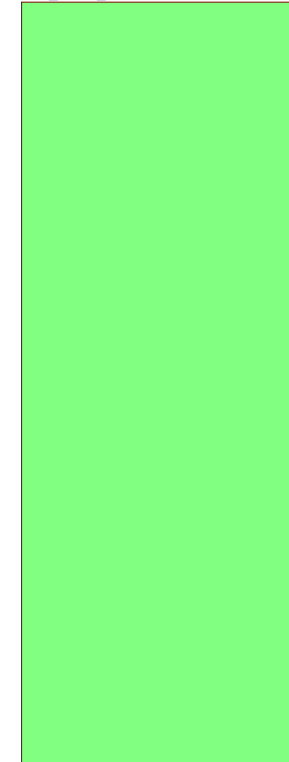


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VME Mounting Holes



CON\_VME\_P1  
CON\_VME\_P1.SchDoc



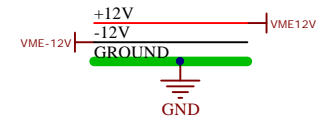
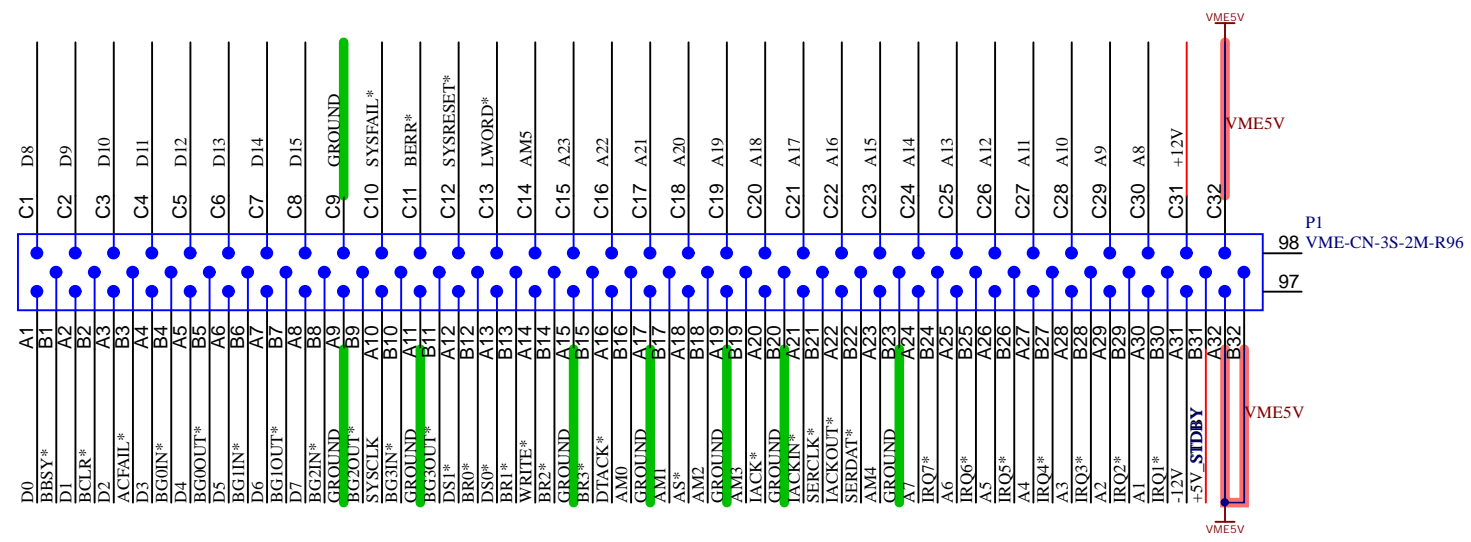
CON\_VME\_P2  
CON\_VME\_P2.SchDoc



High Energy Physics Group, Instrumentation Development Lab	Designer: Jose Duron	IDLAB design #: IDL_18_048
Board: <b>WATCHMAN TARGETC VME 6U</b>	Drawn By: Jose Duron	Revision: A
Sheet Title: <b>Title_doc_parameter!</b>	Approved By: Gary S. Varner	Variant: [No Variations]
		Modif. Date: 8/13/2019
		Sheet 15 of 18

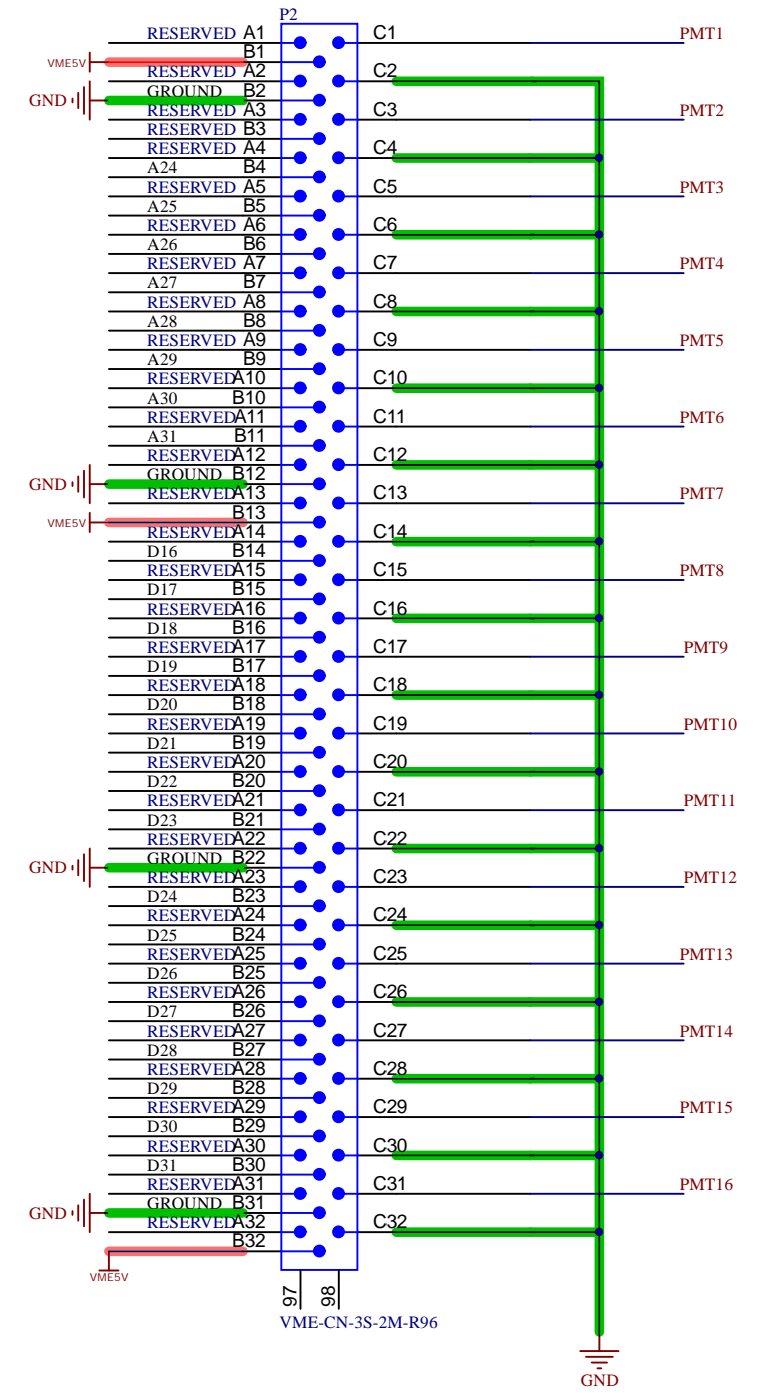
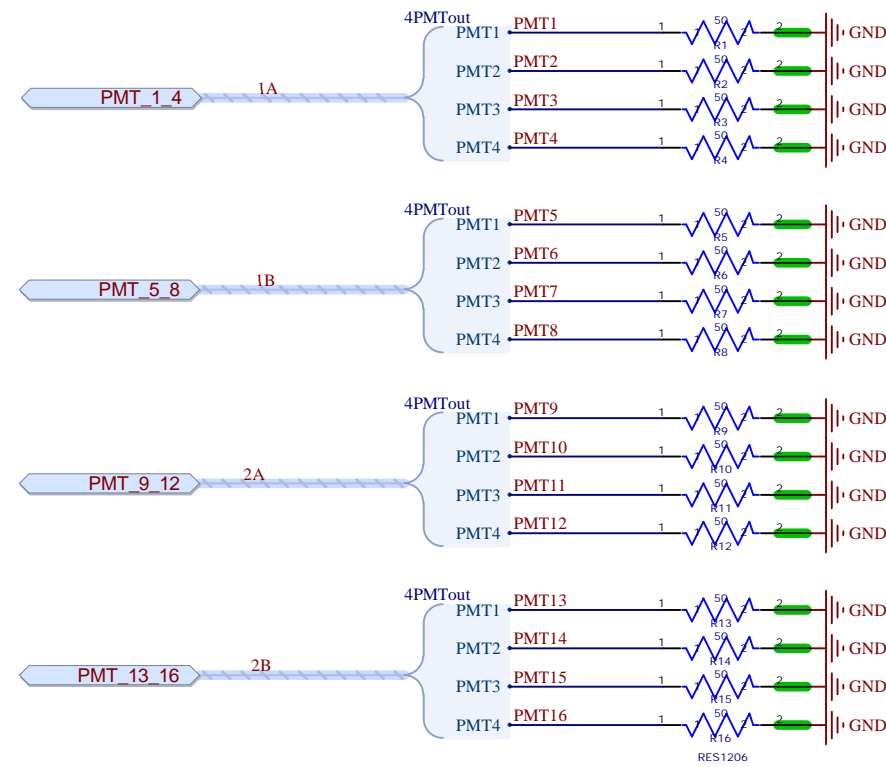






High Energy Physics Group, Instrumentation Development Lab	Designer: Jose Duron	IDLAB design #: IDL_18_048
Board: WATCHMAN TARGETC VME 6U	Drawn By: Jose Duron	Revision: A
Sheet Title: CON_VME_P1.SchDoc	Approved By: Gary S. Varner	Variant: [No Variations]
		Modif. Date: 8/13/2019
		Sheet 16 of 18





Global\_Sync\_Clk\_1

Global\_Sync\_Clk\_2

SyncAck1\_P SyncAck1\_P  
 SyncAck1\_N SyncAck1\_N  
 SyncAck2\_P SyncAck2\_P  
 SyncAck2\_N SyncAck2\_N

