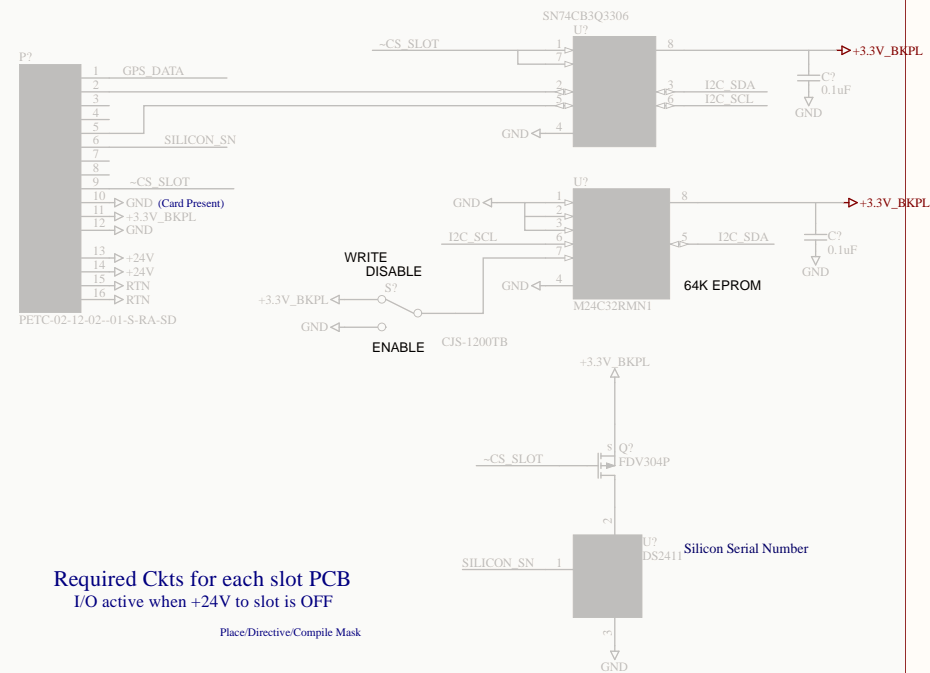
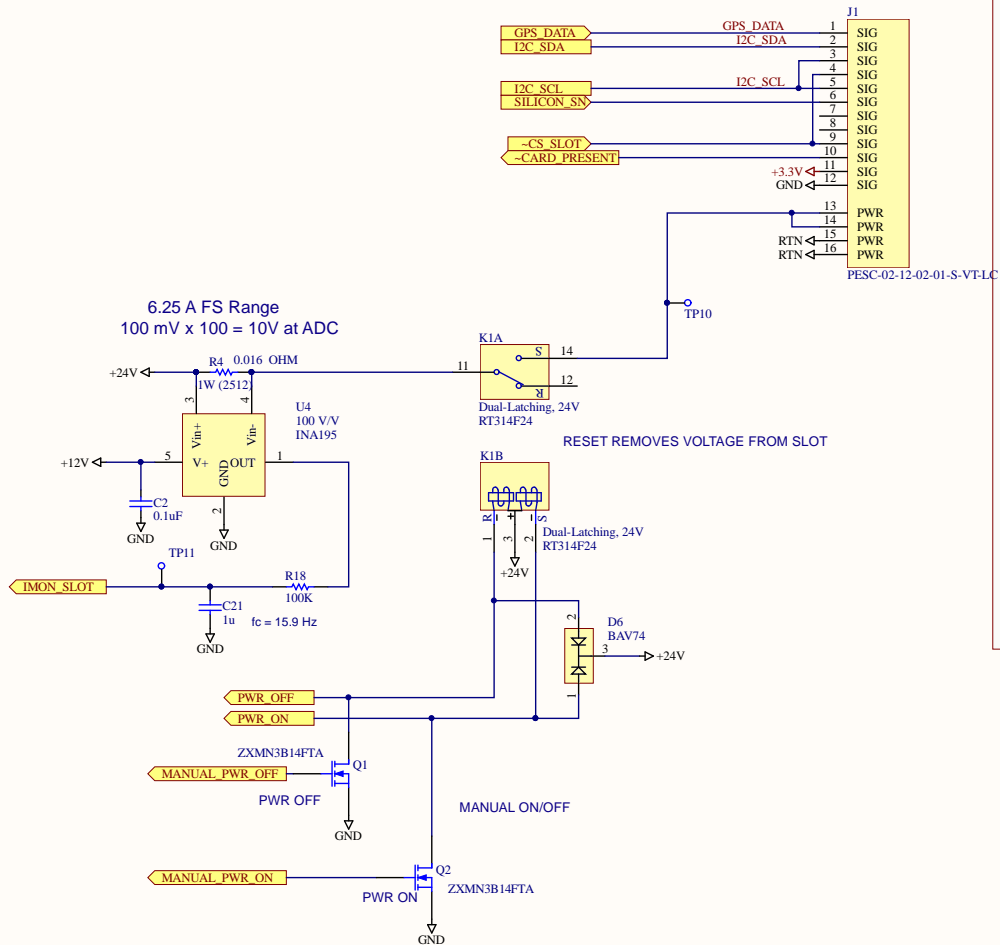
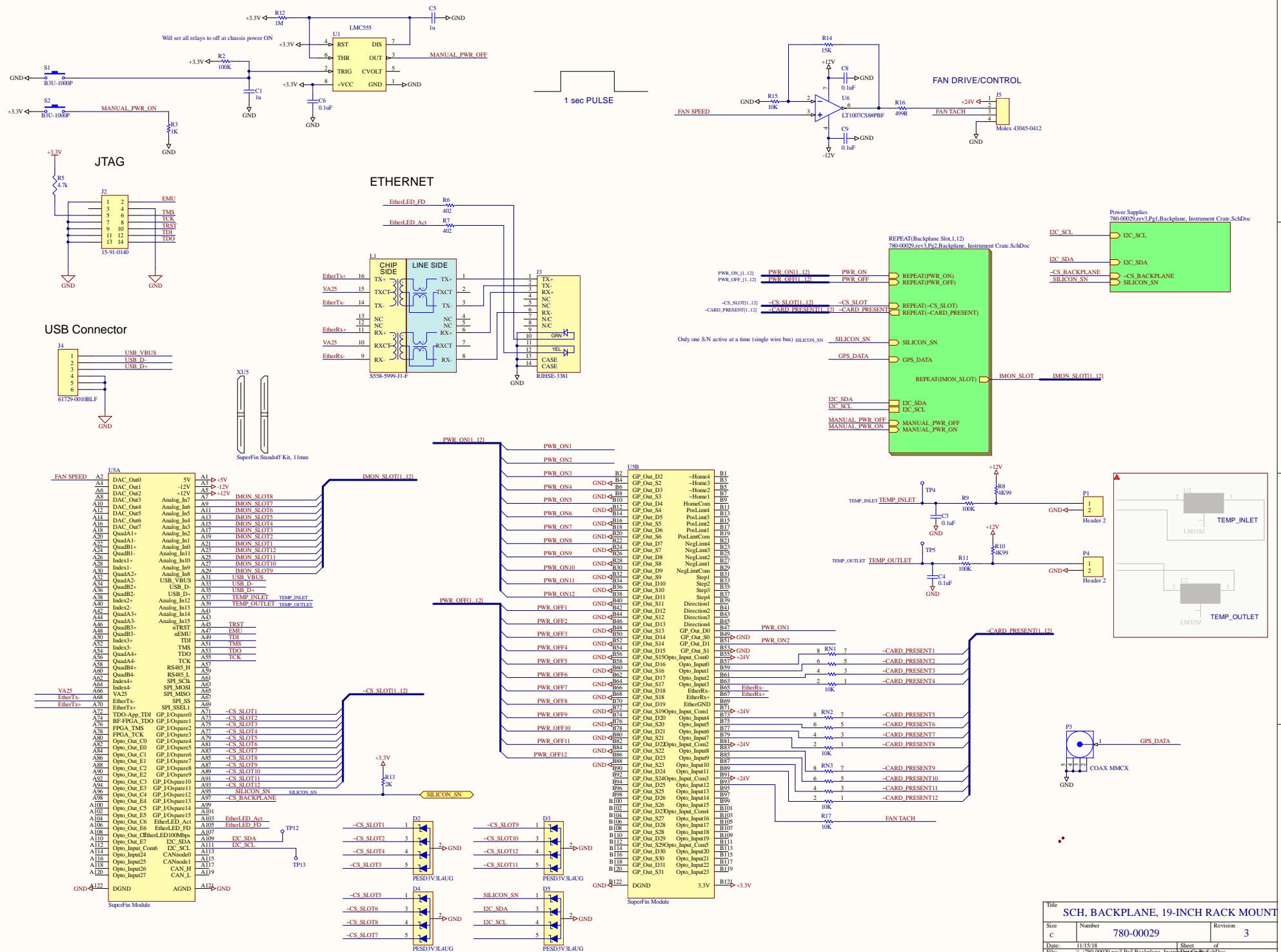
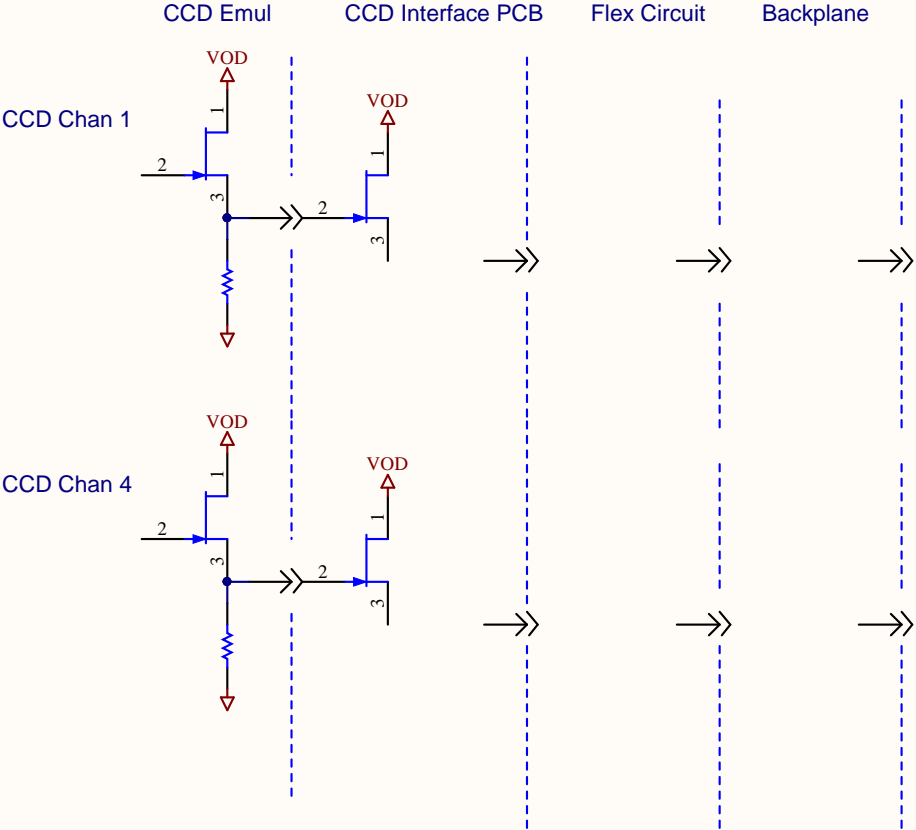


Title		
SCH, BACKPLANE, 19-INCH RACK MOUNT		
Size	Number	Revision
B	780-00029	3
Date:	11/15/18	Sheet 1 of 2
File:	\\1780-00029.rev3.Pg1.Backplane, Instru.Dwg.SchDoc	



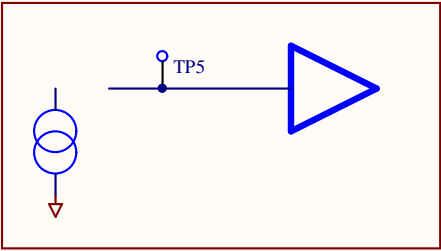
Title		
SCH. BACKPLANE, 19-INCH RACK MOUNT		
Size	Number	Revision
B	780-00029	3
Date:	11/15/18	Sheet 2 of 2
File:	\\1780-00029.rev3.Pg2.Backplane, Instru.Dwg.SchDoc	



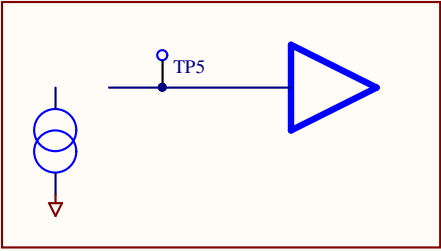


ASP PCB

ASP Chan 2



ASP Chan 4



Title		
Size A	Number	Revision
Date: 11/15/18	Sheet of	
File: \\.\Signal path CCD to ASP.SchDoc	Drawn By:	

NOTES (UNLESS OTHERWISE SPECIFIED):

GENERAL

- 1) PCB IS X-LAYER, .062" THICK.  
2) CONSTRUCTION IS SOLDER-MASK-OVER-BARE-COPPER (SMOBC).  
3) ACCEPTABILITY SHALL BE BASED ON IPC-A-600, CLASS 2.  
4) THE FOLLOWING GERBER RS274X PHOTO TOOL FILES SHALL BE USED TO DEFINE ALL CIRCUIT FEATURES:

\*GTL - TOP LAYER GERBER DATA  
\*G1 - MID LAYER 1 GERBER DATA

\*GP1 - INTERNAL PLANE LAYER 1 GERBER DATA  
\*GP2 - INTERNAL PLANE LAYER 2 GERBER DATA  
\*GP3 - INTERNAL PLANE LAYER 3 GERBER DATA  
\*GP4 - INTERNAL PLANE LAYER 4 GERBER DATA  
\*GP5 - INTERNAL PLANE LAYER 5 GERBER DATA  
\*GBL - BOTTOM LAYER GERBER DATA  
\*GTO - TOP OVERLAY GERBER DATA  
\*GTS - TOP SOLDER MASK GERBER DATA  
\*GTP - TOP-SIDE SOLDER PASTE MASK  
\*GBO - BOTTOM OVERLAY GERBER DATA  
\*GBS - BOTTOM SOLDER MASK GERBER DATA  
\*GBP - BOTTOM-SIDE SOLDER PASTE MASK

- 5) THE PHOTO TOOL SHALL NOT BE COMPENSATED WITHOUT PRIOR ENGINEERING APPROVAL.  
PCB DESIGNER: RICH LOBELL PH (805) 880-1621 FAX (805) 961-1792.

FABRICATION TOLERANCES

- 6) END PRODUCT CONDUCTOR WIDTHS AND PAD DIAMETERS SHALL NOT VARY MORE THAN 0.002" FROM THE 1:1 DIMENSIONS OF THE MASTER ARTWORK.  
7) THE CONDUCTIVE PATTERN SHALL BE POSITIONED SO THAT THE LOCATION OF ANY PAD OR LAND SHALL BE WITHIN 0.005" DIAMETER TO THE TRUE POSITION OF THE HOLE IT CIRCUMSCRIBES.  
8) ALL DRILL HOLE SIZES AND TOLERANCES APPLY AFTER PLATING.  
9) THE MINIMUM ANNUAL RING SHALL BE 0.005".  
10) BOW AND TWIST SHALL NOT EXCEED 0.010" PER INCH.  
11) FOR PCB ROUTING DIMENSIONS: .XXX = +/-0.005" .XX = +/-0.020"

MATERIAL

- 12) BASE MATERIAL IS FR4 EPOXY FIBERGLASS  
13) SEE STACK-UP LEGEND FOR COPPER CLADDING CALL OUTS

PLATING

- 14) ALL HOLES AND CONDUCTIVE SURFACES SHALL BE PLATED WITH A MINIMUM OF 0.001" COPPER.  
15) AFTER SOLDERMASK, ALL EXPOSED HOLES AND CONDUCTIVE SURFACES SHALL BE COATED WITH A GOLD IMMERSION PLATING TO PRESERVE SOLDERABILITY.  
15.1) COPPER THEIVING ON LAYERS AS NEEDED

COATINGS

- 16) THE SOLDERMASK SHALL BE BLACK LIQUID PHOTO-IMAGEABLE PER IPC-SM-840, TYPE-B, CLASS 2.  
17) THE SOLDERMASK REGISTRATION ALLOWANCE IS 0.003". THERE SHALL BE NO SOLDERMASK ON ANY SOLDER PAD OR LAND.

MARKING

- 18) THE LEGEND SHALL BE SCREEN-PRINTED USING PERMANENT YELLOW EPOXY INK.  
19) THE SCREEN PRINTING REGISTRATION ALLOWANCE IS 0.007". THERE SHALL BE NO INK ON ANY SOLDER PAD OR LAND.  
20) THE VENDOR CODE AND UL FLAMMABILITY RATING MAY BE ETCHED IN THE FOL OR MARKED IN PERMANENT EPOXY INK (VENDOR'S OPTION).

ELECTRICAL TESTING

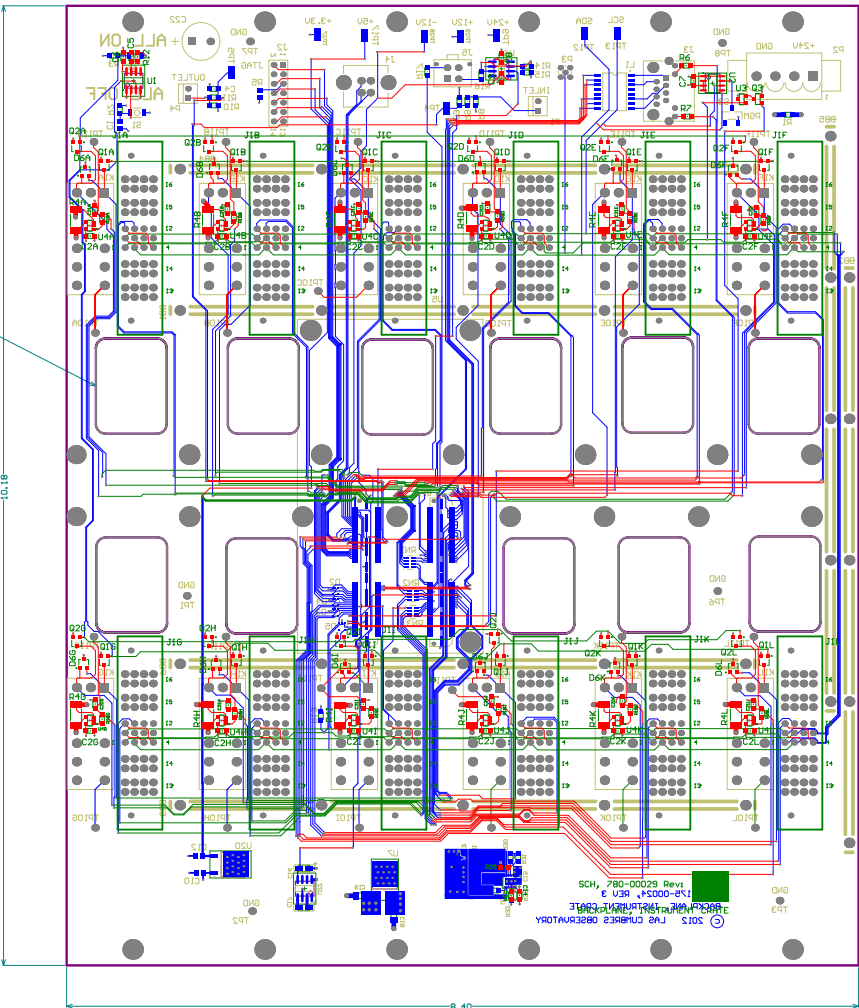
- 21) ALL BOARDS SHALL BE ELECTRICALLY TESTED TO THE SUPPLIED IPC-D-356A NET LIST FOR CONTINUITY, OPENS AND SHORTS.

Layer Stack Up Detail for: 175-00024\_rev3, Backplane, Instrument Crate,PcbDoc

Layer Name	COPPER THICKNESS
Top Layer (*,GTL)	1/2 oz, 1 oz Finished
Mid-Layer 1 (*,G1)	1/2 oz
+3.3V (*,GP1)	1/2 oz
+24V (*,GP2)	2 oz
RTN (*,GP3)	2 oz
+12V (*,GP4)	1/2 oz
Signal GND (*,GP5)	1/2 oz
Bottom Layer (*,GBL)	1/2 oz, 1 oz Finished

NOTE: 2 OZ COPPER FOR CERTAIN LAYERS

**PRIMARY PCB SPECIFICATIONS**  
(REFER TO COMPLETE SPEC LISTING AT LEFT FOR FURTHER DETAILS)  
NUMBER OF LAYERS - 8  
FINISHED THICKNESS - .062"  
BASE MATERIAL - FR4  
PLATING TYPE - GOLD IMMERSION  
SOLDER MASK COLOR - BLACK



175-00024 REV 3  
LAS CUMBRES OBSERVATORY 4/5/2012  
\*GTO - MID LAYER 1 GERBER DATA