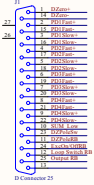
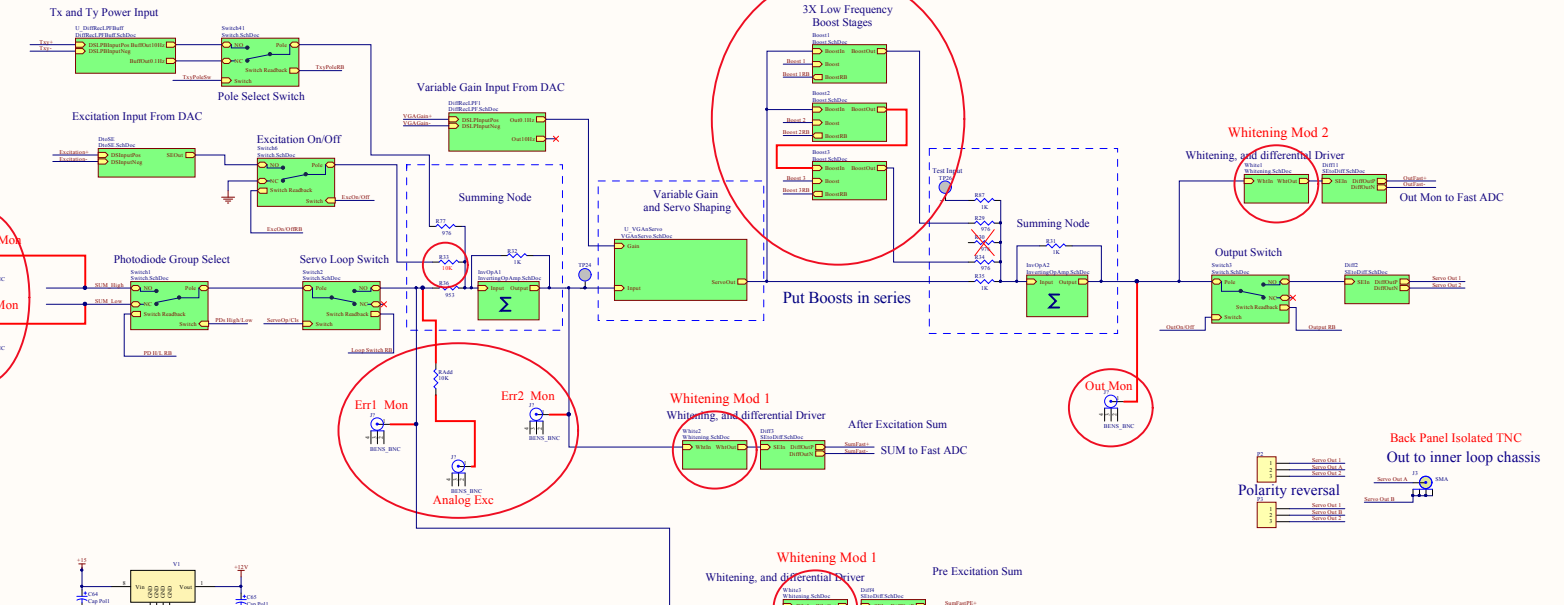
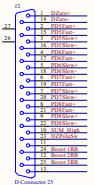


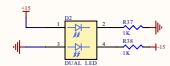
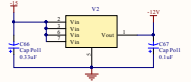
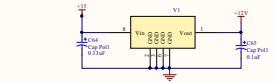
From PDs 1-4
"Low" Group



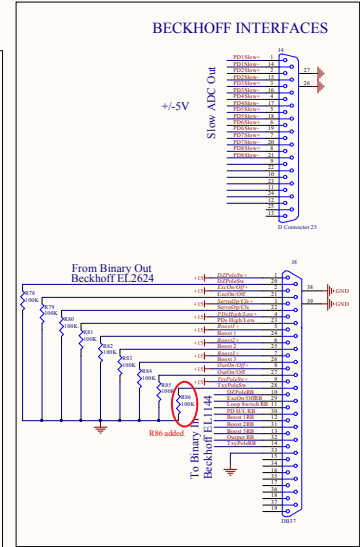
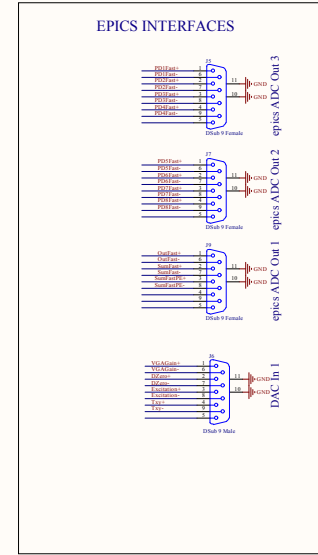
From PDs 5-8
"High" Group



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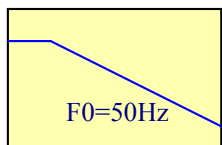
From Side-mounted Power Board



to Corner 6 chassis

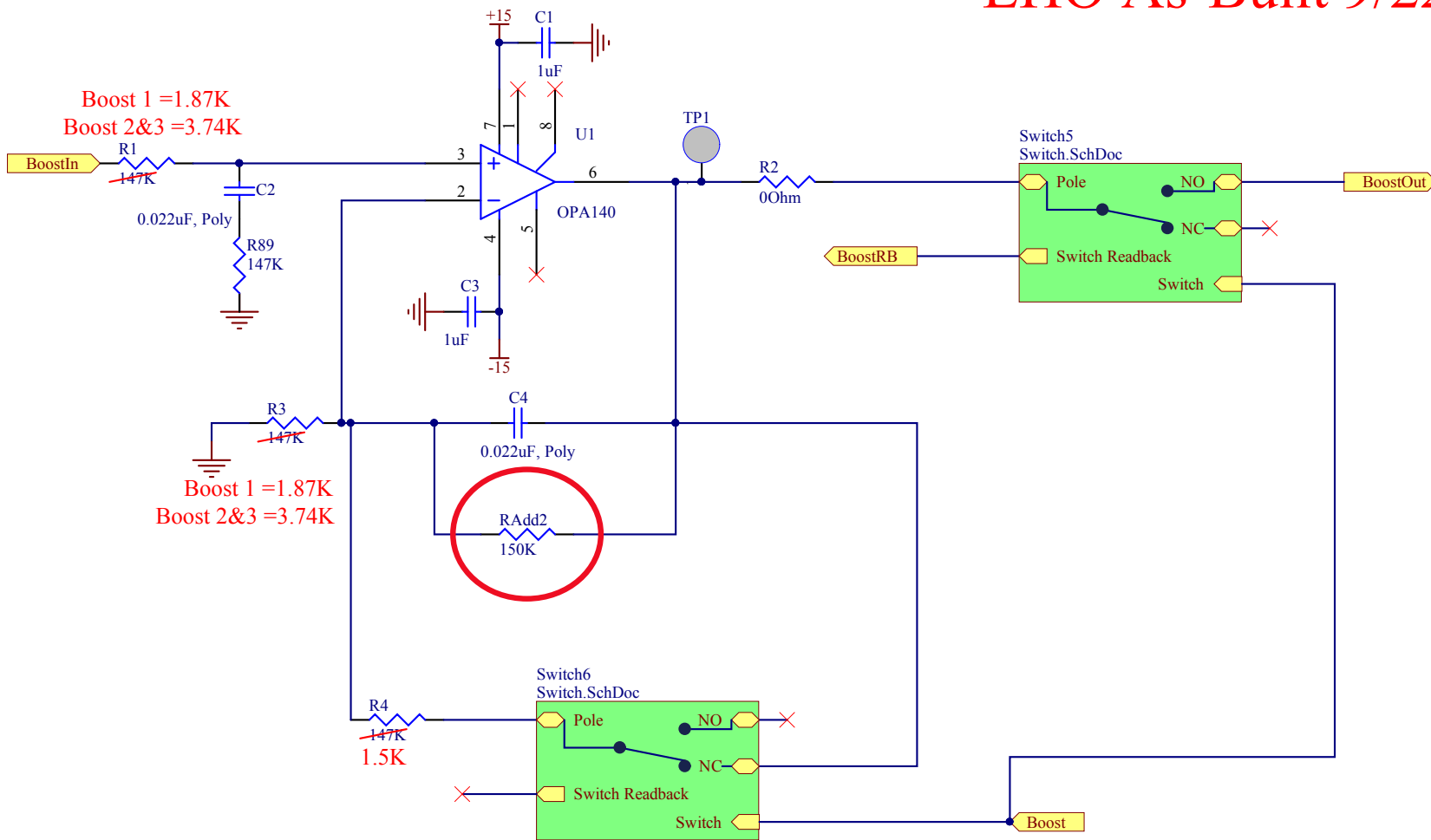
ISS Outer Loop	
Size	D
Doc#	DCDC Number: D1600298
Rev	Rev: 9-22-2016
Rev	Revision: 2





Boost 1 DC Gain=80
Boost 2&3 DC Gain=40

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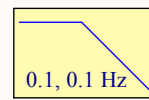
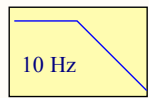


Title Low Frequency Boost			
Size: A	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	
File: C:\restored\Ben\ISS Outer Loop Back Board\Outer Loop Back Bd As Bld\mc21135158-RMch Sheet 2 of 10			

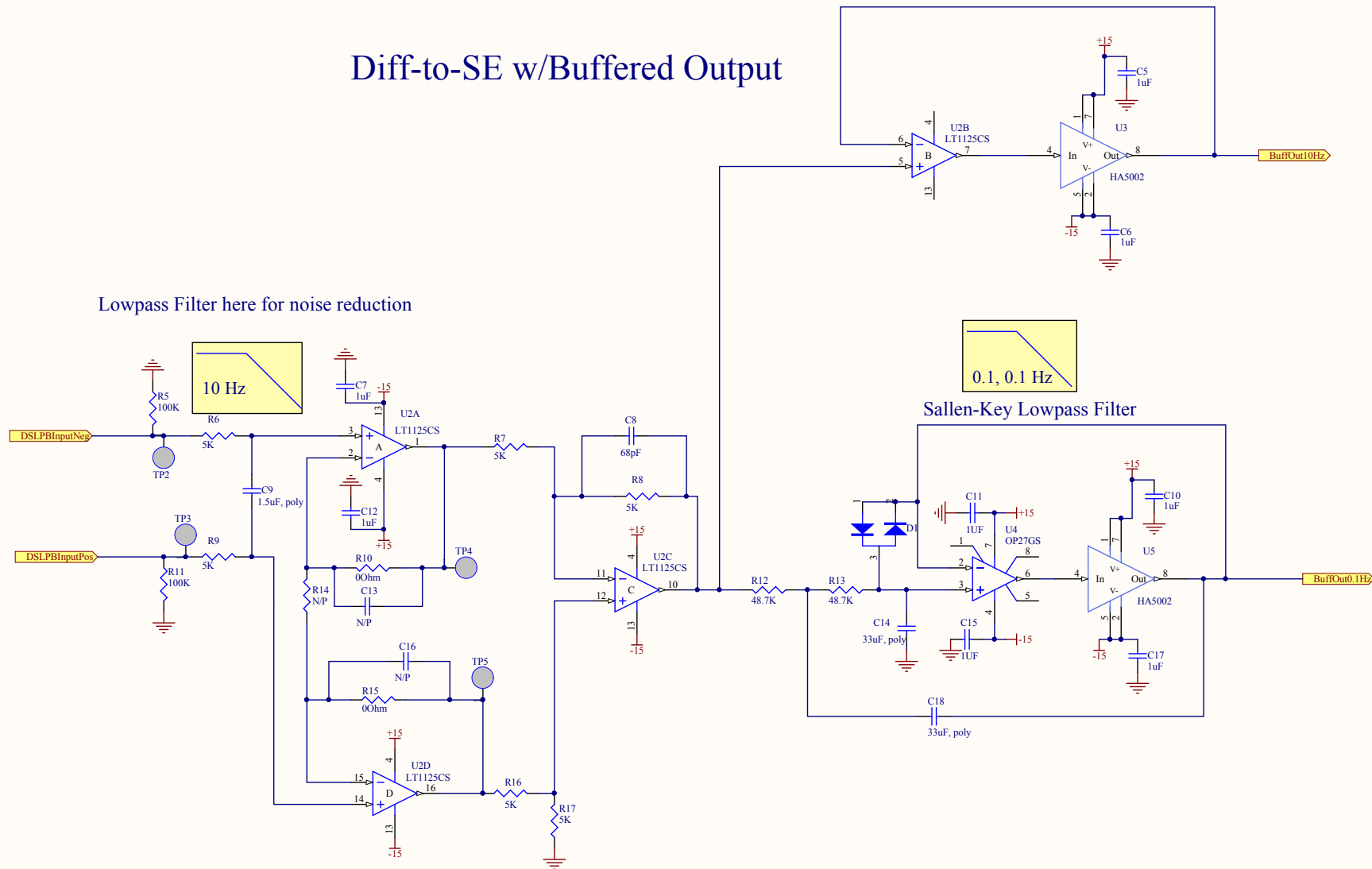


Diff-to-SE w/Buffered Output

Lowpass Filter here for noise reduction

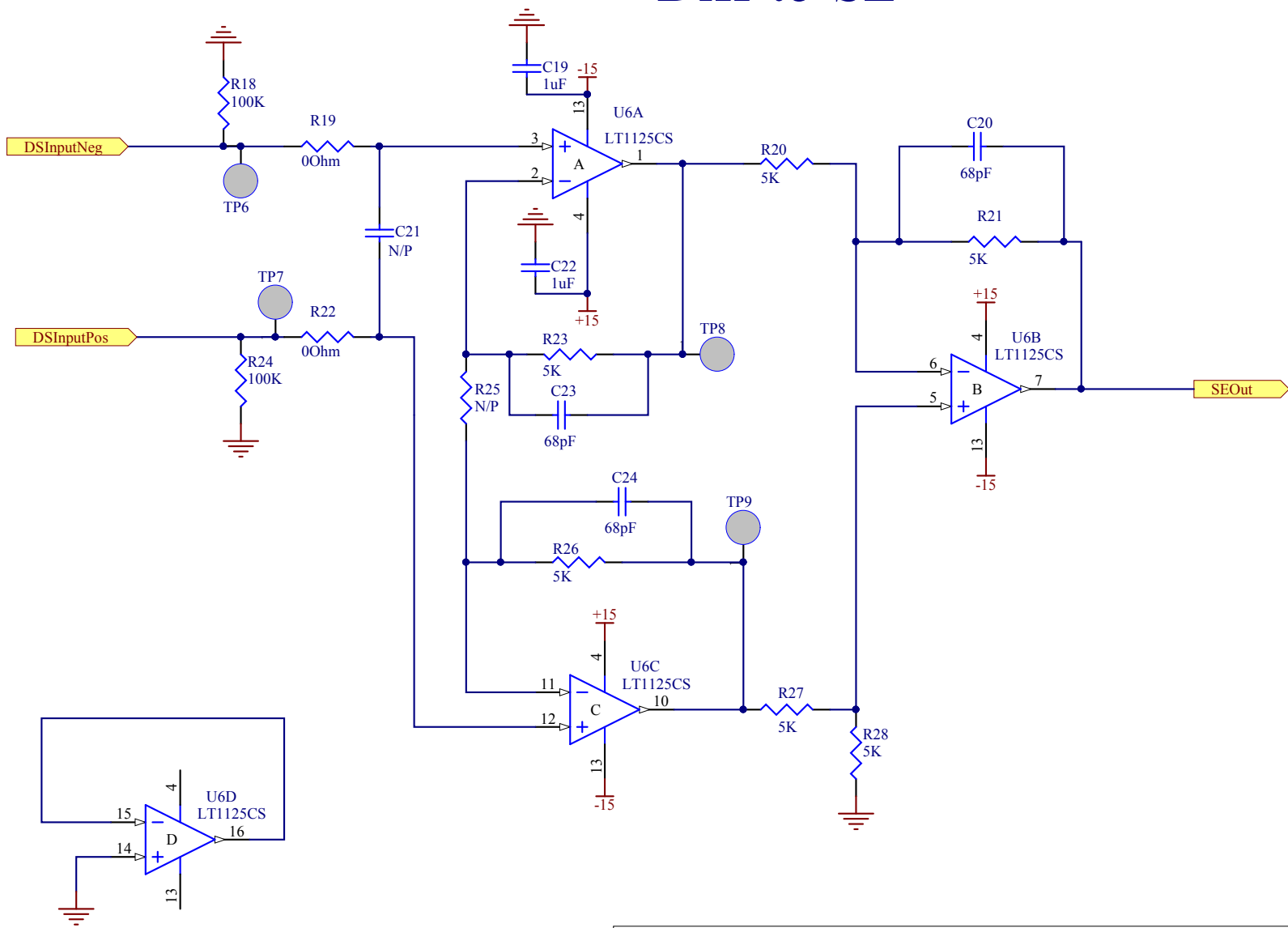



Sallen-Key Lowpass Filter

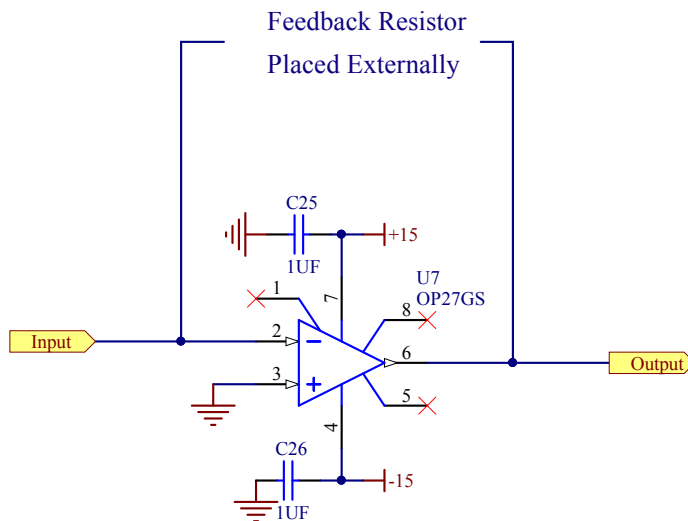


Title Diff. Receiver w/LPF		Ligo Project California Institute of Technology Massachusetts Institute of Technology		
Size: B	DCC Number: D1600298			
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2		
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Diff-to-SE

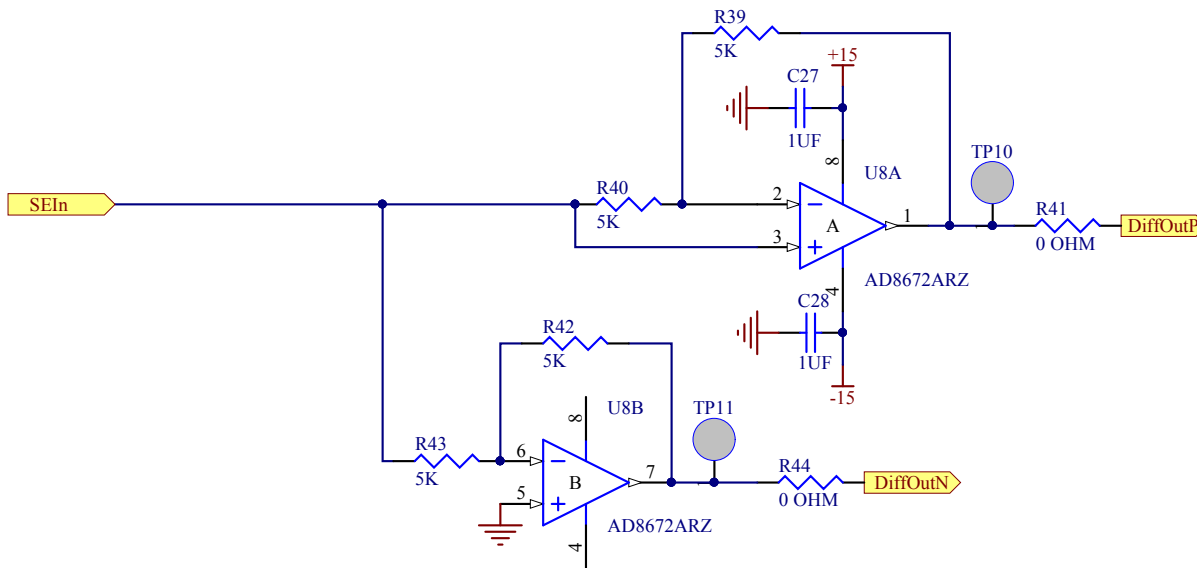


Title Differential to Single-Ended			
Size: A	DCC Number: D1600298		
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	Ligo Project California Institute of Technology Massachusetts Institute of Technology
File: C:\restored\Ben\ISS Outer Loop Back Board\OuterLoopBackBoard\U6C21135158.PMS\Sheet 4 of 10			



Title <i>Inverting OpAmp</i>			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	
File: C:\restored\Ben\ISS Outer Loop\Back Board\OuterLoopBackBdAsBuilt\21136100-PM\G_Sheet_SchDoc0			





Title Single-Ended to Differential			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	
File: C:\restored\Ben\ISS Outer Loop Back Board\OuterLoopBackBdAsBld\me2116500.D11.Schem 6 of 10			



A

A

B

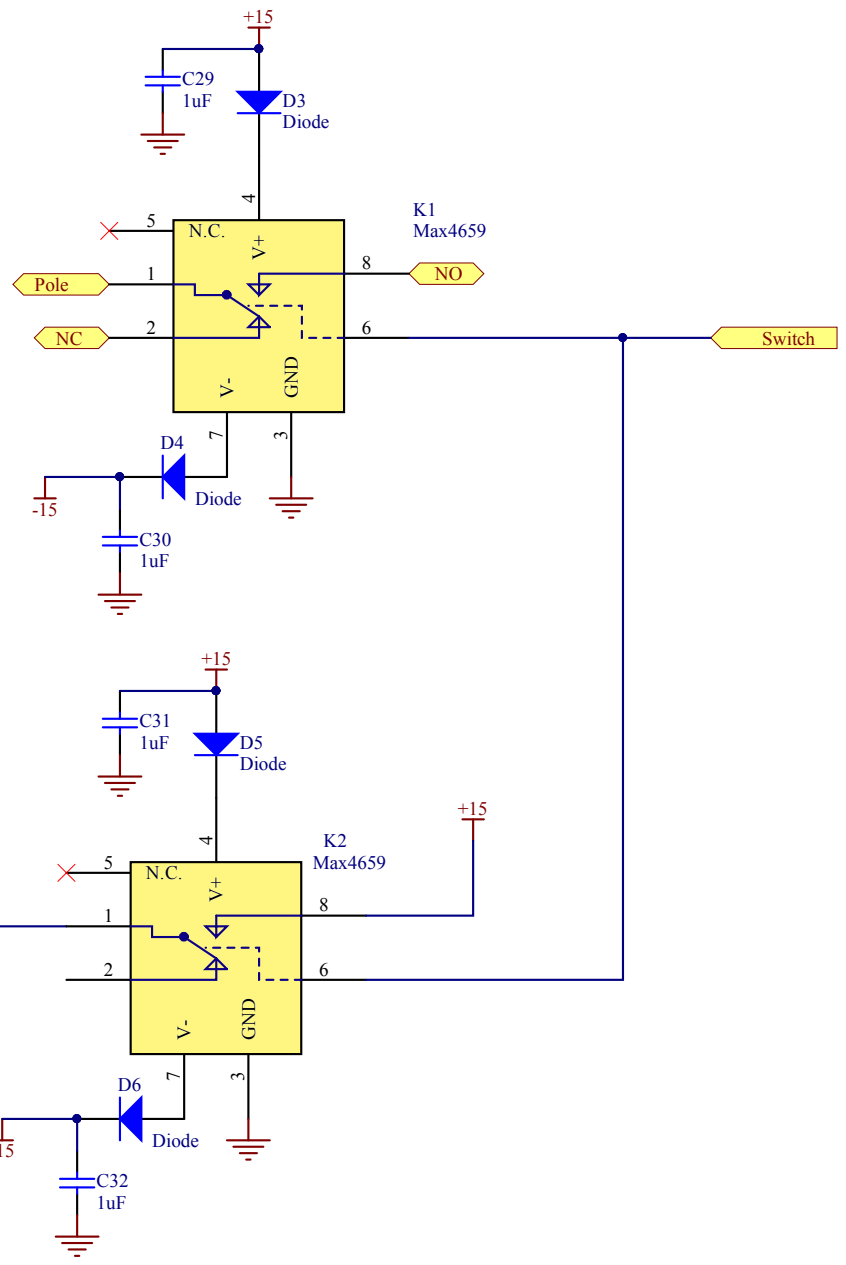
B

C

C

D

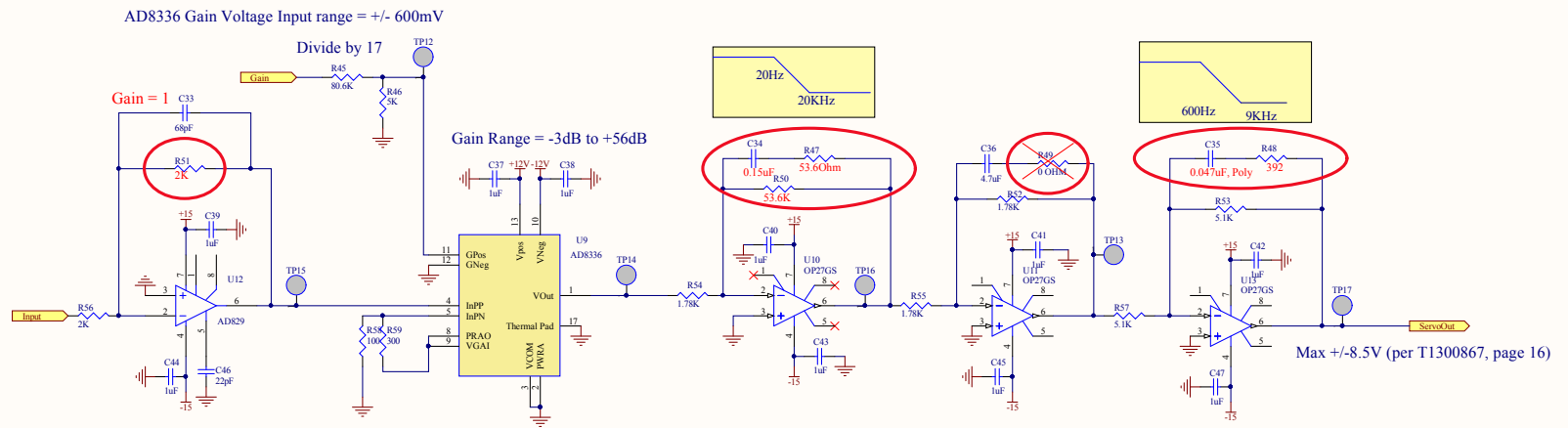
D



Title Switches			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	
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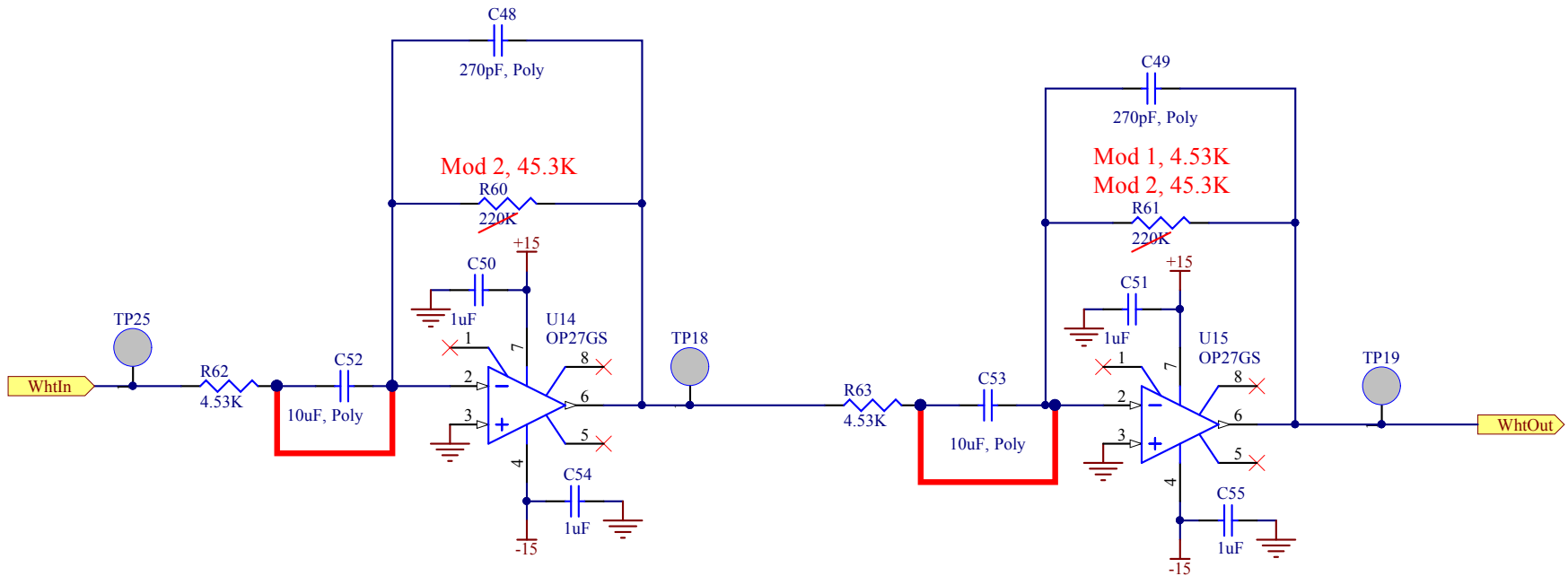


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Title Variable Gain and Servo shaping			
Size: C	DCC Number: D1600298	Ligo Project California Institute of Technology Massachusetts Institute of Technology	
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	LIGO
File: C:\restored\Ben\SS\Outer Loop\Back Board\OuterLoopBackBoardA1\Doc\21_86\UG\4_Short881.doc			

Mod1 Gain = 50V/V, poles at 2.7KHz and 130KHz
 Mod2 Gain = 100V/V, 2 poles at 13KHz

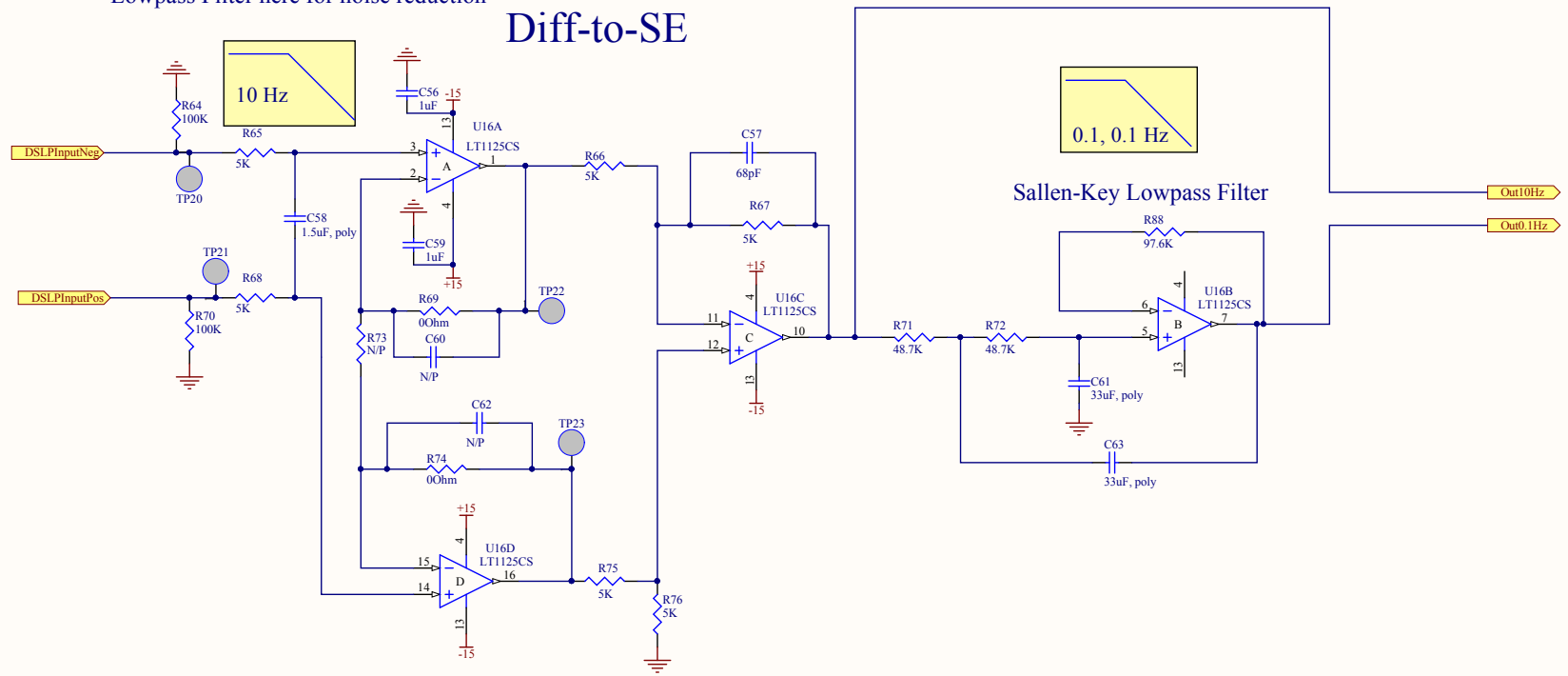



LHO As-Built 9/22/16

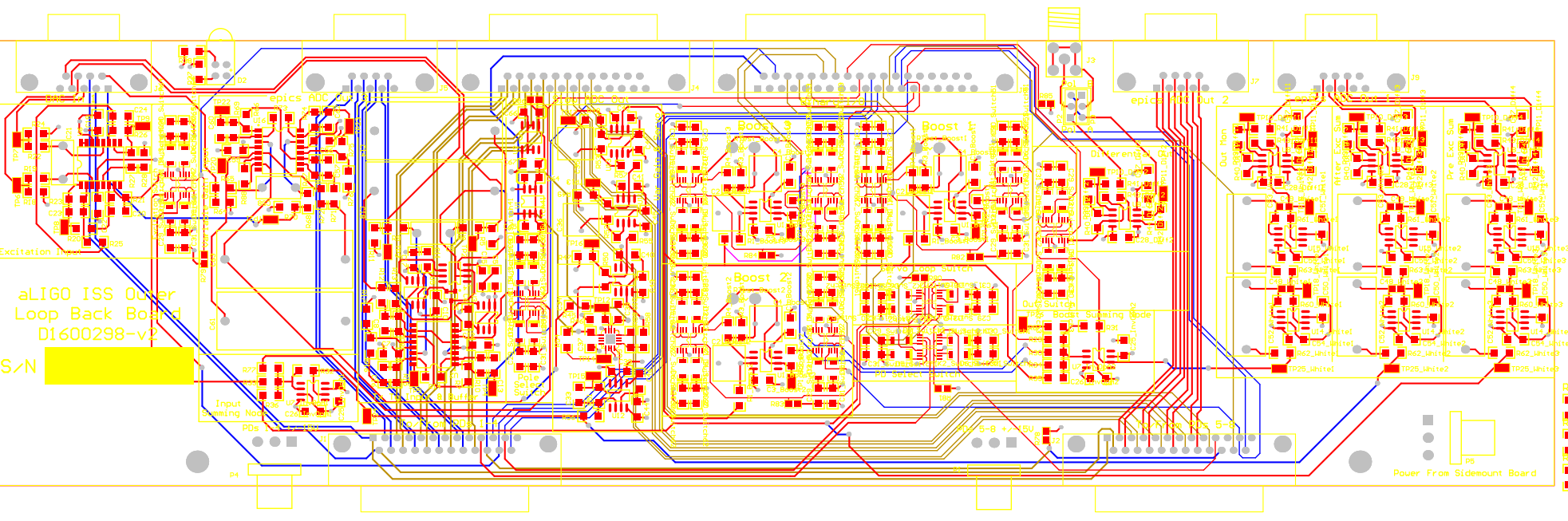
Title Whitening			
Size: A	DCC Number: D1600298		
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	Ligo Project California Institute of Technology Massachusetts Institute of Technology
File: C:\restored\Ben\ISS Outer Loop Back Board\OuterLoopBackBdAsBuilt\92216\Whitening_Sch09 of 10			

Lowpass Filter here for noise reduction

Diff-to-SE



Title Diff. Receiver w/LPF			
Size: B	DCC Number: D1600298	Ligo Project California Institute of Technology Massachusetts Institute of Technology	
Drawn by: Ben Abbott	Date: 9/22/2016	Revision: v2	
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aLIGO ISS Outer Loop Back Board
D1600298-v2

S/N [Redacted]

- R90_0005@boost3
- R90_0005@boost2
- R90_0005@boost1