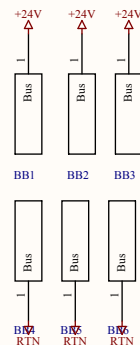
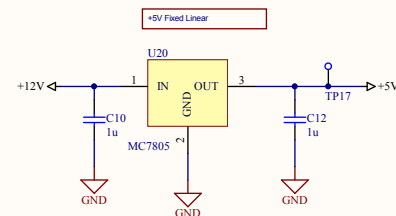
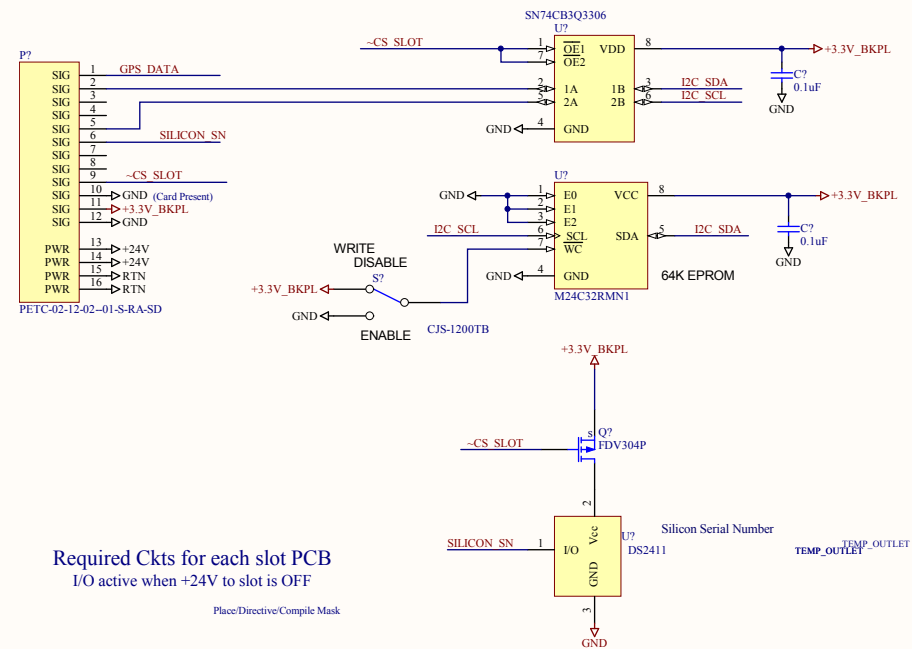


Note on +/- 12V supplies:
Since +12V is driving -12V, the maximum balanced current is 50 mA



Title		
SCH, BACKPLANE, 19-INCH RACK MOUNT		
Size	Number	Revision
B	780-00029	1
Date:	7/6/2011	Sheet 1 of 2
File:	\\.\780-00029.rev1.Pg1 Backplane, Instrument Drive Sch Doc	



A

B

C

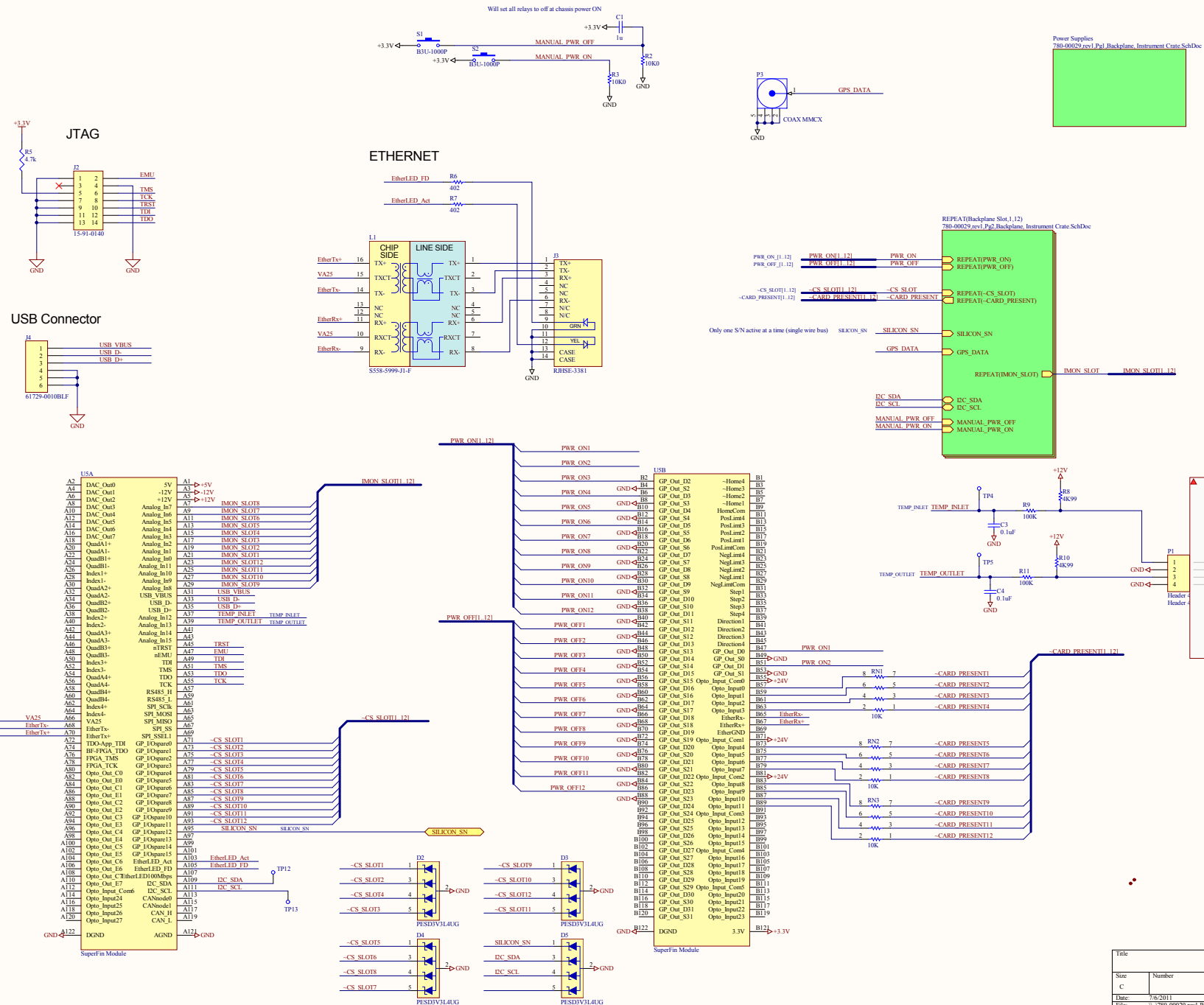
D

A

B

C

D



Title			
Size	Number	Revision	
C	1	1	
Date	1/6/2011	Sheet	46
File	780-00029 rev1 Pci Backplane, Instrument Crate SchDoc		

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 R5274X 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 1X 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 ANNULAR RING SHALL BE 0.005".
- 10) BOW AND TWIST SHALL NOT EXCEED 0.010" PER INCH.
- 11) FOR PCB ROUTING DIMENSIONS: .XXX = +/- .005" .XX = +/- .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.

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 (VENDORS OPTION).

ELECTRICAL TESTING

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

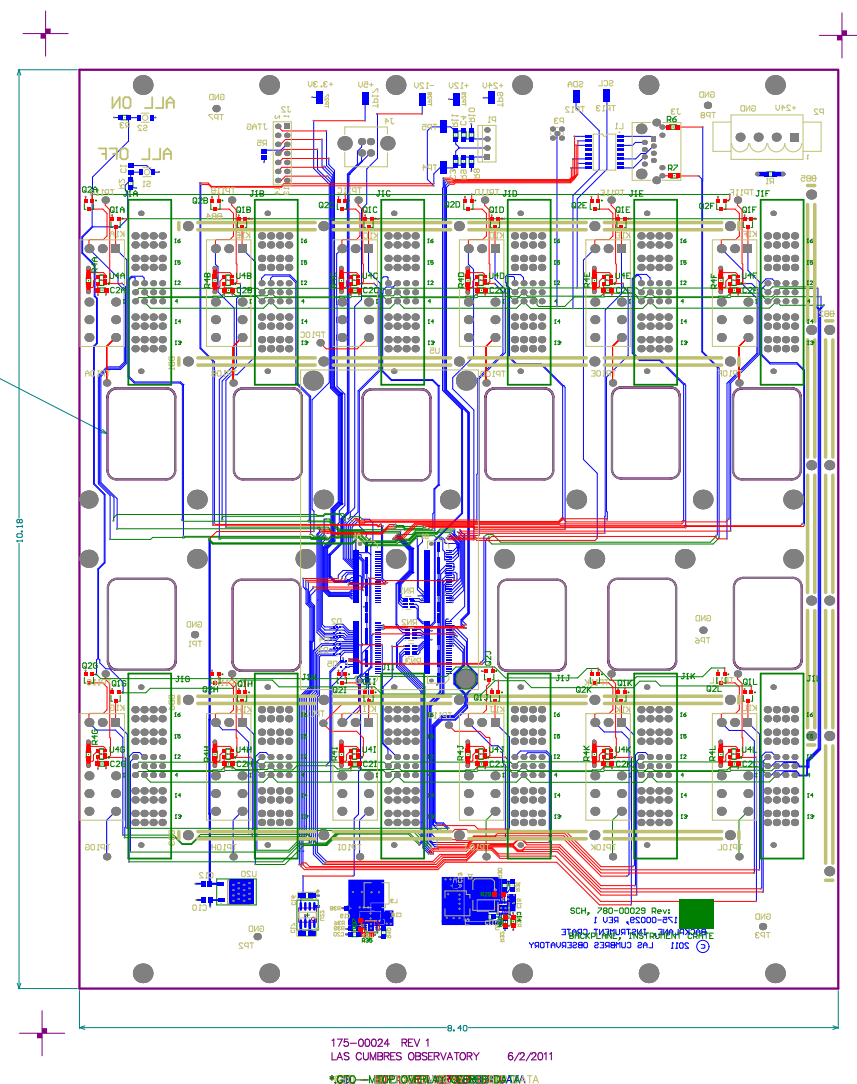
Layer Stack Up Detail for: 175-00024_rev1, Backplane, Instrument Crate.PcbDoc

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

THIS DRAWING EMBODIES A PROPRIETARY DESIGN OWNED BY LAS CUMBERES OBSERVATORY. IT IS SUBMITTED FOR A SPECIFIC PURPOSE UNDER A CONFIDENTIAL RELATIONSHIP, AND EXCEPT FOR PURPOSES EXPRESSLY GRANTED IN WRITING, ALL RIGHTS ARE RESERVED BY LAS CUMBERES OBSERVATORY.



Las Cumbres Observatory Global Telescope Network		Las Cumbres Observatory, Inc. 6740 Cortona Dr. Goleta, CA 93117 www.lcog.net	
DATE 6/2/2011	DESIGNED BY Rich Lobell	DRAWN BY Rich Lobell	SCALE 1 : 1
PROJECT NAME 175-00024, BACKPLANE, INSTRUMENT CRATE			
REV C	REV 1	REV 1	REV X