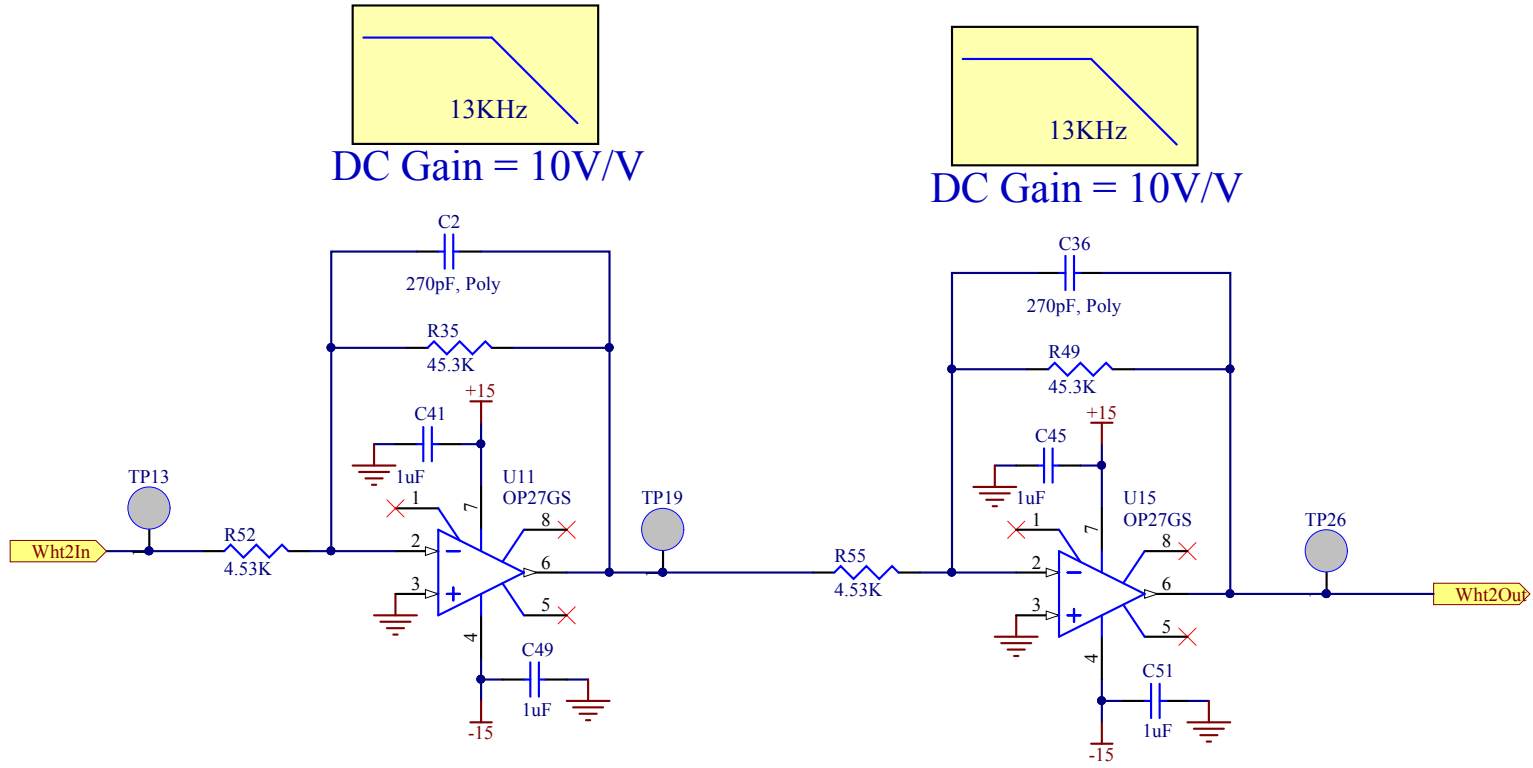


# Whitening Mod 2



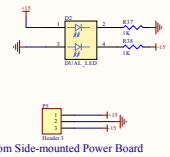
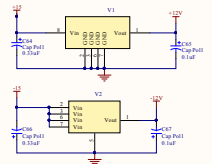
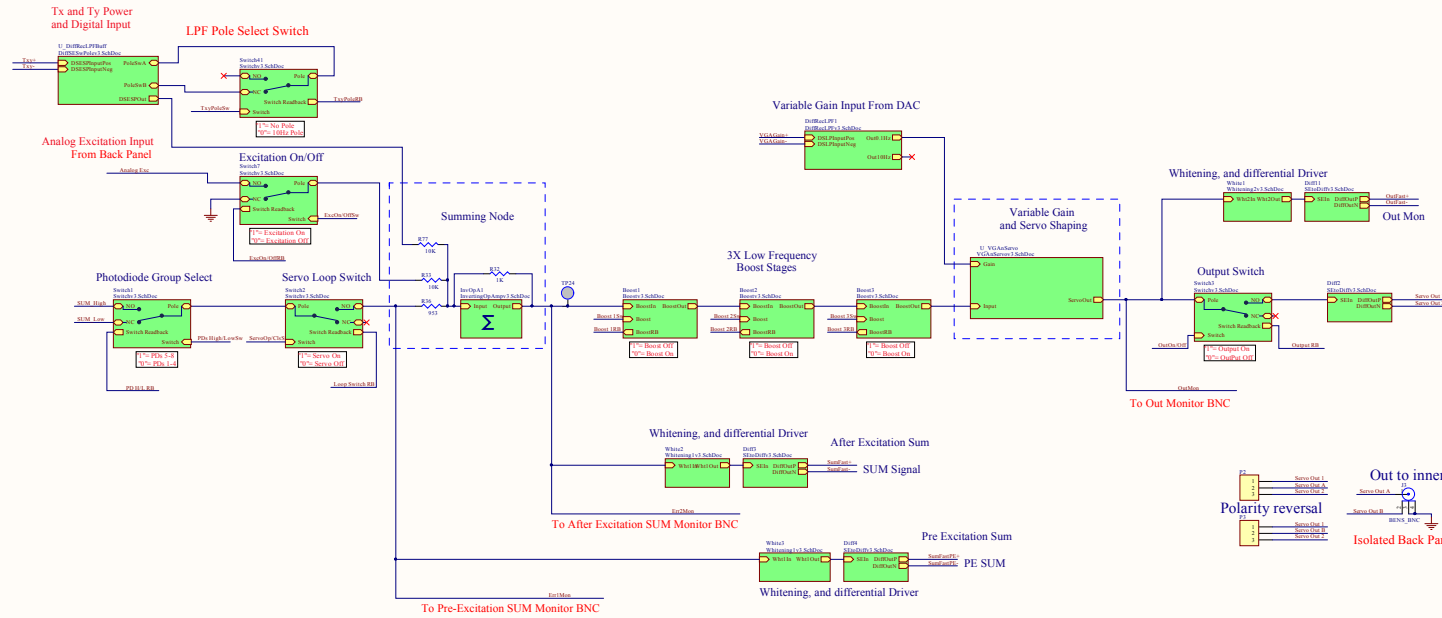
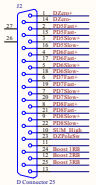
Title <b>Whitening 1</b>			
Size: <b>A</b>	DCC Number: D1600298		<i>Ligo Project</i> California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 11/29/2017	Revision: v2	
File: C:\restored\Ben\ISS Outer Loop Back Board\Outer Loop Back Bd Back Board\230729\RM2 Sheet 10 of 0			



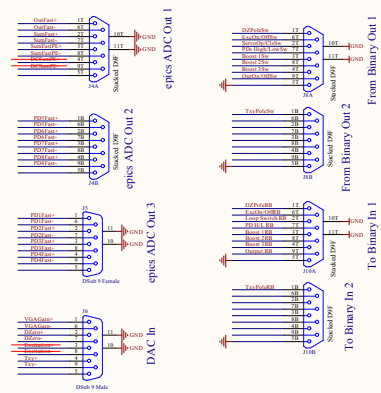
From PDs 1-4  
"Low" Group



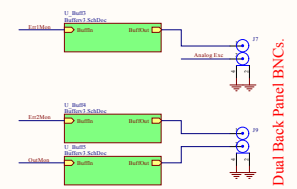
From PDs 5-8  
"High" Group



**EPICS INTERFACES**



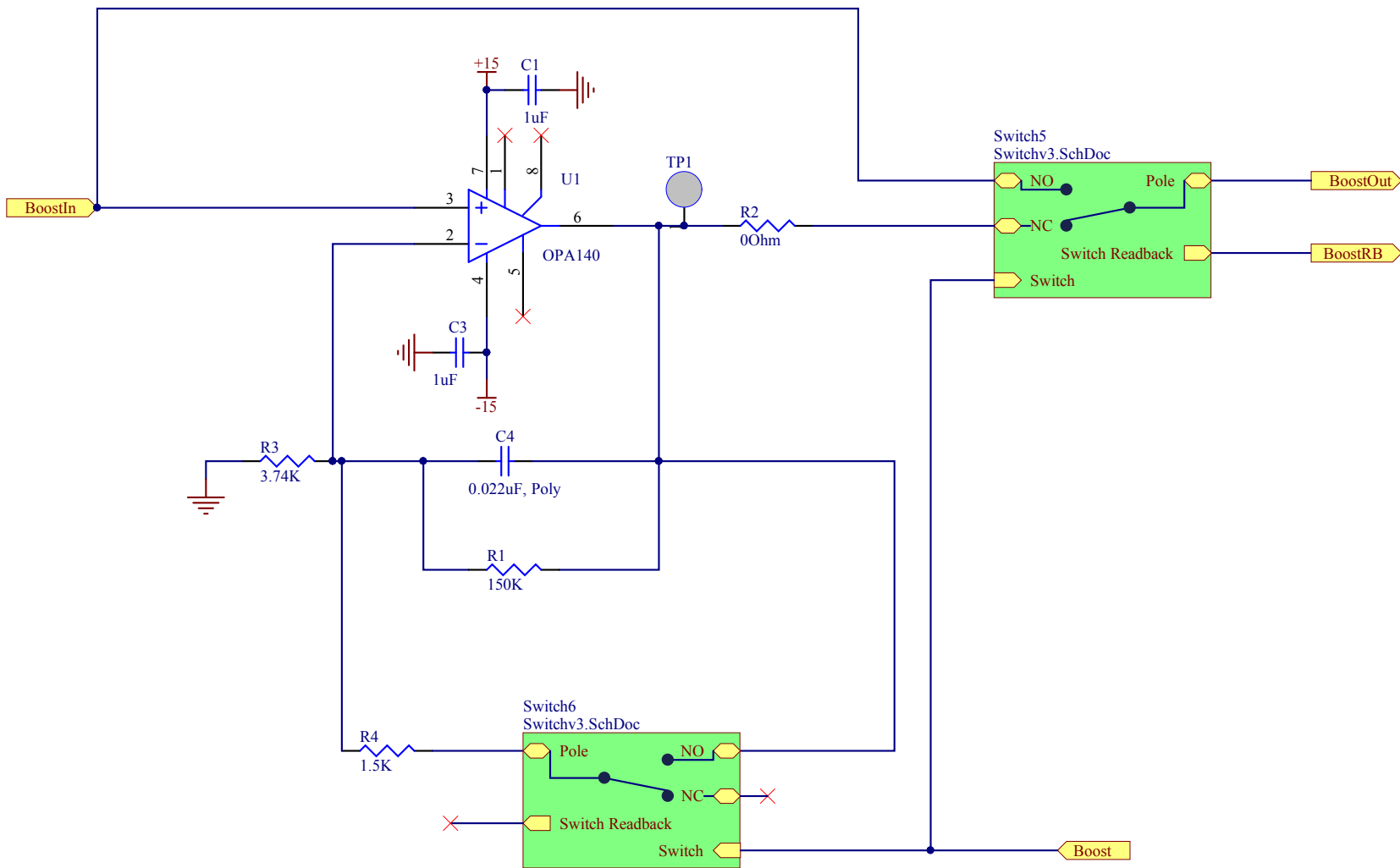
**Analog Monitors and Excitation**



DC Gain = 40



AC Gain = 1



Title **Low Frequency Boost**

Size: **A**

DCC Number: D1600298

Ligo Project  
California Institute of Technology  
Massachusetts Institute of Technology



Drawn by:  
Ben Abbott

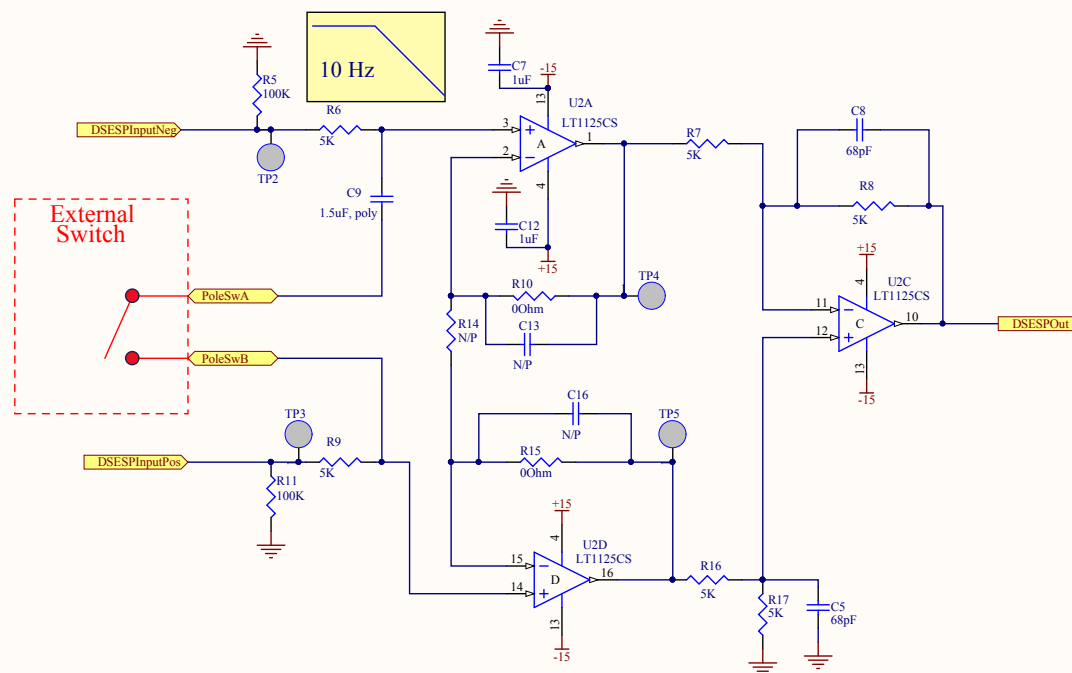
Date: 11/29/2017


Revision: v2

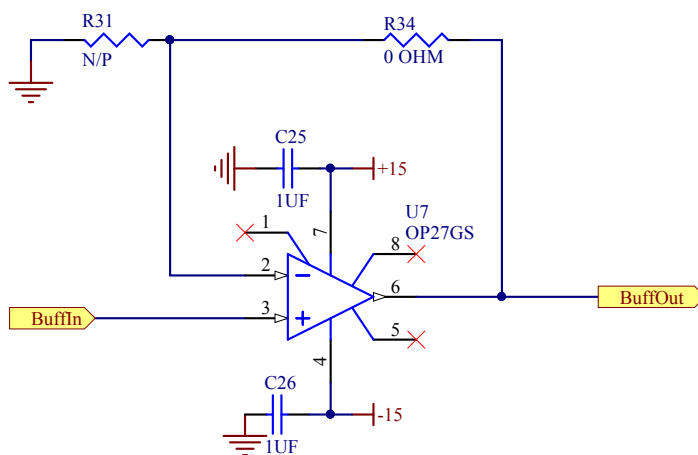
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# Diff-to-SE w/Switchable Pole

Lowpass Filter here for noise reduction

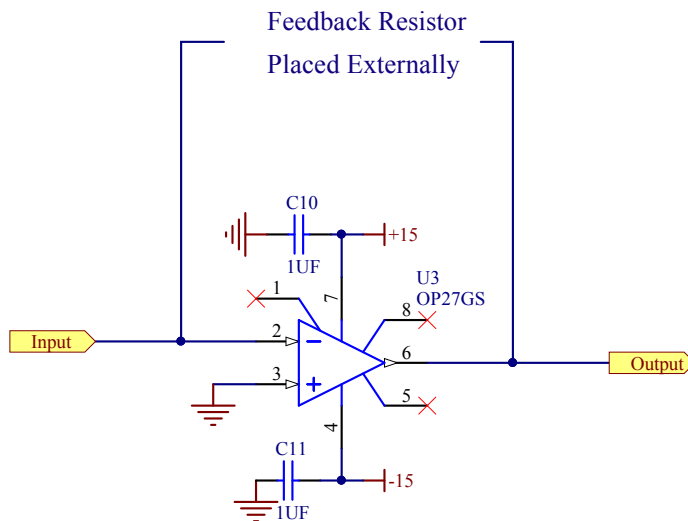


Title <b>Diff. Receiver w/Sw Pole</b>			
Size: <b>B</b>	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology 
Drawn by: <b>Ben Abbott</b>	Date: 11/29/2017	Revision: v2	
File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBd BackBoard\03052018\03052018 PM\Sheet3s.brd			



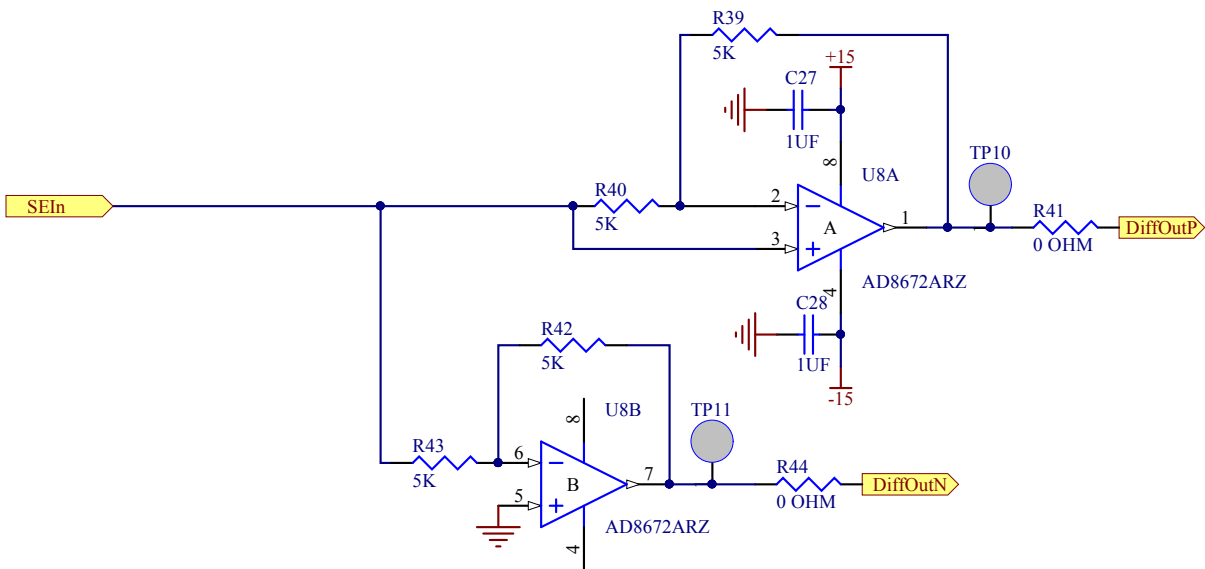
Title <b>Buffer</b>			
Size: <b>A</b>	DCC Number: <b>D1600298</b>		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: <b>Ben Abbott</b>	Date: <b>11/29/2017</b>	Revision: <b>v2</b>	
File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBd\BackBoard\23370-PM-SubSheet 5 of 10			





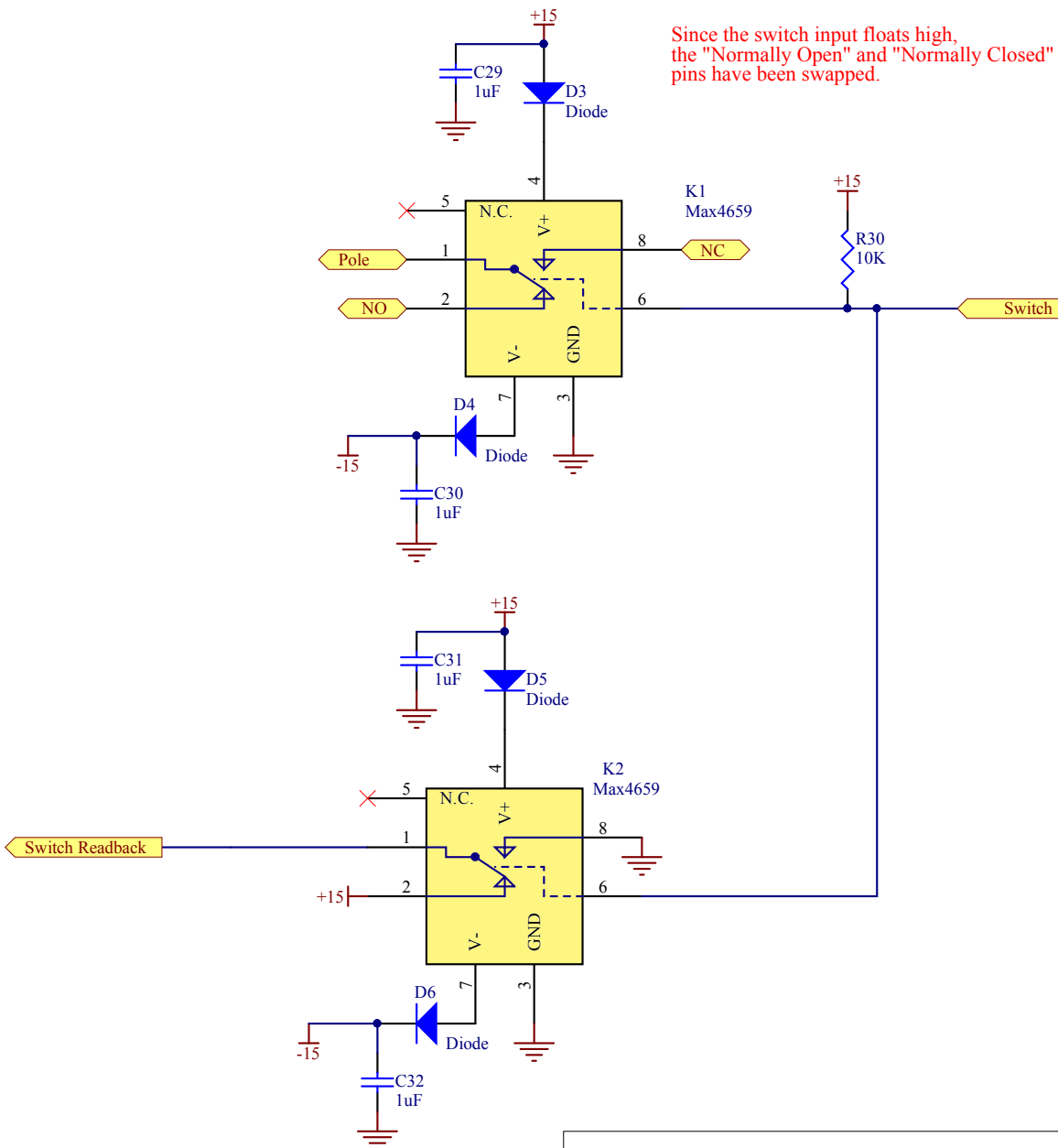
Title <b><i>Inverting OpAmp</i></b>			
Size: <b>A</b>	DCC Number: <b>D1600298</b>		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: <b>Ben Abbott</b>	Date: <b>11/29/2017</b>	Revision: <b>v2</b>	
File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBd\BackBoard\Inverting Op Amp Sheet 33 of 60			





Title <b>Single-Ended to Differential</b>			
Size: <b>A</b>	DCC Number: <b>D1600298</b>		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: <b>Ben Abbott</b>	Date: <b>11/29/2017</b>	Revision: <b>v2</b>	
File: C:\restored\Ben\ISS Outer Loop Back Board\Outer Loop Back Bd Back Board\239E307M1_Sheet6 of 10			

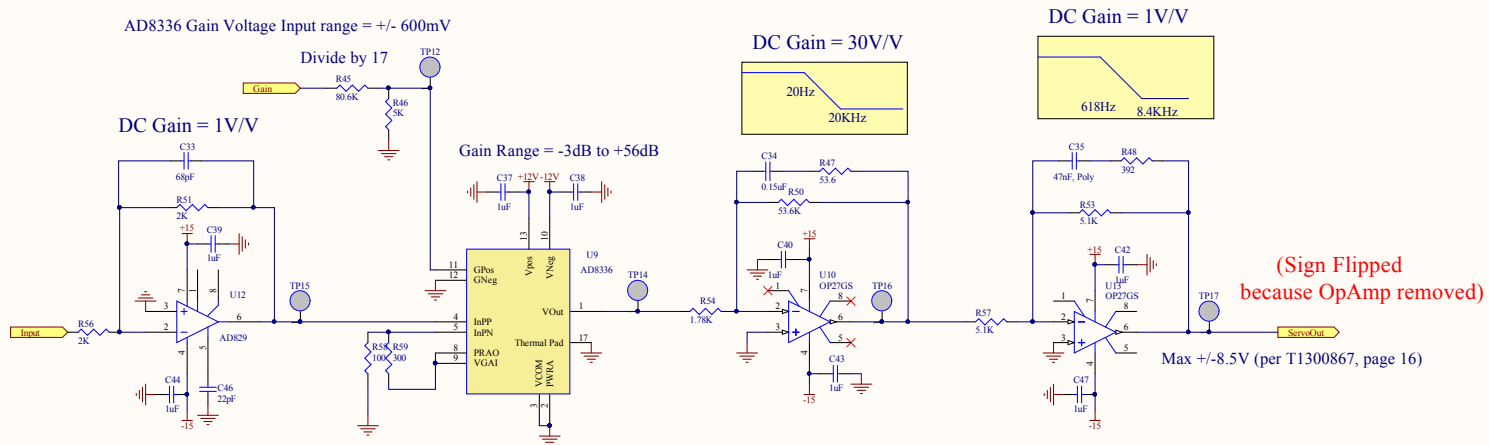




Title <b>Switches</b>			
Size: <b>A</b>	DCC Number: <b>D1600298</b>		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: <b>Ben Abbott</b>	Date: <b>11/29/2017</b>	Revision: <b>v2</b>	
File: C:\restored\Ben\ISS Outer Loop Back Board\OuterLoopBackBd\BackBoard\233430\PM\Sheet 7 of 10			

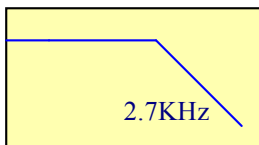




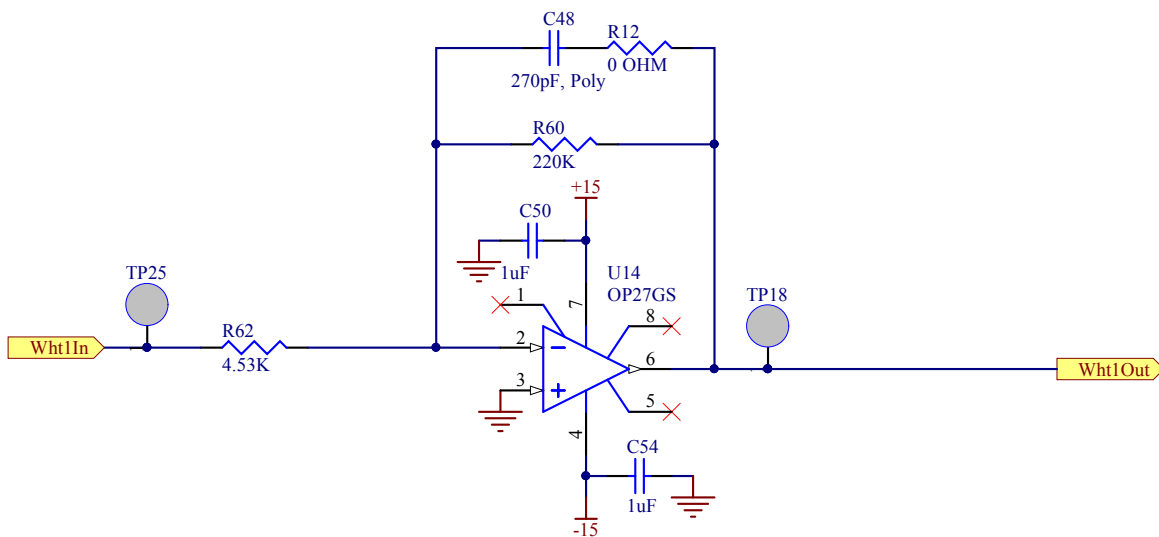



Title <b>Variable Gain and Servo shaping</b>			
Size: C	DCC Number: D1600298	Ligo Project California Institute of Technology Massachusetts Institute of Technology	
Drawn by: Ben Abbott	Date: 11/29/2017	Revision: v2	LIGO
File: C:\restored\Ben\FSS Outer Loop\Back Board\OuterLoopBackBoard_11_29_17_V2_Ben\SubBoard.Dc10			

# Whitening Mod 1



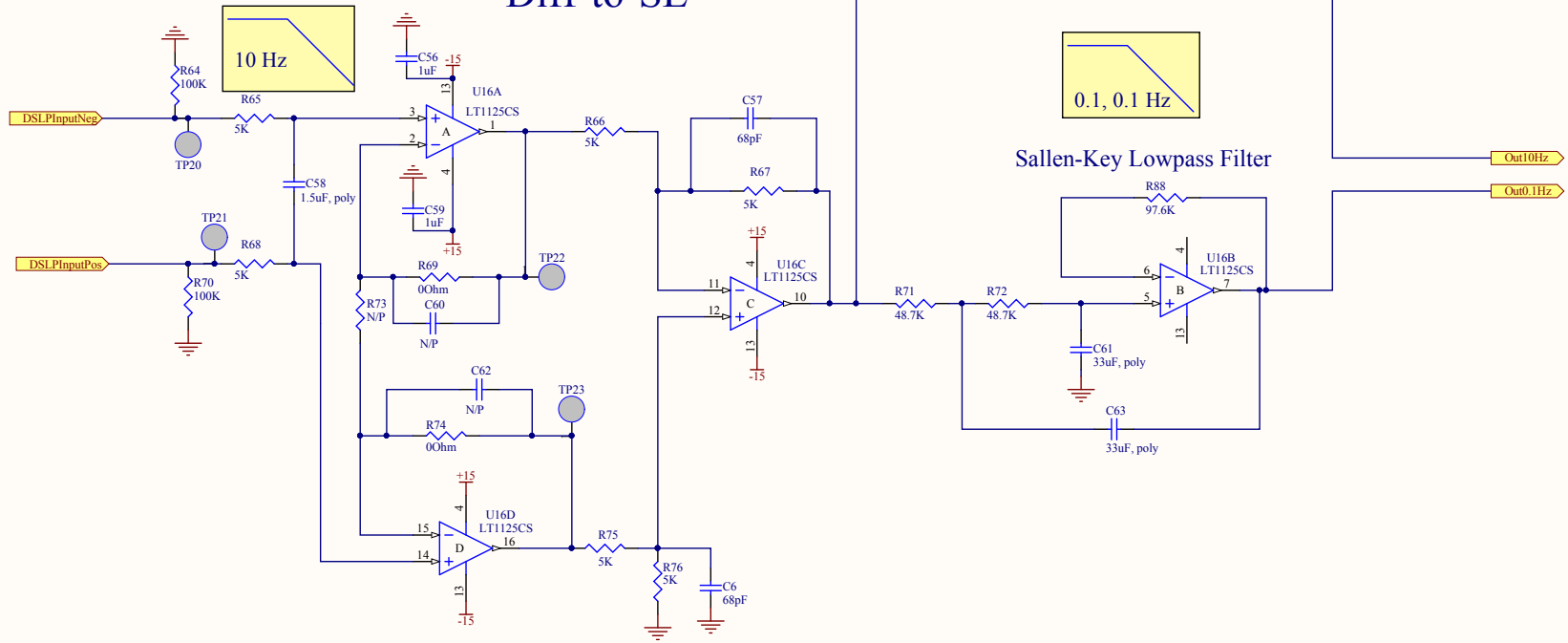
Gain = 50V/V




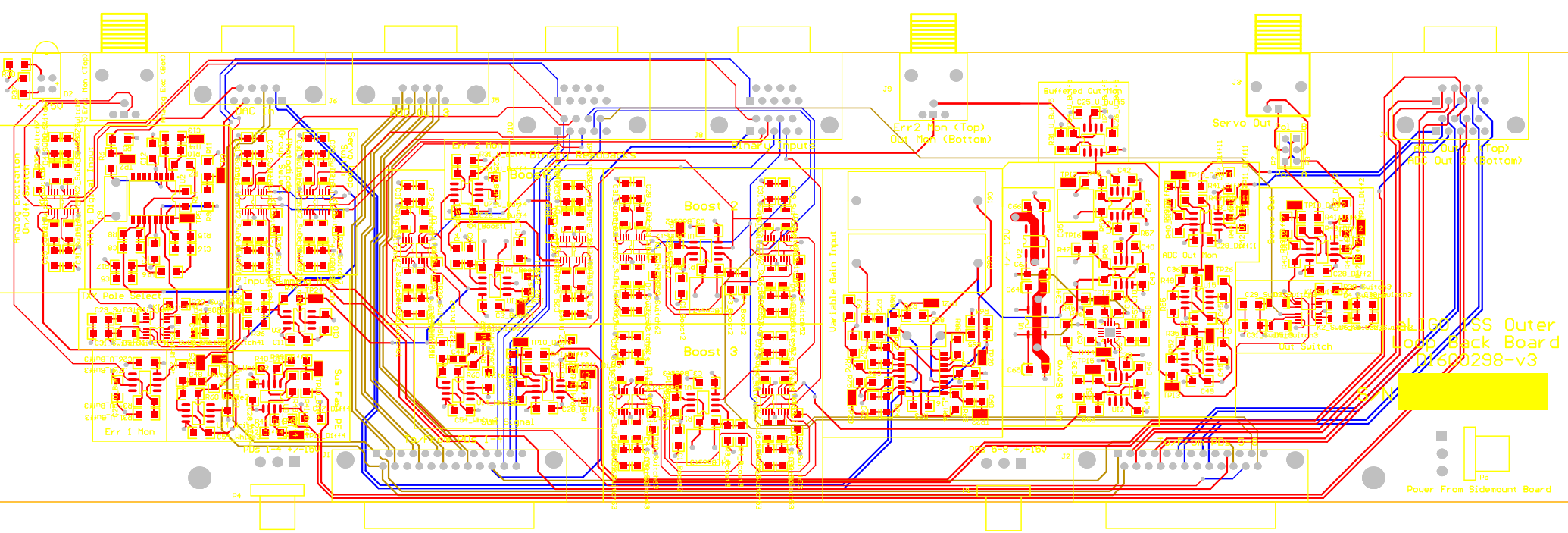
Title <b>Whitening 1</b>			
Size: <b>A</b>	DCC Number: <b>D1600298</b>		
Drawn by: <b>Ben Abbott</b>	Date: <b>11/29/2017</b>	Revision: <b>v2</b>	Ligo Project California Institute of Technology Massachusetts Institute of Technology
File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBd\BackBoard\235790-PM1_Sch09.dwg Sheet 9 of 10			

Lowpass Filter here for noise reduction

Diff-to-SE



Title <b>Diff. Receiver w/LPF</b>		Ligo Project California Institute of Technology Massachusetts Institute of Technology		
Size: B	DCC Number: D1600298	Drawn by: Ben Abbott Date: 11/29/2017 Revision: v2 File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBd BackBoard\03032018\03032018_10		



SLUG-SS Outer Loop Back Board  
DS0298-v3

Power From Sidemount Board