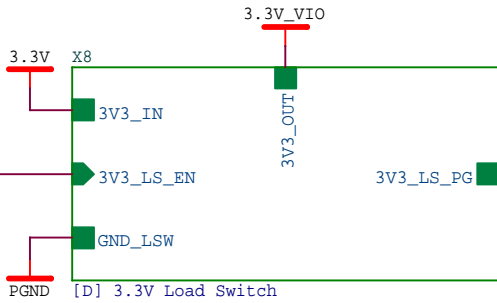
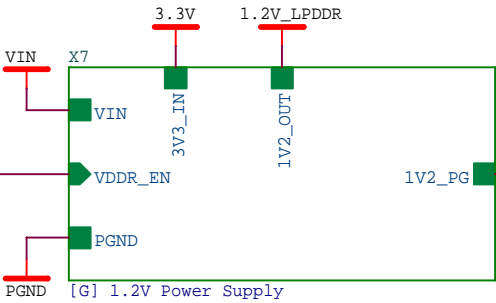
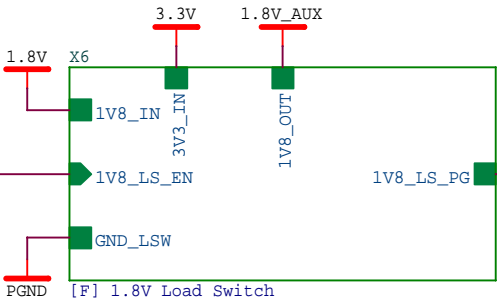
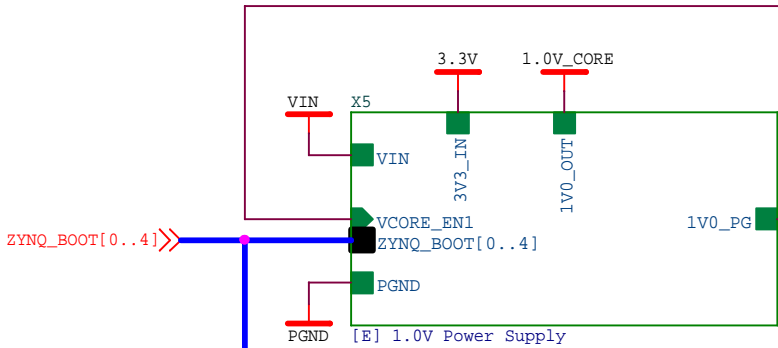
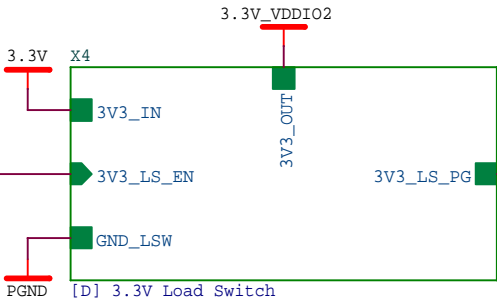
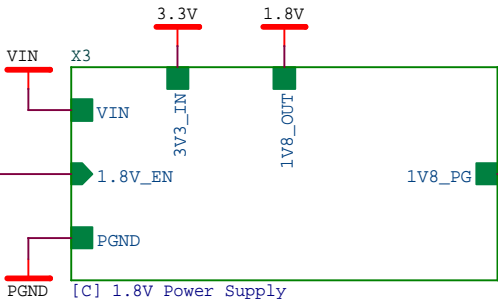
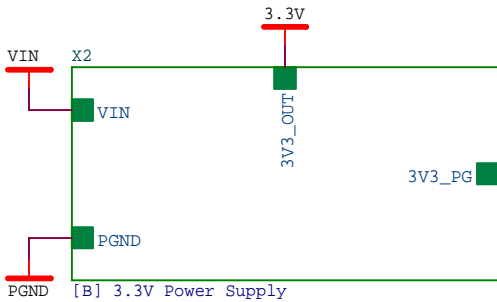
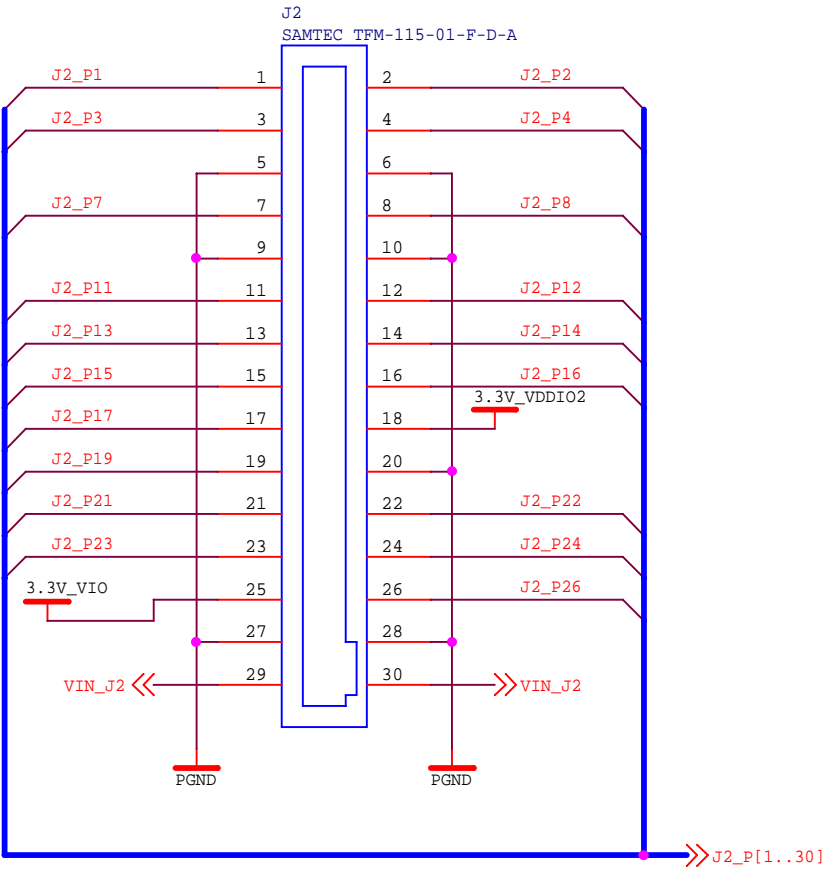
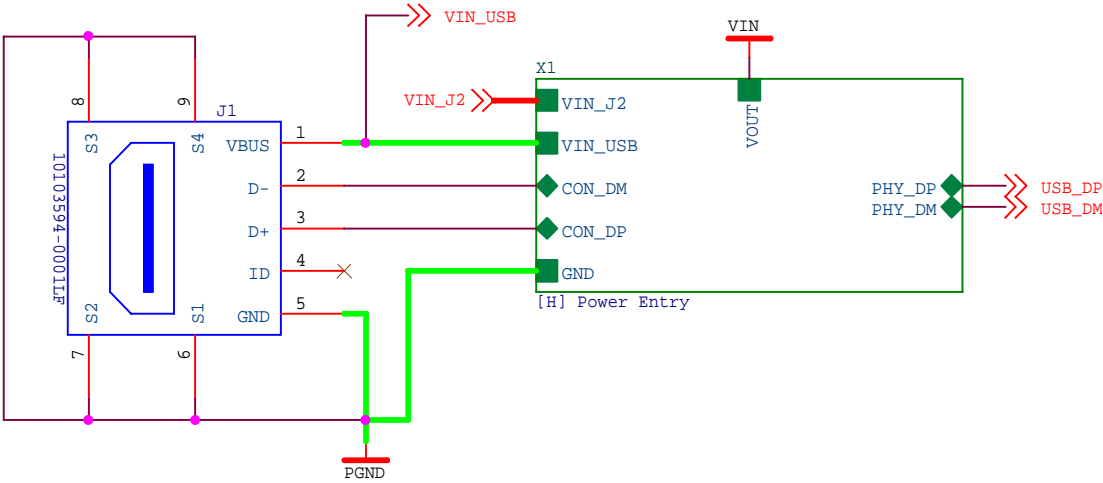


Rev.	Description	CO Number	Date	Approved By	Checked By
2	Alpha Prototype	00001	09/01/2015	JJW	BEH

Power/JTAG/SWD/BT Audio/I2C/DAC/ADC



Minimum Trace Ratings	
6000mA	Orange
4000mA	Red
2000mA	Green
1000mA	Purple
200mA	Pink

Minimum Plane Ratings	
+VIN	4000mA
+3.3V	4000mA
+1.8V	2000mA
+3.3V_VDDIO2	4000mA
+1.0V_CORE	6000mA
+1.8V_AUX	2000mA
+1.2V_LPDDR	2000mA
+3.3V_VIO	4000mA



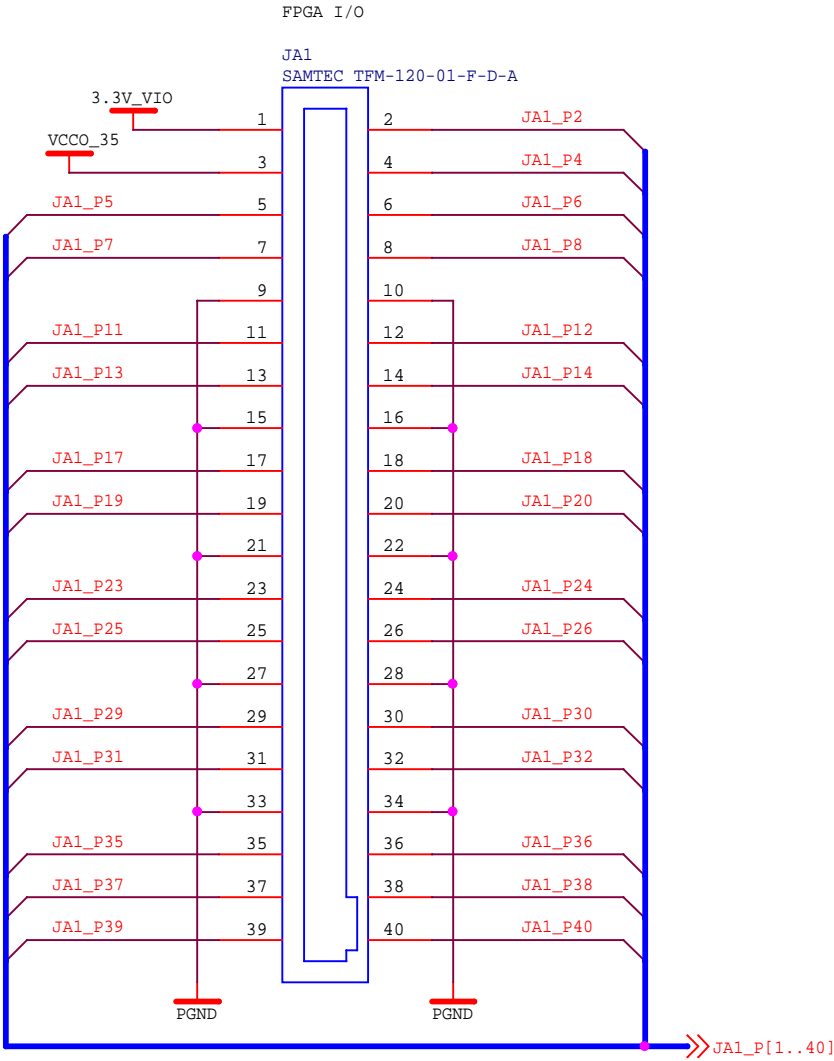
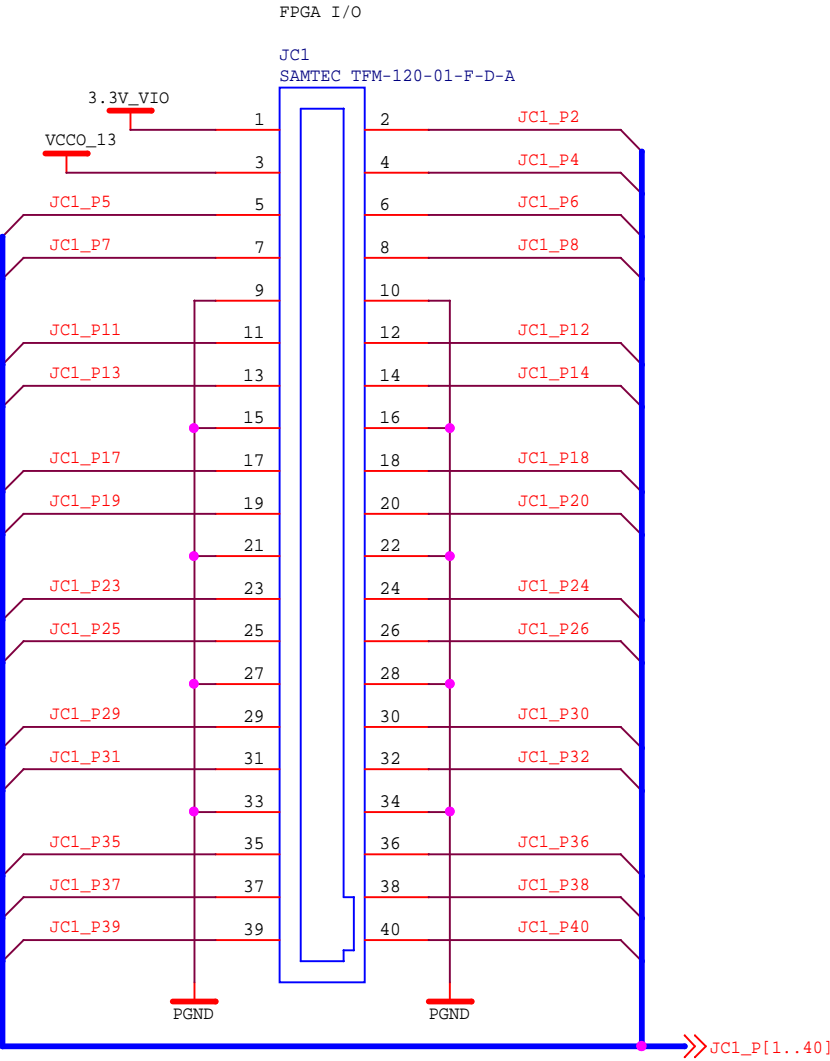
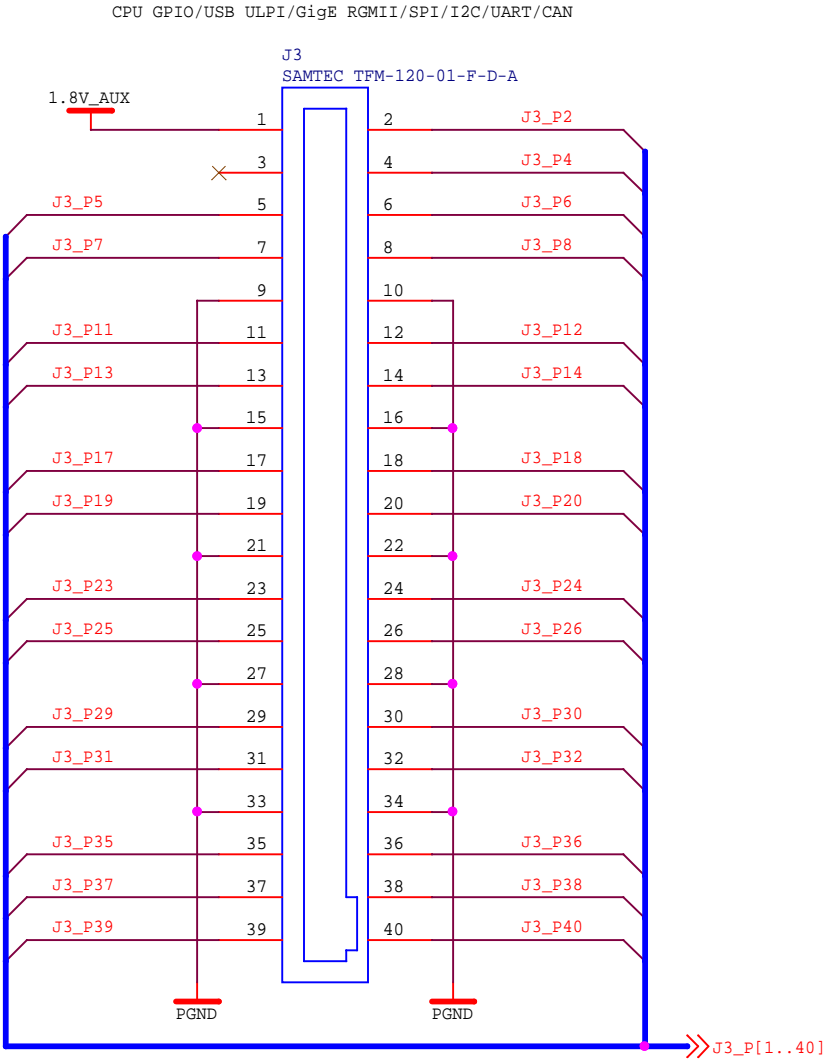


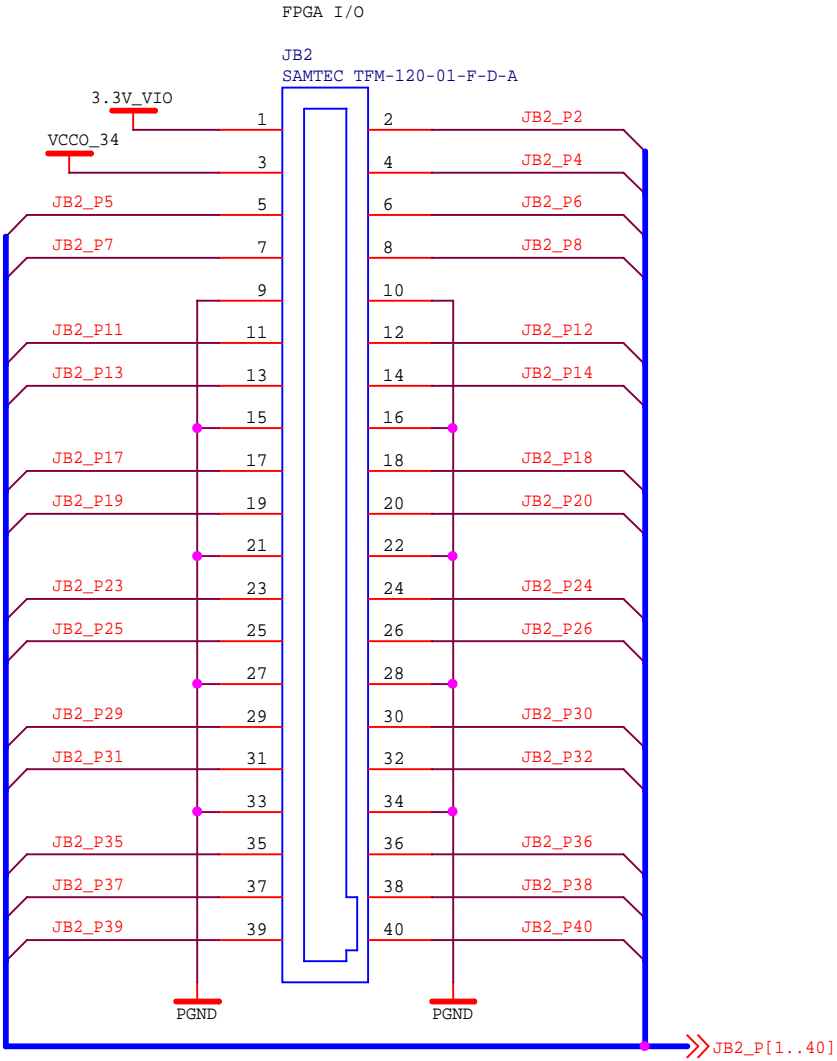
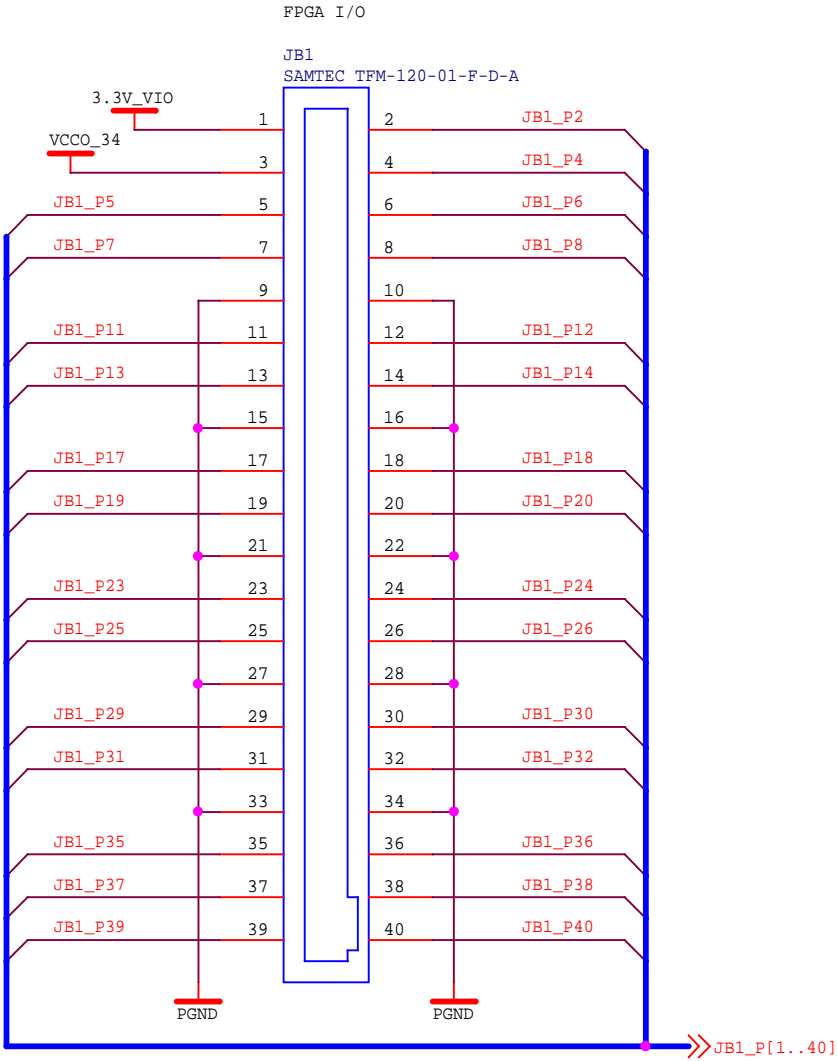
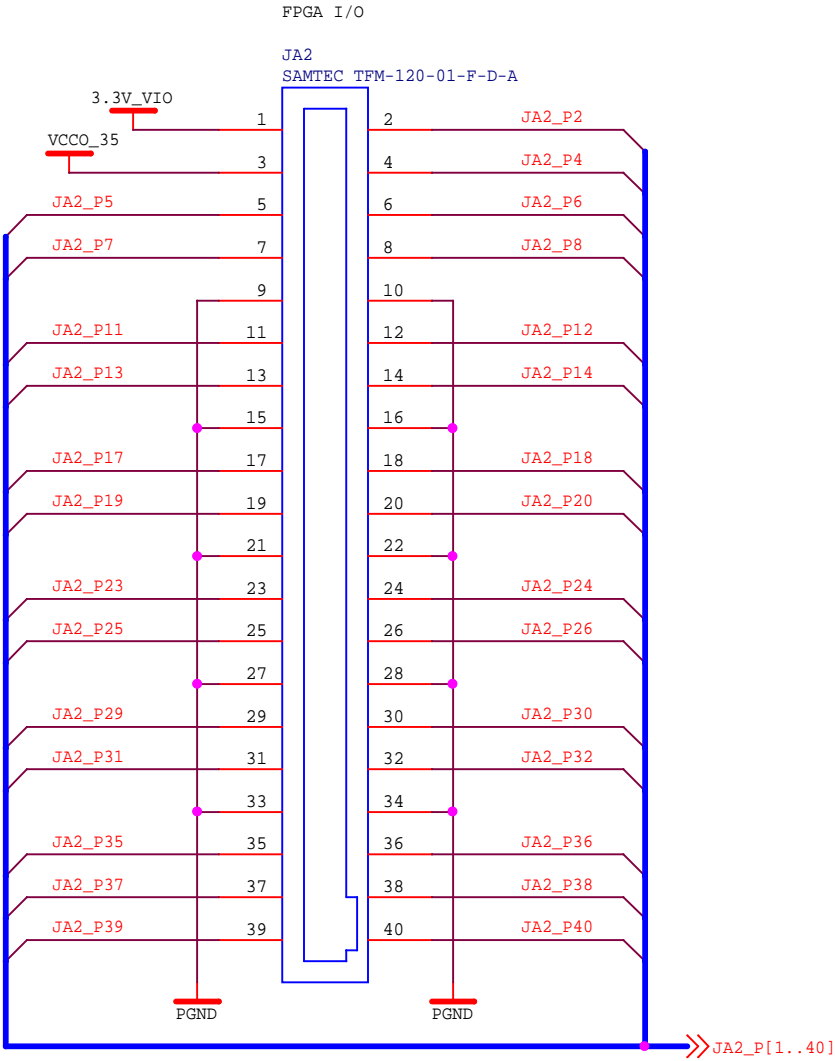
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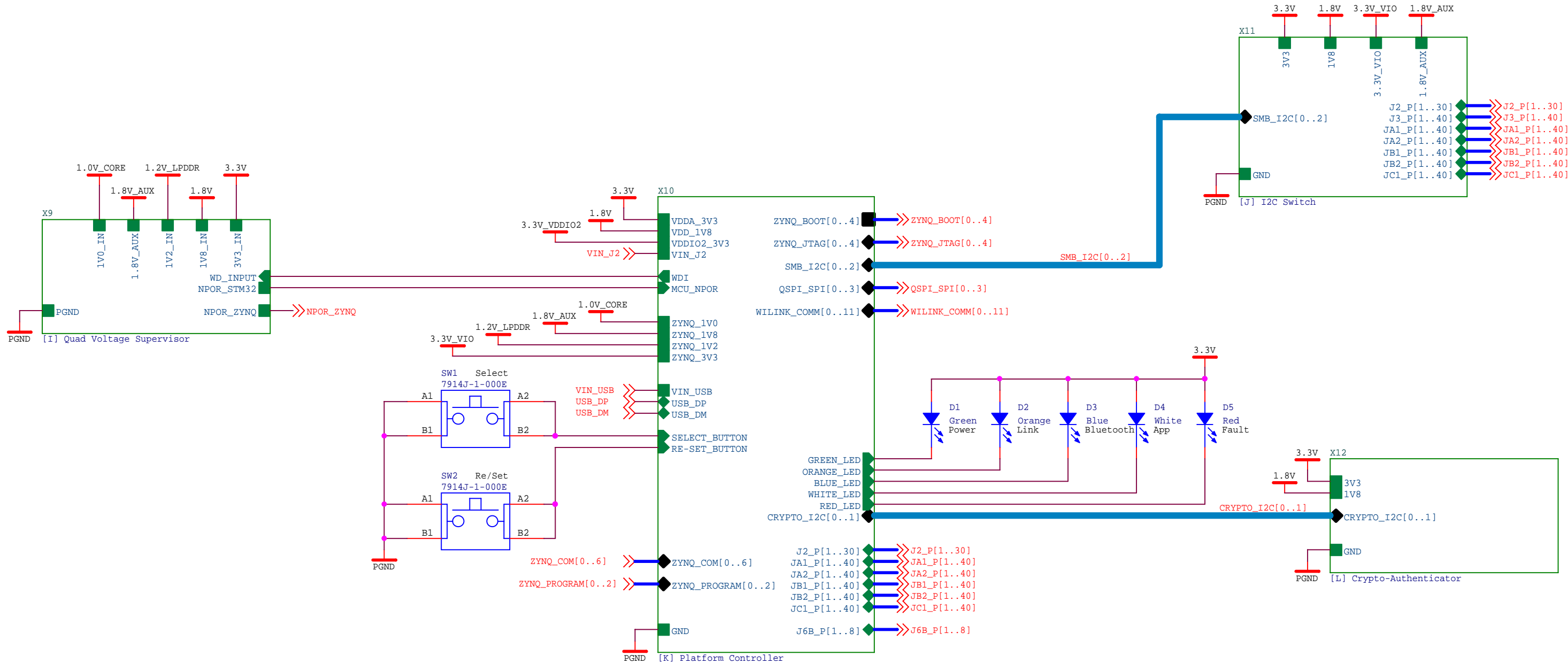
krtkl inc.
350 Townsend Street
Suite 301A
San Francisco, CA 94107
+1 415 857 4857

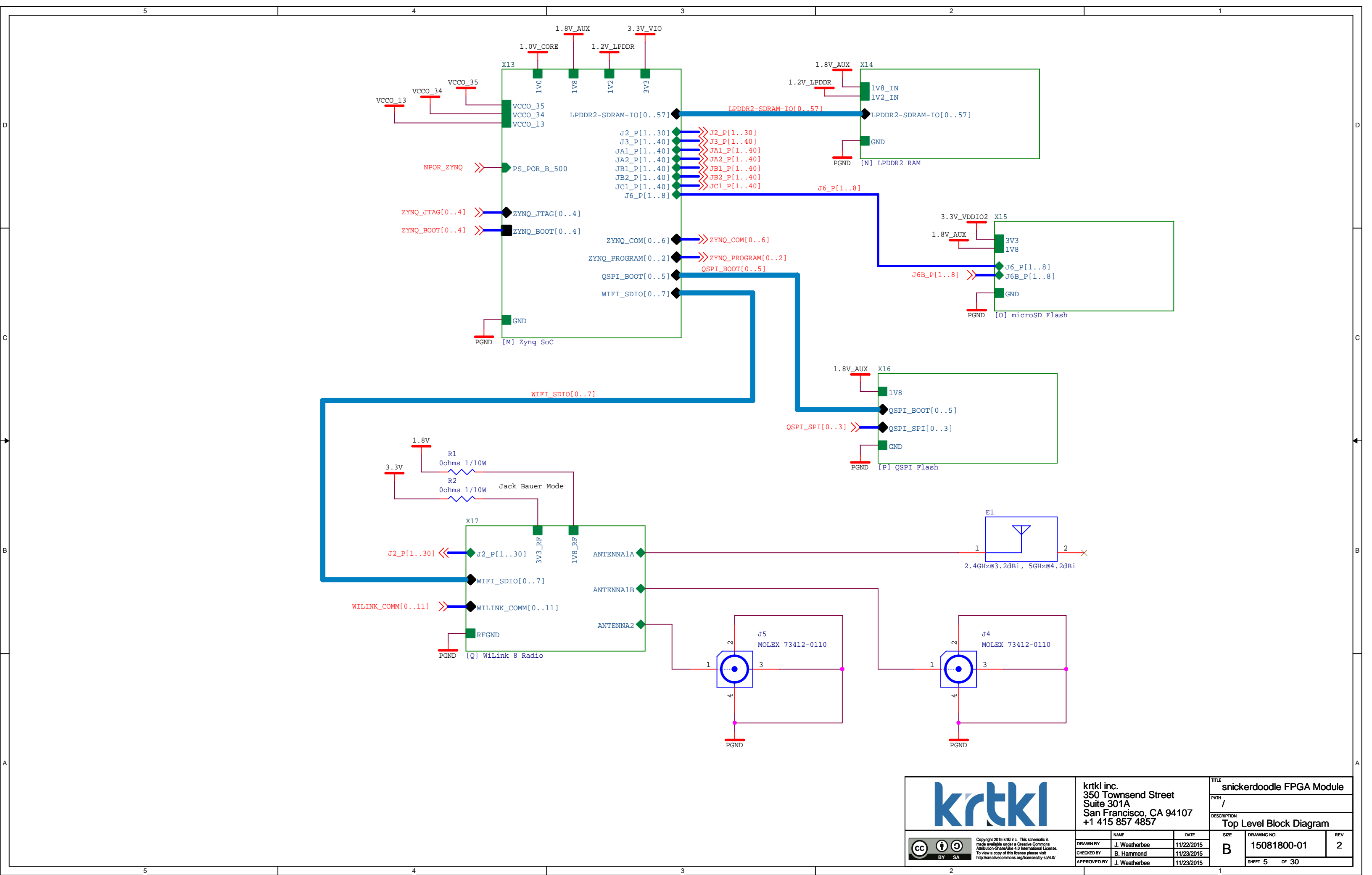
DRAWN BY	J. Weatherbee	DATE	08/17/2015
CHECKED BY	B. Hammond	DATE	11/23/2015
APPROVED BY	J. Weatherbee	DATE	11/23/2015

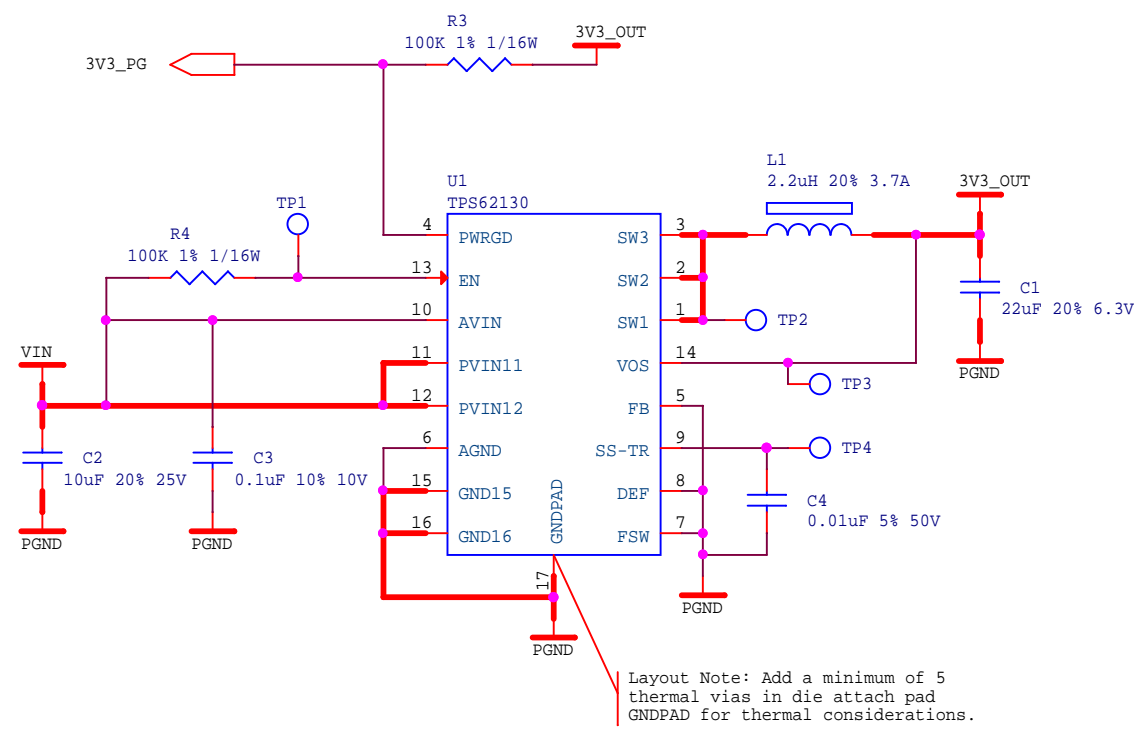
TITLE		
snickerdoodle FPGA Module		
PATH		
/		
DESCRIPTION		
Top Level Block Diagram		
SIZE	DRAWING NO.	REV
B	15081800-01	2
SHEET 1 OF 30		



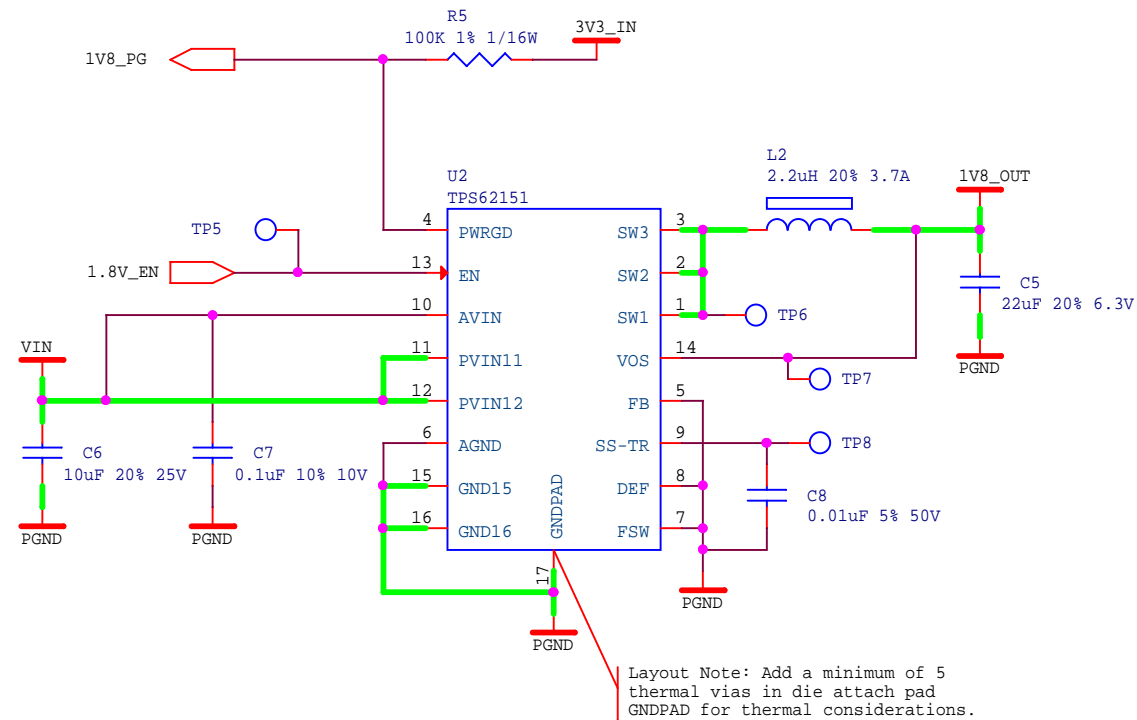




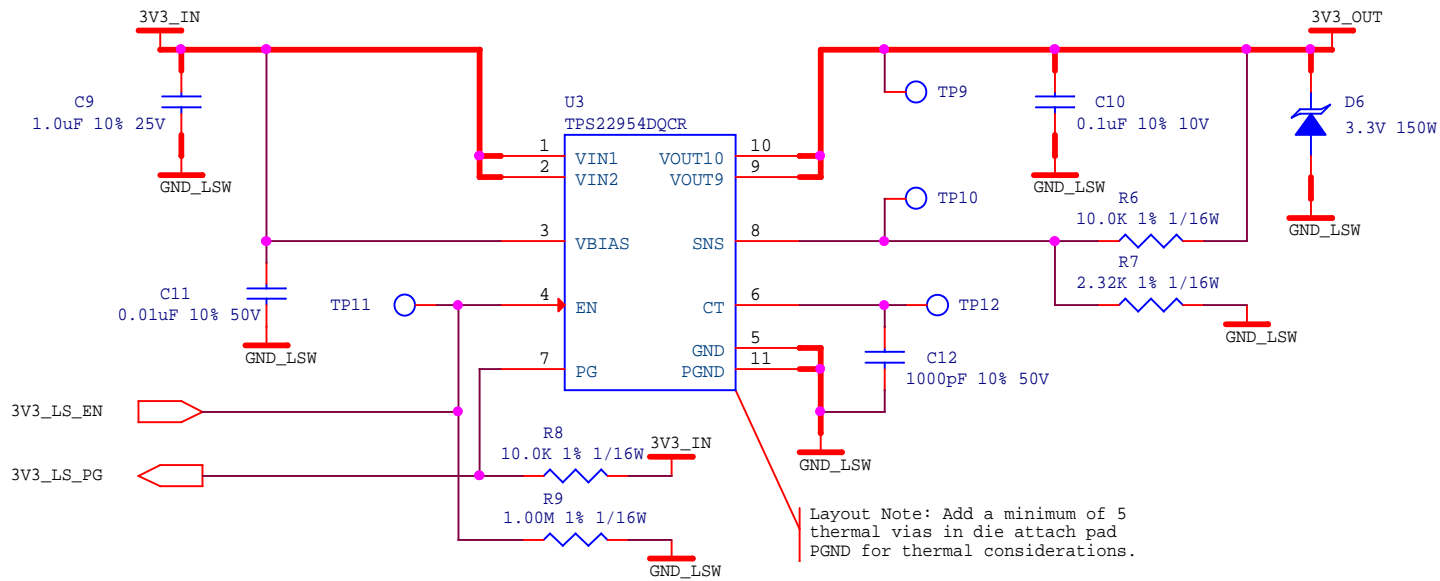




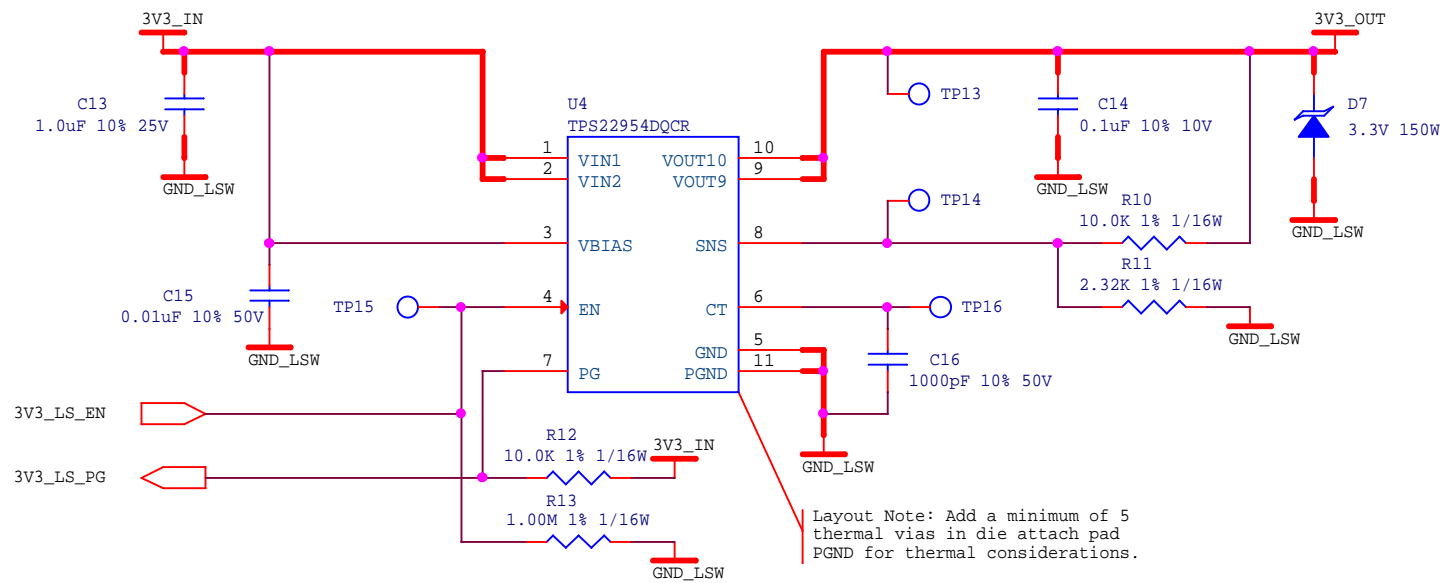
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module	
				PATH /X2	
				DESCRIPTION 3.3V Power Supply	
	DRAWN BY	B. Hammond	DATE	SIZE B	DRAWING NO. 15081800-01
	CHECKED BY	J. Weatherbee	11/23/2015		REV 2
	APPROVED BY	J. Weatherbee	11/23/2015		SHEET 6 OF 30



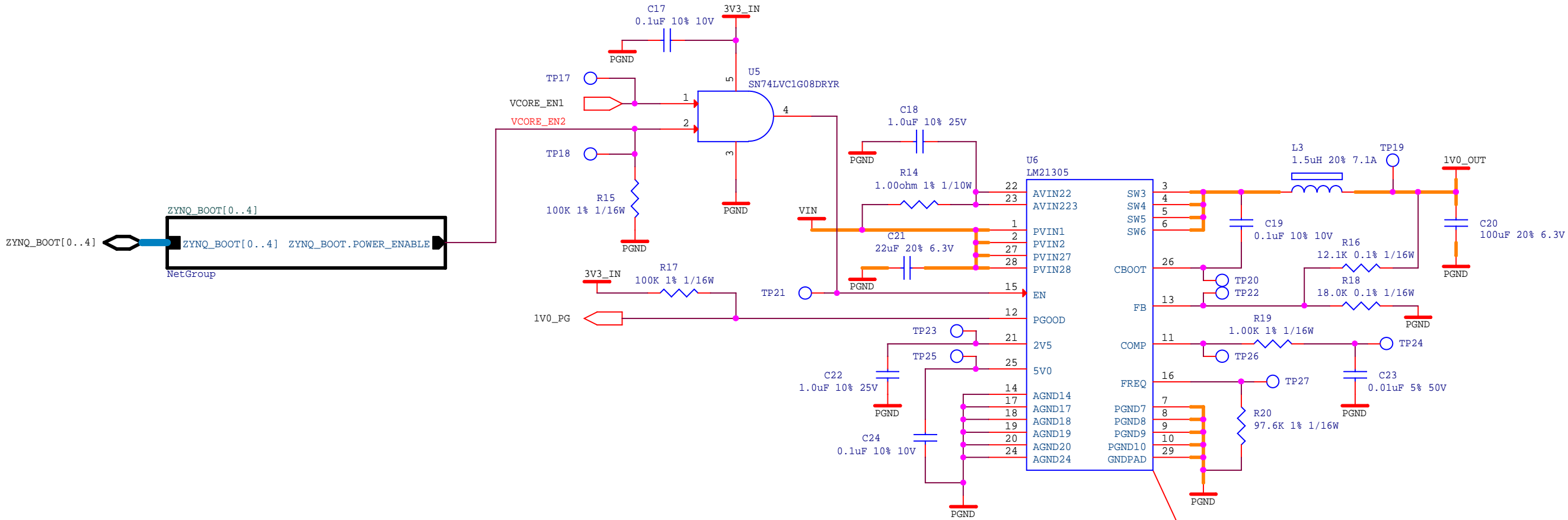
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module			
				PATH /X3			
				DESCRIPTION 1.8V Power Supply			
 Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/		NAME		DATE			
		DRAWN BY B. Hammond		11/21/2015			
		CHECKED BY J. Weatherbee		11/23/2015			
		APPROVED BY J. Weatherbee		11/23/2015			
 BY SA		SIZE B		DRAWING NO. 15081800-01		REV 2	
		SHEET 7 of 30					



	krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857	TITLE snickerdoodle FPGA Module	
		PATH /X4	
		DESCRIPTION 3.3V Load Switch	
	DRAWN BY	NAME B. Hammond	DATE 11/21/2015
	CHECKED BY	J. Weatherbee	11/21/2015
	APPROVED BY	J. Weatherbee	11/21/2015
SIZE B		DRAWING NO. 15081800-01	REV 2
SHEET 8 OF 30			

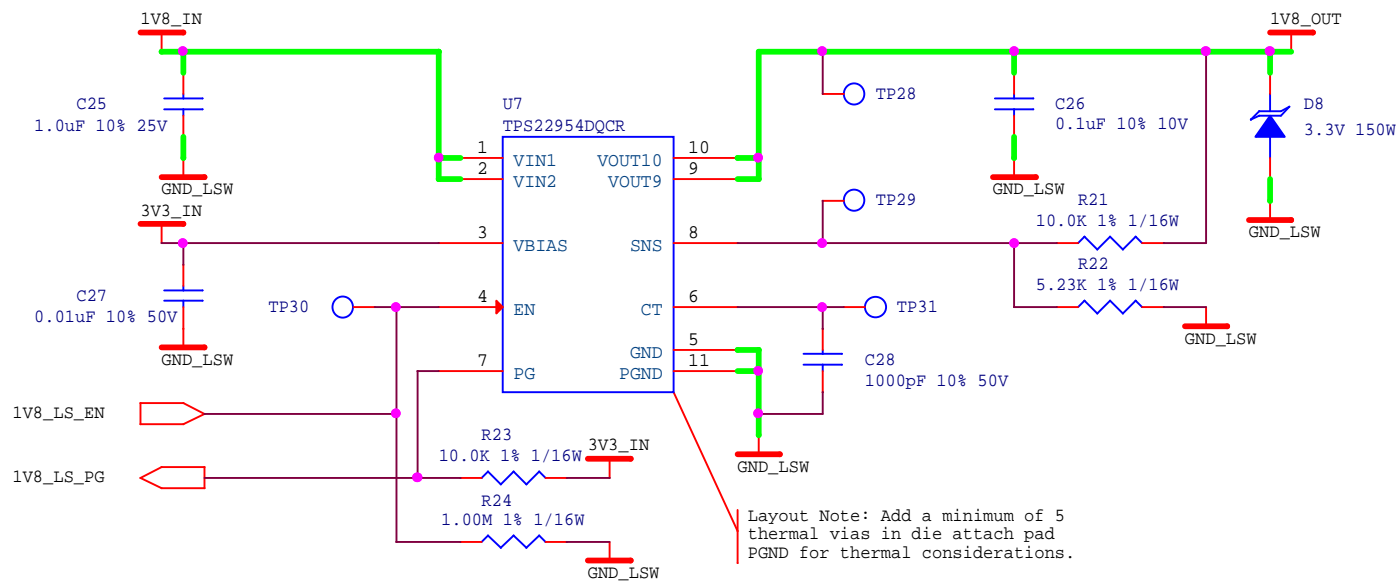


		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module	
				PATH /X8	
		<small>Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/</small>		DESCRIPTION 3.3V Load Switch	
				SIZE B	REV 2
DRAWN BY B. Hammond		DATE 11/21/2015		DRAWING NO. 15081800-01	
CHECKED BY J. Weatherbee		DATE 11/21/2015		SHEET 9 OF 30	
APPROVED BY J. Weatherbee		DATE 11/21/2015			

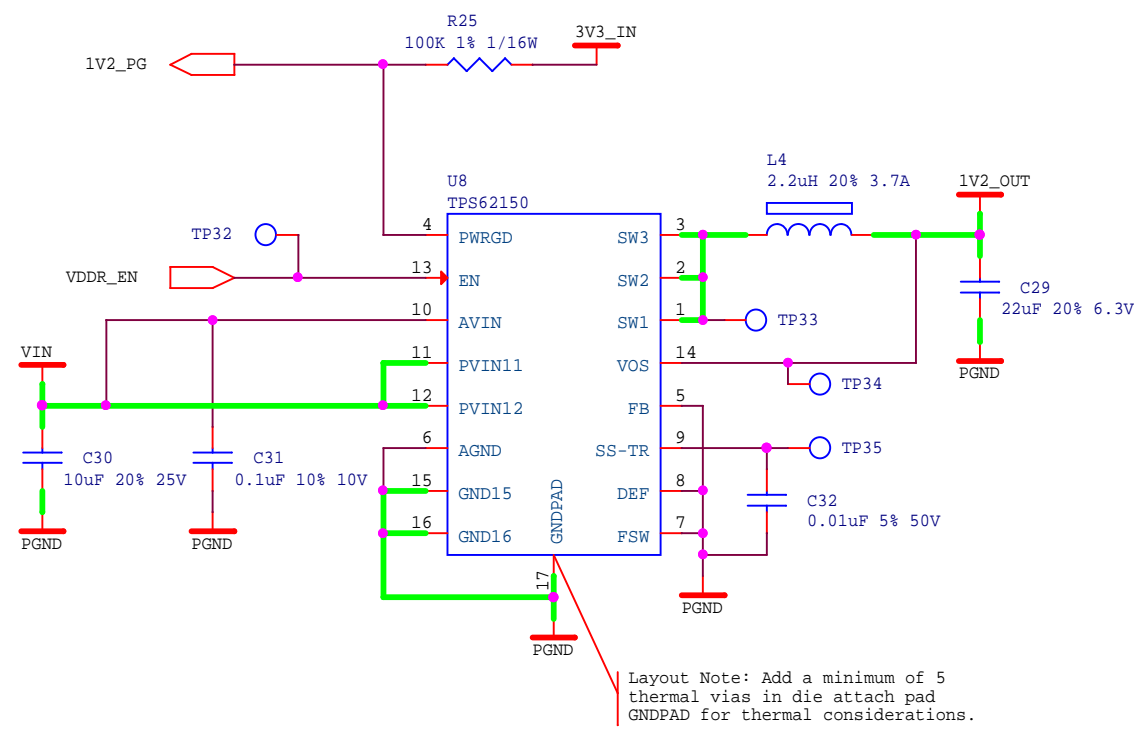


Layout Note: Add a minimum of 5 thermal vias in die attach pad GNDPAD for thermal considerations.

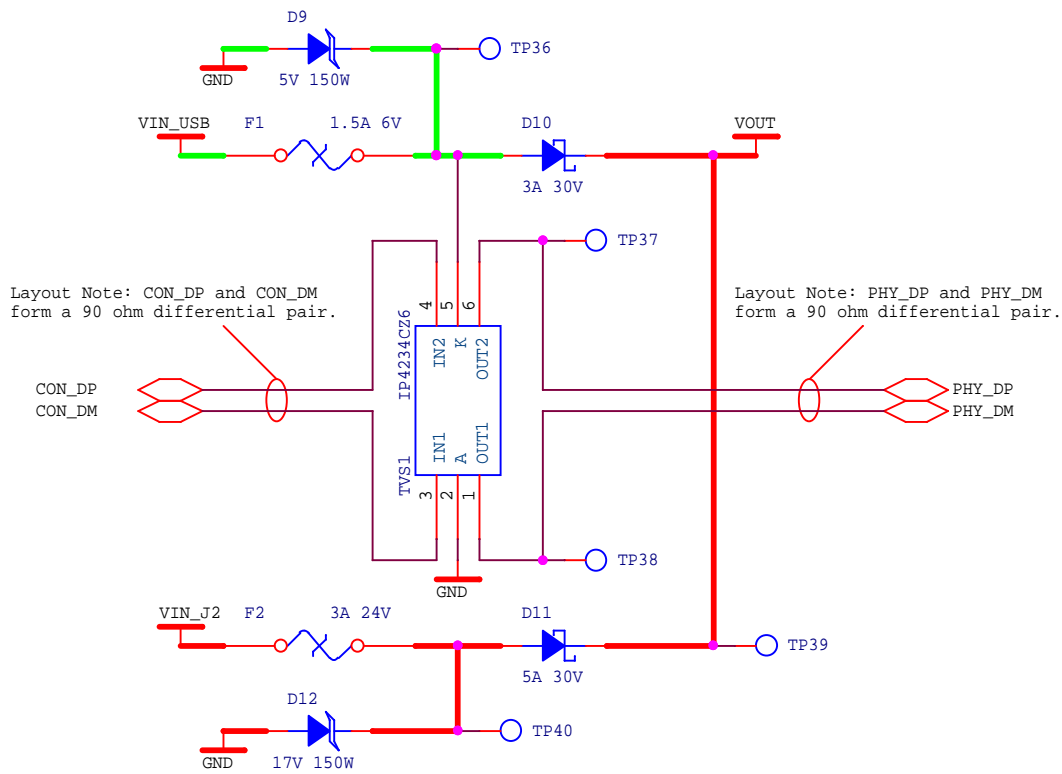
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module		
				PATH /X5		
 Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/		DESCRIPTION 1.0V Power Supply				
DRAWN BY B. Hammond		NAME B. Hammond		DATE 11/21/2015		
CHECKED BY J. Weatherbee		NAME J. Weatherbee		DATE 11/23/2015		
APPROVED BY J. Weatherbee		NAME J. Weatherbee		DATE 11/23/2015		
		SIZE B		DRAWING NO. 15081800-01		
				REV 2		
				SHEET 10 OF 30		



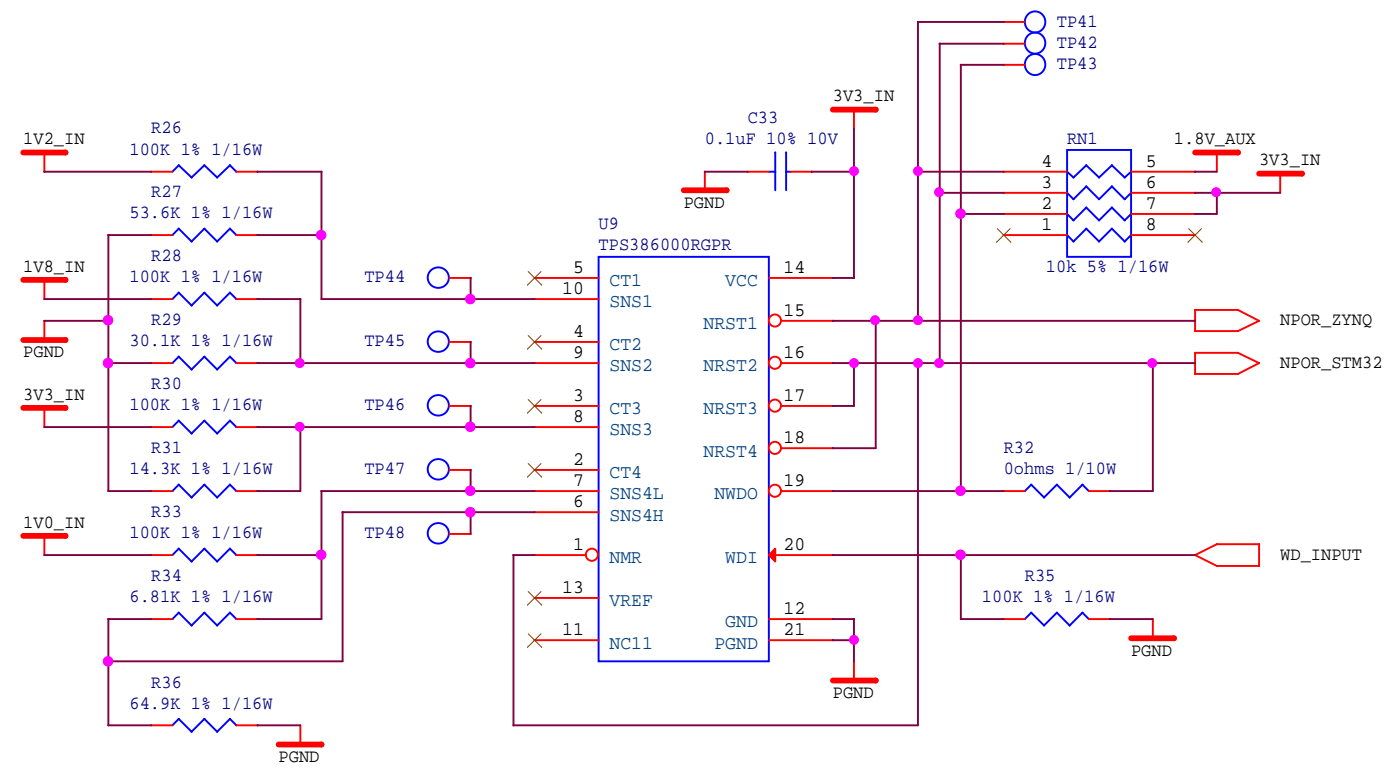
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module	
				PATH /X6	
		<small>Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/</small>		DESCRIPTION 1.8V Load Switch	
				SIZE B	REV 2
DRAWN BY B. Hammond		DATE 11/21/2015		DRAWING NO. 15081800-01	
CHECKED BY J. Weatherbee		DATE 11/23/2015		SHEET 11 OF 30	
APPROVED BY J. Weatherbee		DATE 11/23/2015			



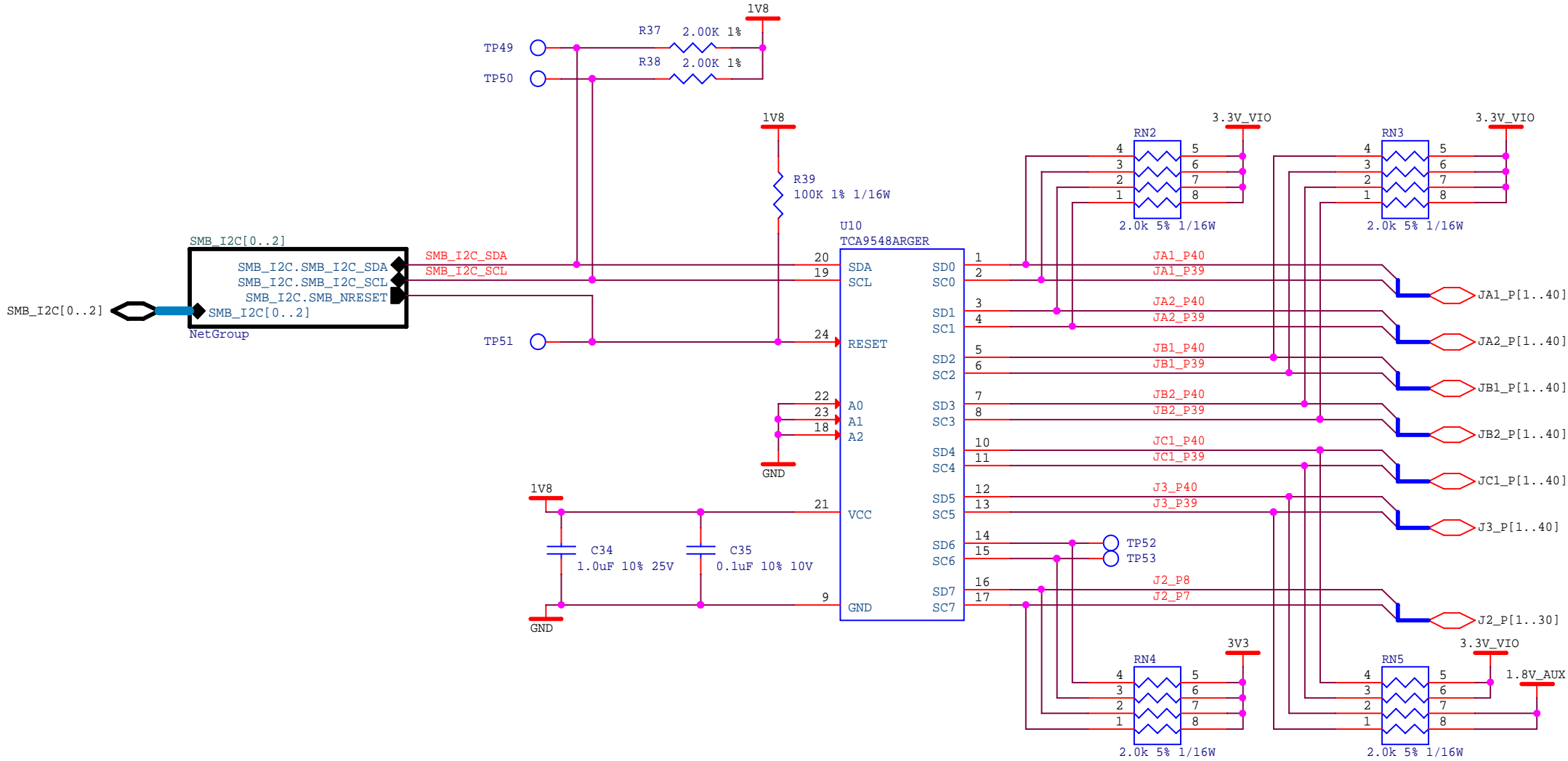
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module		
 Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/				PATH /X7		
				DESCRIPTION 1.2V Power Supply		
		NAME	DATE	SIZE	DRAWING NO.	REV
		DRAWN BY B. Hammond	11/21/2015	B	15081800-01	2
		CHECKED BY J. Weatherbee	11/23/2015			
		APPROVED BY J. Weatherbee	11/23/2015			
		SHEET 12 OF 30				

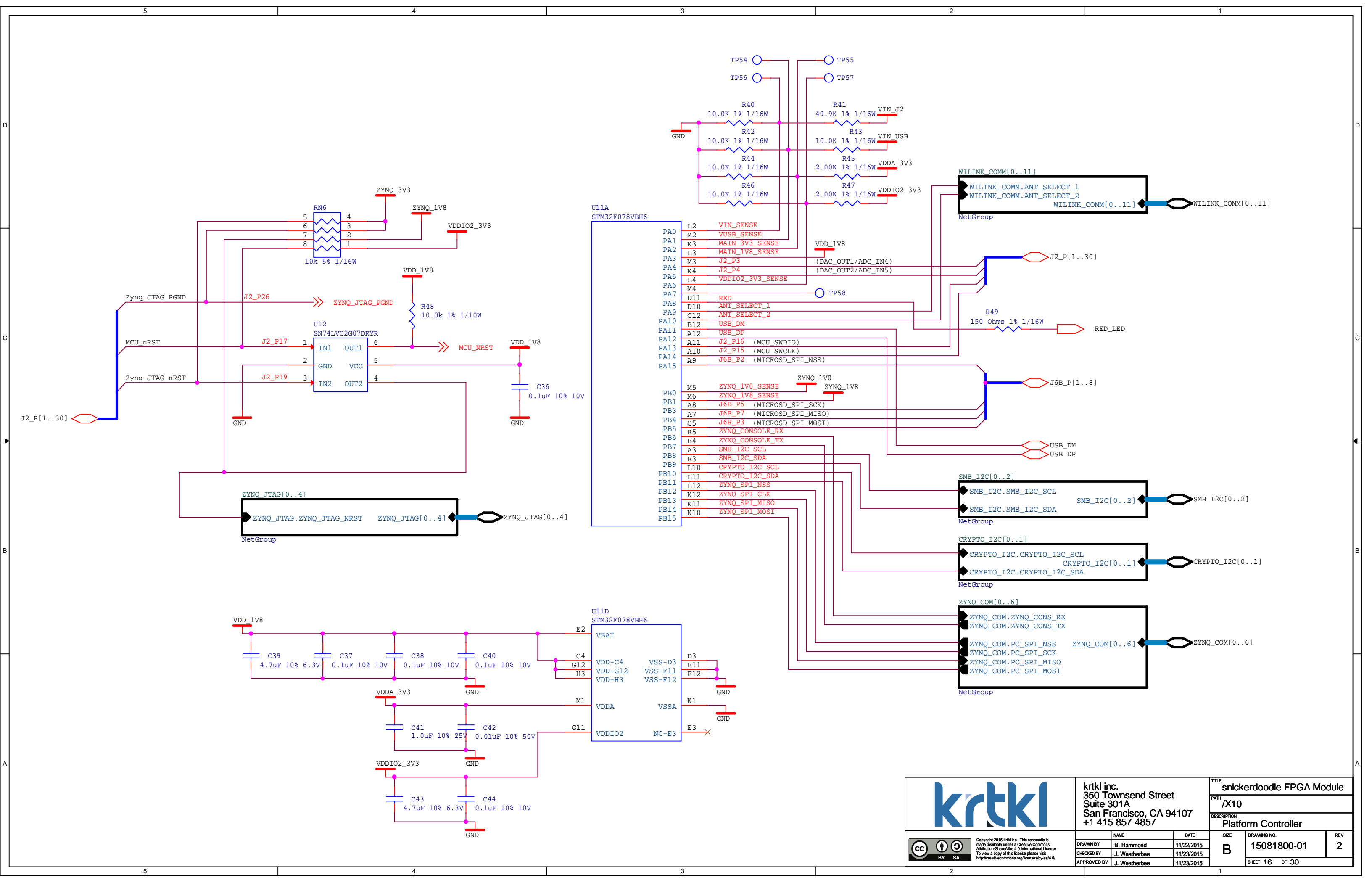


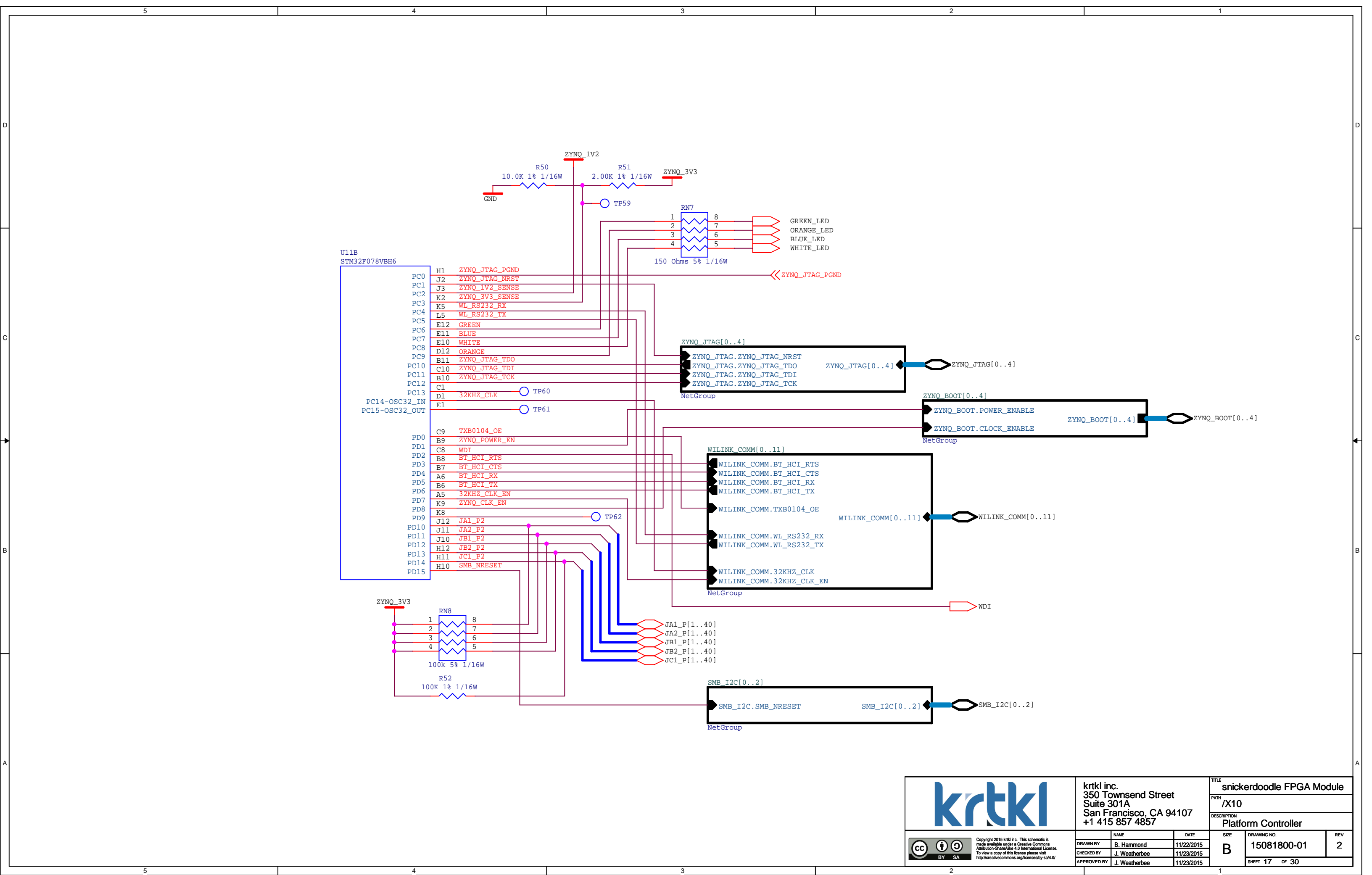
		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module	
 <p>Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/</p>		NAME		DATE	PATH /X1
		DRAWN BY B. Hammond		11/21/2015	DESCRIPTION Power Entry
		CHECKED BY J. Weatherbee		11/23/2015	SIZE B
		APPROVED BY J. Weatherbee		11/23/2015	DRAWING NO. 15081800-01
					REV 2
				SHEET 13 OF 30	

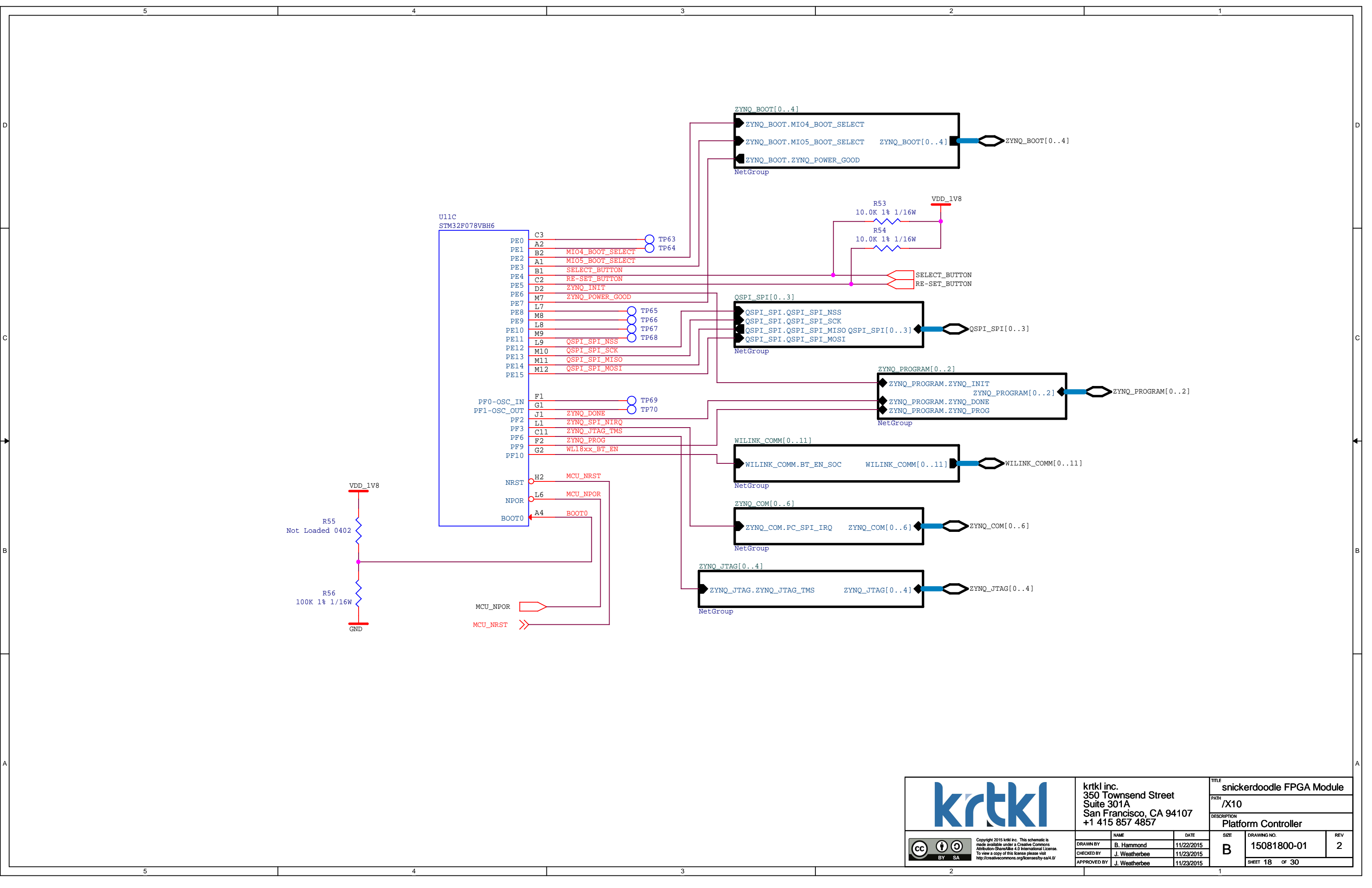


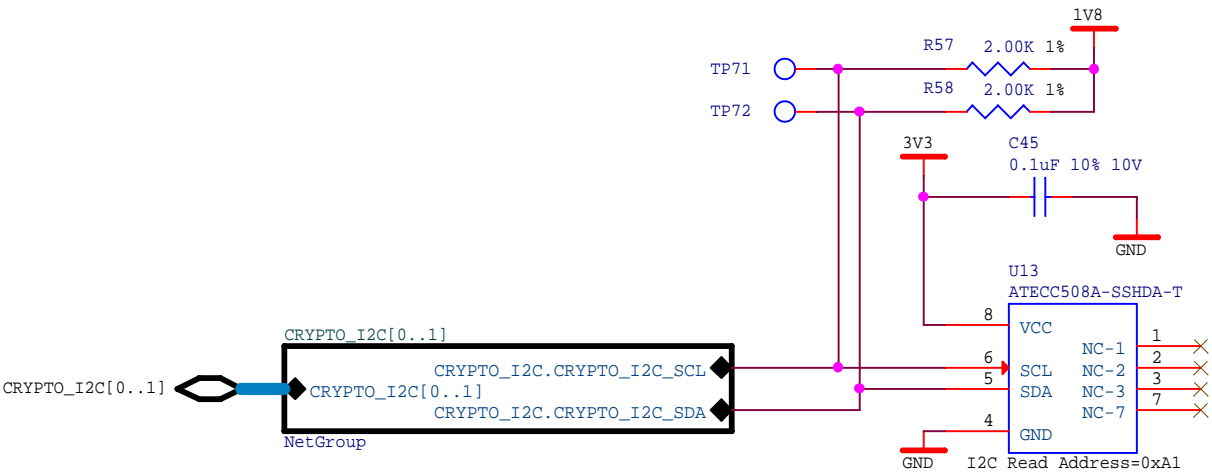
		Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/		
		BY	SA	
DRAWN BY		B. Hammond	DATE	11/21/2015
CHECKED BY		J. Weatherbee	DATE	11/23/2015
APPROVED BY		J. Weatherbee	DATE	11/23/2015
TITLE		snickerdoodle FPGA Module		
PATH		/X9		
DESCRIPTION		Quad Voltage Supervisor		
SIZE	DRAWING NO.	REV		
B	15081800-01	2		
SHEET 14		OF 30		



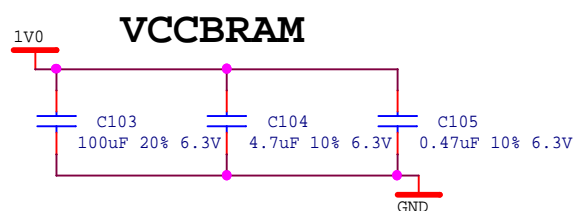
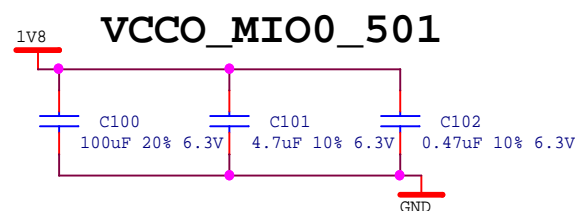
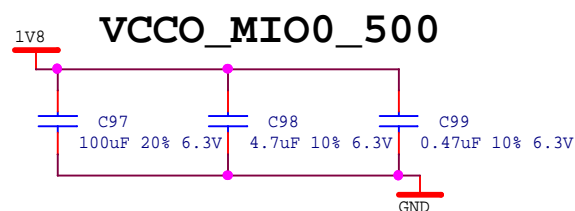
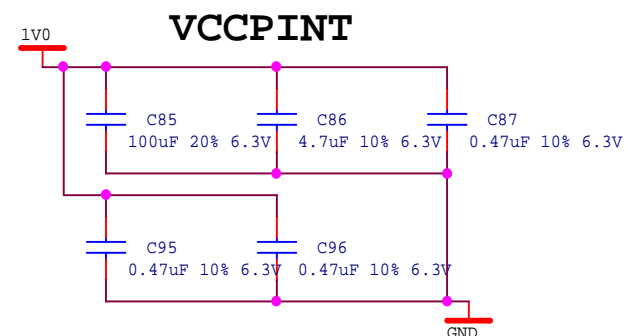
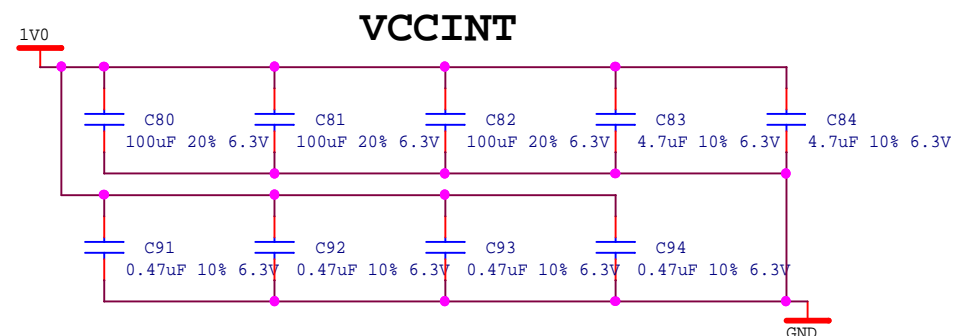
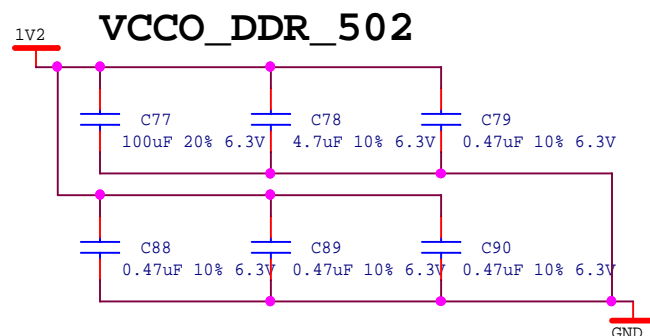
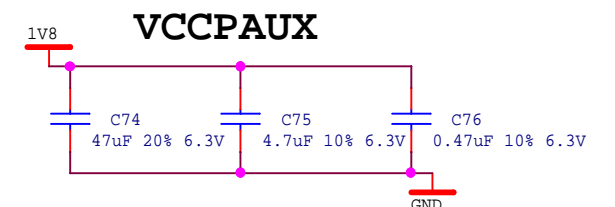
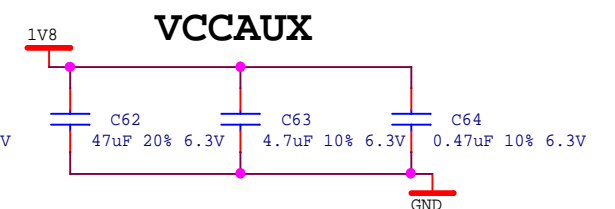
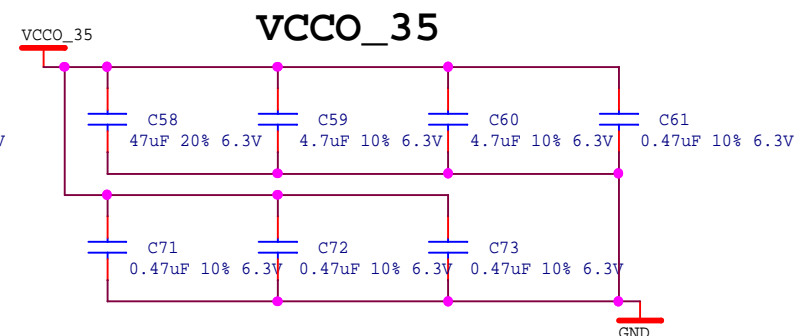
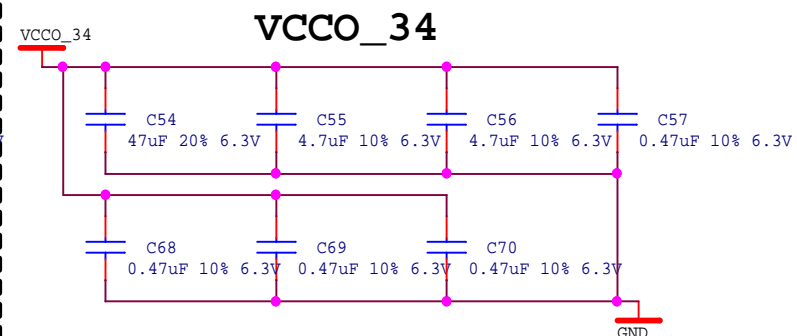
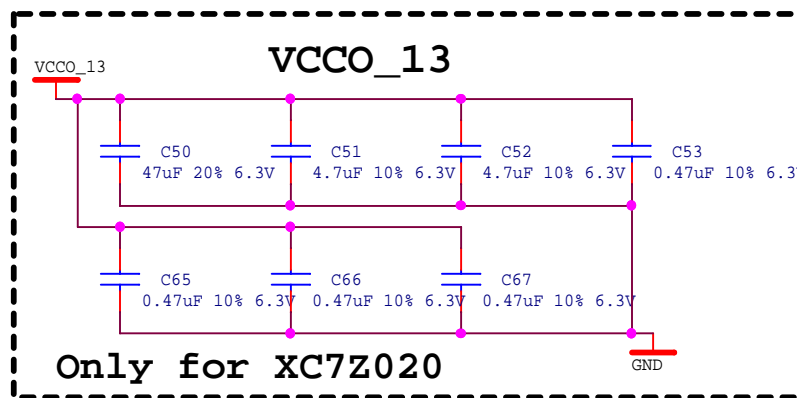
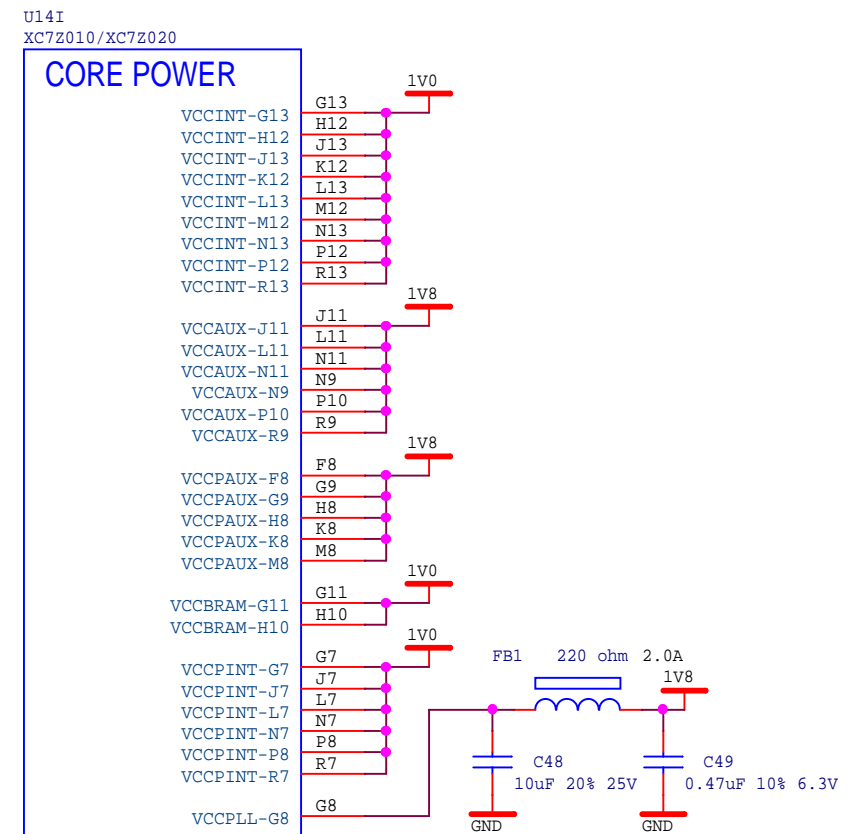
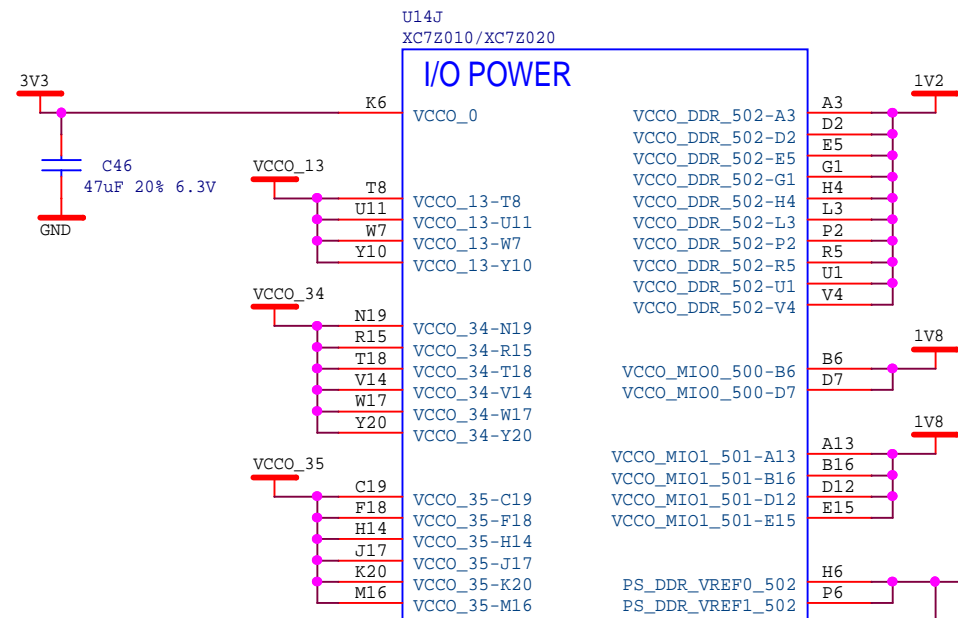
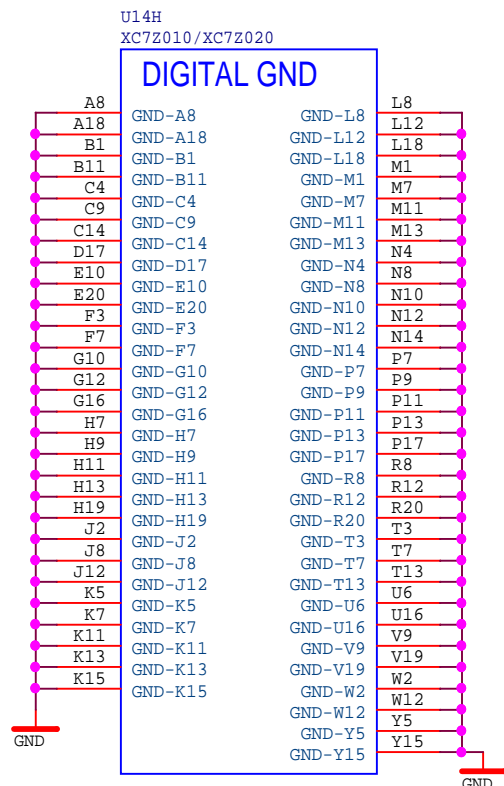


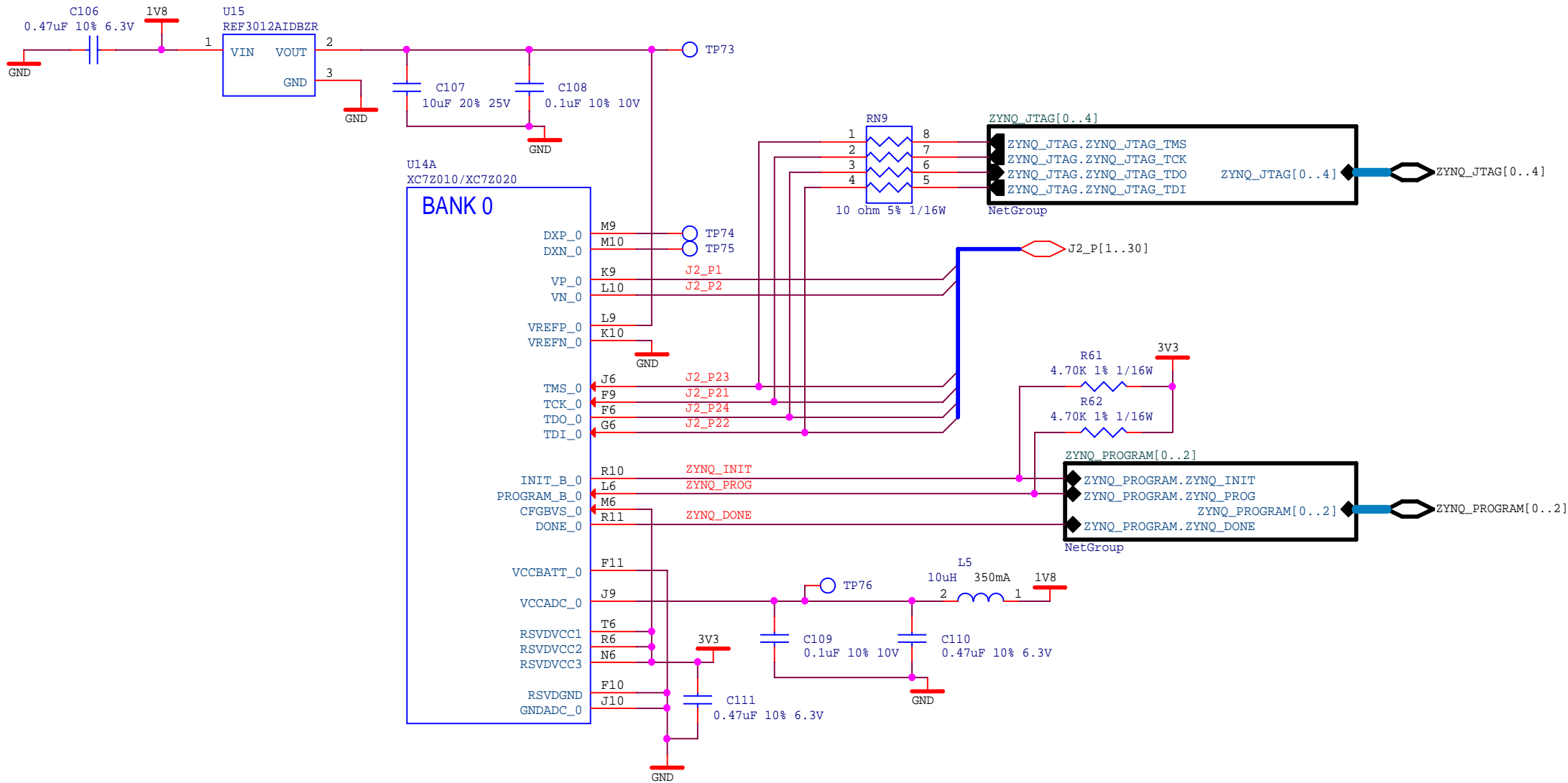


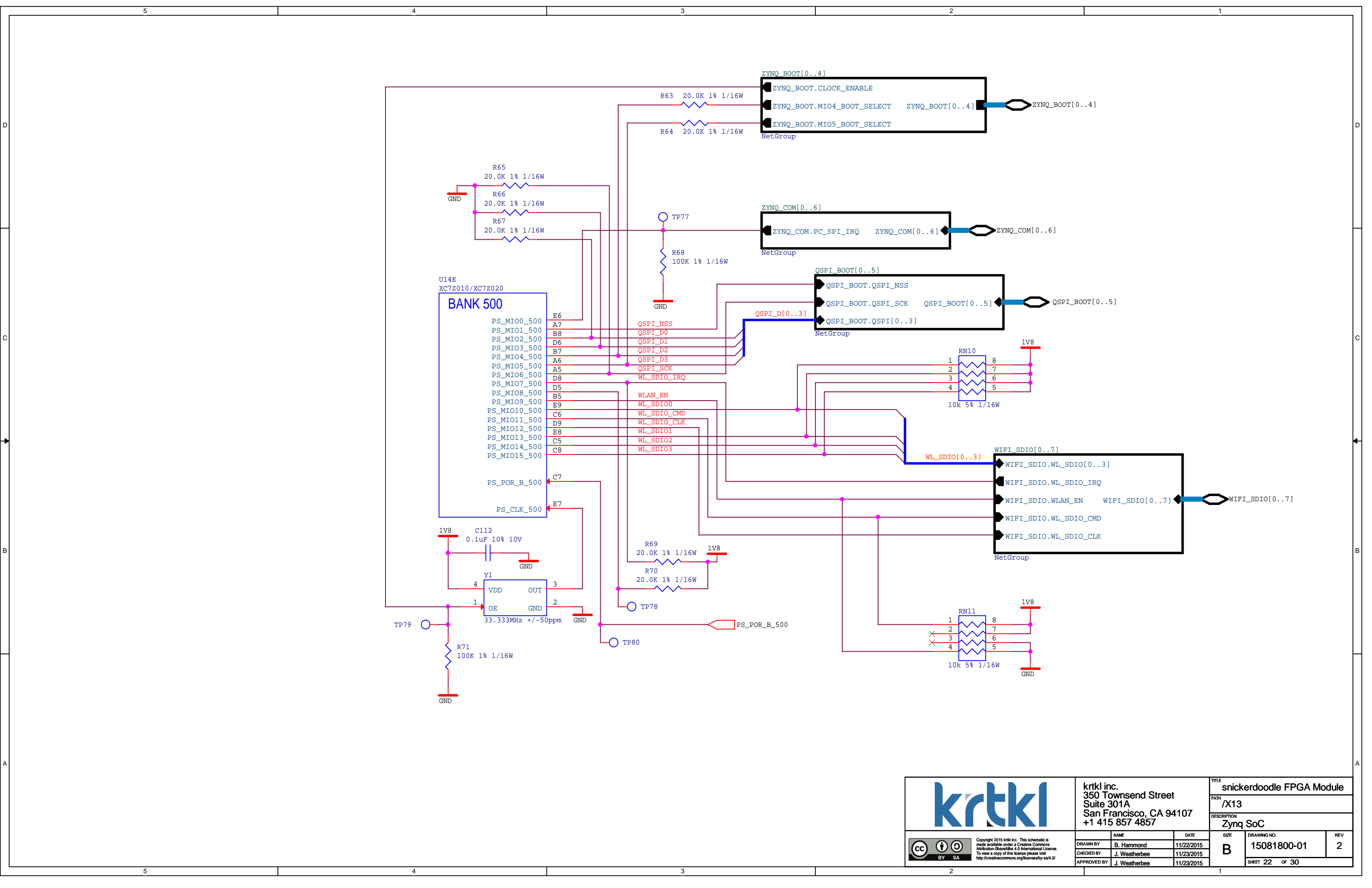




		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module			
				PATH /X12			
				DESCRIPTION Crypto-Authenticator			
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		DRAWN BY	B. Hammond	11/22/2015	B	15081800-01	2
		CHECKED BY	J. Weatherbee	11/23/2015			
		APPROVED BY	J. Weatherbee	11/23/2015			
SHEET 19 OF 30							







U14F
XC7Z010/XC7Z020

BANK 501

- PS_MIO_VREF_501
- PS_MIO16_501
PS_MIO17_501
PS_MIO18_501
PS_MIO19_501
PS_MIO20_501
PS_MIO21_501
PS_MIO22_501
PS_MIO23_501
PS_MIO24_501
PS_MIO25_501
PS_MIO26_501
PS_MIO27_501
PS_MIO28_501
PS_MIO29_501
PS_MIO30_501
PS_MIO31_501
PS_MIO32_501
PS_MIO33_501
PS_MIO34_501
PS_MIO35_501
PS_MIO36_501
PS_MIO37_501
PS_MIO38_501
PS_MIO39_501
PS_MIO40_501
PS_MIO41_501
PS_MIO42_501
PS_MIO43_501
PS_MIO44_501
PS_MIO45_501
PS_MIO46_501
PS_MIO47_501
PS_MIO48_501
PS_MIO49_501
PS_MIO50_501
PS_MIO51_501
PS_MIO52_501
PS_MIO53_501
- PS_SRST_B_501

- A19 J3_P5
E14 J3_P7
B18 J3_P8
D10 J3_P6
A17 J3_P11
F14 J3_P13
B17 J3_P14
D11 J3_P12
A16 J3_P17
F15 J3_P19
A15 J3_P20
D13 J3_P18
C16 J3_P23
C13 J3_P25
C15 J3_P26
E16 J3_P24
A14 J3_P29
D15 J3_P31
A12 J3_P32
F12 J3_P30
A11 J3_P35
A10 J3_P37
E13 J3_P38
C18 J3_P36
D14 J6_P5
C17 J6_P3
E12 J6_P7
A9 J6_P8
F13 J6_P1
B15 J6_P2
D16 PC_SPI_MOSI
B14 PC_SPI_MISO
B12 PC_SPI_SCK
C12 PC_SPI_NSS
B13 ZYNQ_CONS_RX
B9 ZYNQ_CONS_TX
C10 J3_P2
C11 J3_P4

ZYNQ_COM[0..6]

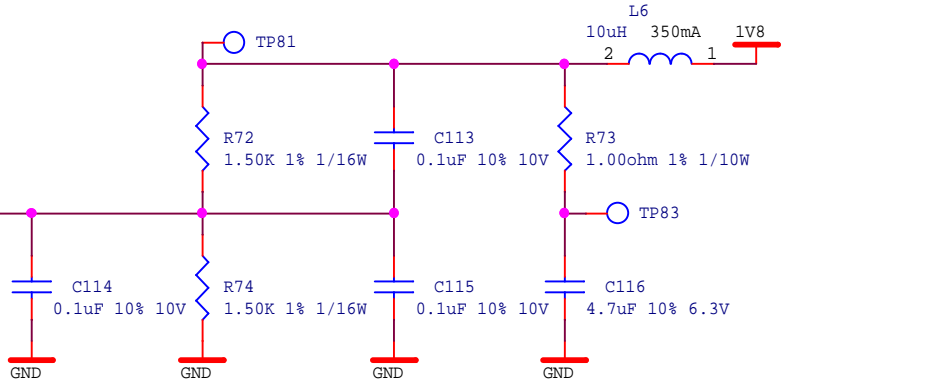
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ZYNQ_COM.PC_SPI_MISO
ZYNQ_COM.PC_SPI_SCK
ZYNQ_COM.PC_SPI_NSS
ZYNQ_COM.ZYNQ_CONS_RX
ZYNQ_COM.ZYNQ_CONS_TX

NetGroup

ZYNQ_JTAG[0..4]

ZYNQ_JTAG.ZYNQ_JTAG_NRST

NetGroup



		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module		
				PATH /X13		
 BY SA		<small>Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/</small>		DESCRIPTION Zynq SoC		
				SIZE B	DRAWING NO. 15081800-01	REV 2
DRAWN BY B. Hammond		DATE 11/22/2015		DRAWING NO. 15081800-01		
CHECKED BY J. Weatherbee		DATE 11/23/2015				
APPROVED BY J. Weatherbee		DATE 11/23/2015		SHEET 23 OF 30		

U14G
XC7Z010/XC7Z020

BANK 502

PS_DDR_DQ0_502
PS_DDR_DQ1_502
PS_DDR_DQ2_502
PS_DDR_DQ3_502
PS_DDR_DQ4_502
PS_DDR_DQ5_502
PS_DDR_DQ6_502
PS_DDR_DQ7_502
PS_DDR_DQ8_502
PS_DDR_DQ9_502
PS_DDR_DQ10_502
PS_DDR_DQ11_502
PS_DDR_DQ12_502
PS_DDR_DQ13_502
PS_DDR_DQ14_502
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PS_DDR_DQ26_502
PS_DDR_DQ27_502
PS_DDR_DQ28_502
PS_DDR_DQ29_502
PS_DDR_DQ30_502
PS_DDR_DQ31_502

PS_DDR_A0_502
PS_DDR_A1_502
PS_DDR_A2_502
PS_DDR_A3_502
PS_DDR_A4_502
PS_DDR_A5_502
PS_DDR_A6_502
PS_DDR_A7_502
PS_DDR_A8_502
PS_DDR_A9_502
PS_DDR_A10_502
PS_DDR_A11_502
PS_DDR_A12_502
PS_DDR_A13_502
PS_DDR_A14_502

PS_DDR_DQS_P0_502
PS_DDR_DQS_N0_502
PS_DDR_DQS_P1_502
PS_DDR_DQS_N1_502
PS_DDR_DQS_P2_502
PS_DDR_DQS_N2_502
PS_DDR_DQS_P3_502
PS_DDR_DQS_N3_502

PS_DDR_CKP_502
PS_DDR_CKN_502

PS_DDR_BA0_502
PS_DDR_BA1_502
PS_DDR_BA2_502

PS_DDR_DM0_502
PS_DDR_DM1_502
PS_DDR_DM2_502
PS_DDR_DM3_502

PS_DDR_CS_B_502
PS_DDR_WE_B_502
PS_DDR_CAS_B_502
PS_DDR_RAS_B_502
PS_DDR_CKE_502
PS_DDR_ODT_502

PS_DDR_DRST_B_502

PS_DDR_VRP_502
PS_DDR_VRN_502

C3
B3
A2
A4
D3
D1
C1
E1
E2
E3
G3
H3
J3
H2
H1
J1
P1
P3
R3
R1
T4
U4
U2
U3
V1
Y3
W1
Y4
Y2
W3
V2
V3

N2
K2
M3
K3
M4
L1
L4
K4
K1
J4
F5
G4
E4
D4
F4

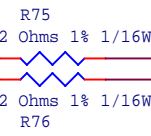
C2
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G2
F2
R2
T2
W5
W4

L2
M2
L5
R4
J5

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F1
T1
Y1

N1
M5
P5
P4
N3
N5

B4
H5
G5

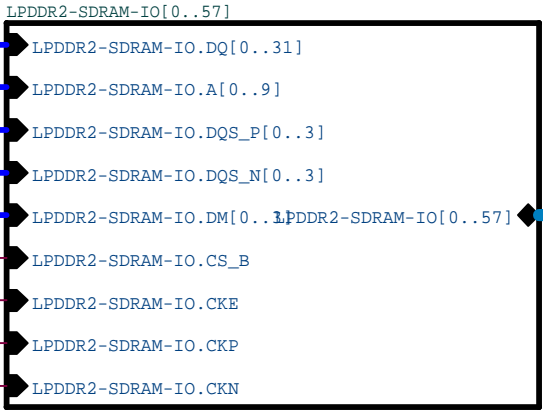


Match all signal trace lengths for DQ groups with a max deviation of ±50 mils and route on the same layer.

Route address and command signals on a different layer than the data and data mask signals.

Route clock on inner layers with outer-layer run lengths held to under 500 mils and maintain a 10-mil spacing from other nets. Length match clock traces within ±25 mils, with CKP and CKN traces matched within ±10 mils. Do not route CKP/CKN pair and CKE close to address signals.

Route address and command signals on a different layer than the data and data mask signals.



LPDDR2-SDRAM-I/O[0..57]



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DRAWN BY	B. Hammond	DATE	11/22/2015
CHECKED BY	J. Weatherbee	DATE	11/23/2015
APPROVED BY	J. Weatherbee	DATE	11/23/2015

snickerdoodle FPGA Module

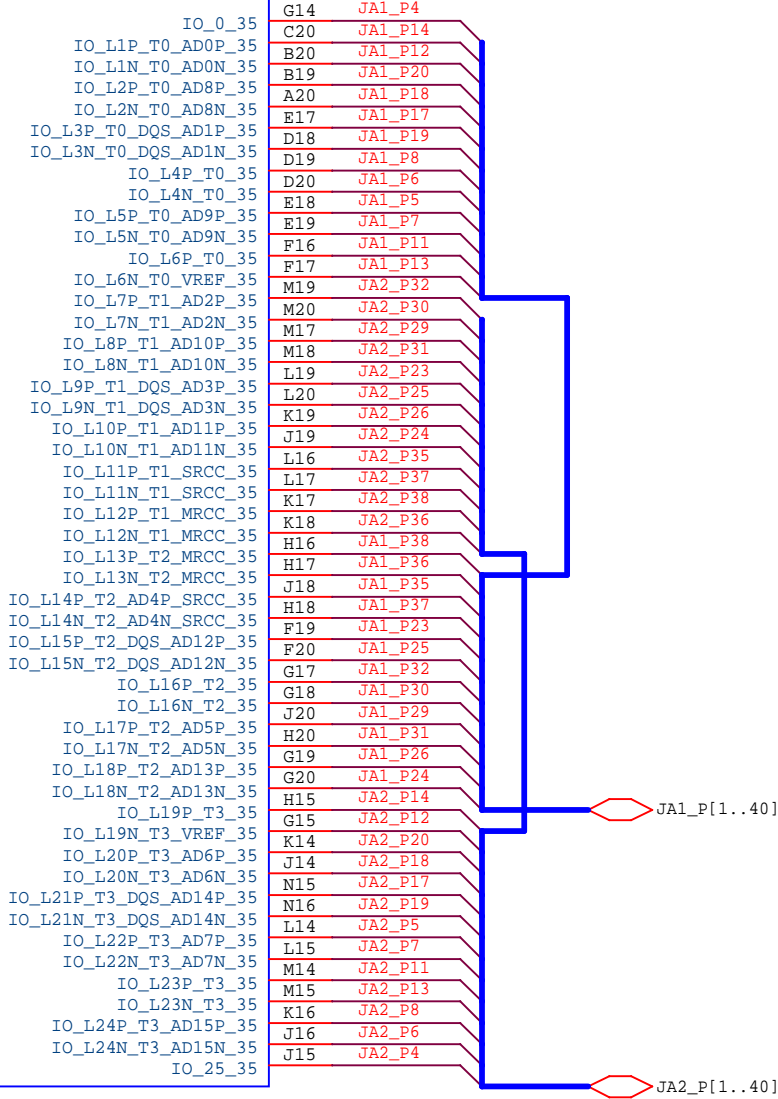
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Zynq SoC

SIZE	DRAWING NO.	REV
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SHEET 24 OF 30		

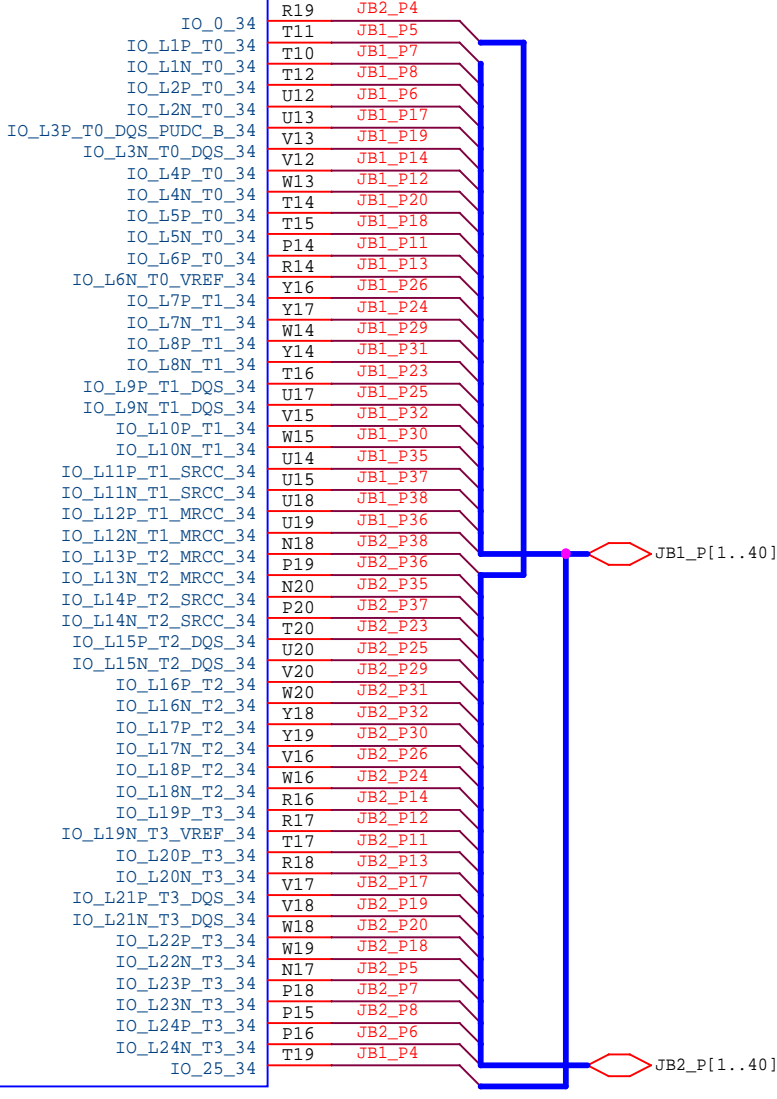
U14D
XC7Z010/XC7Z020

BANK 35



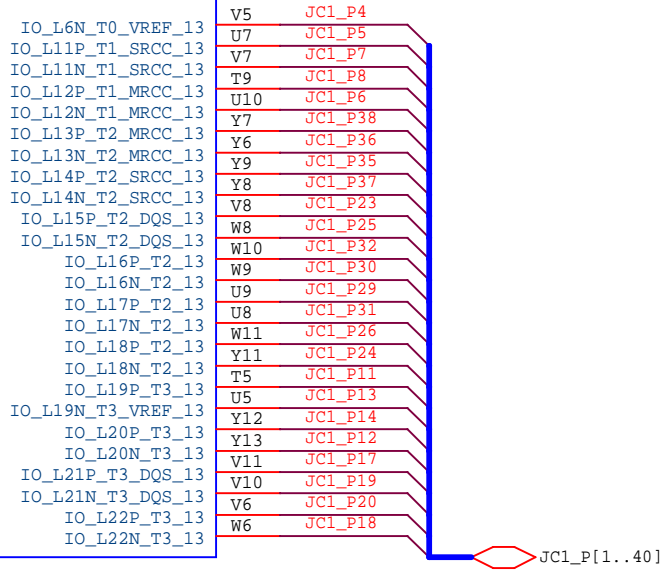
U14C
XC7Z010/XC7Z020

BANK 34

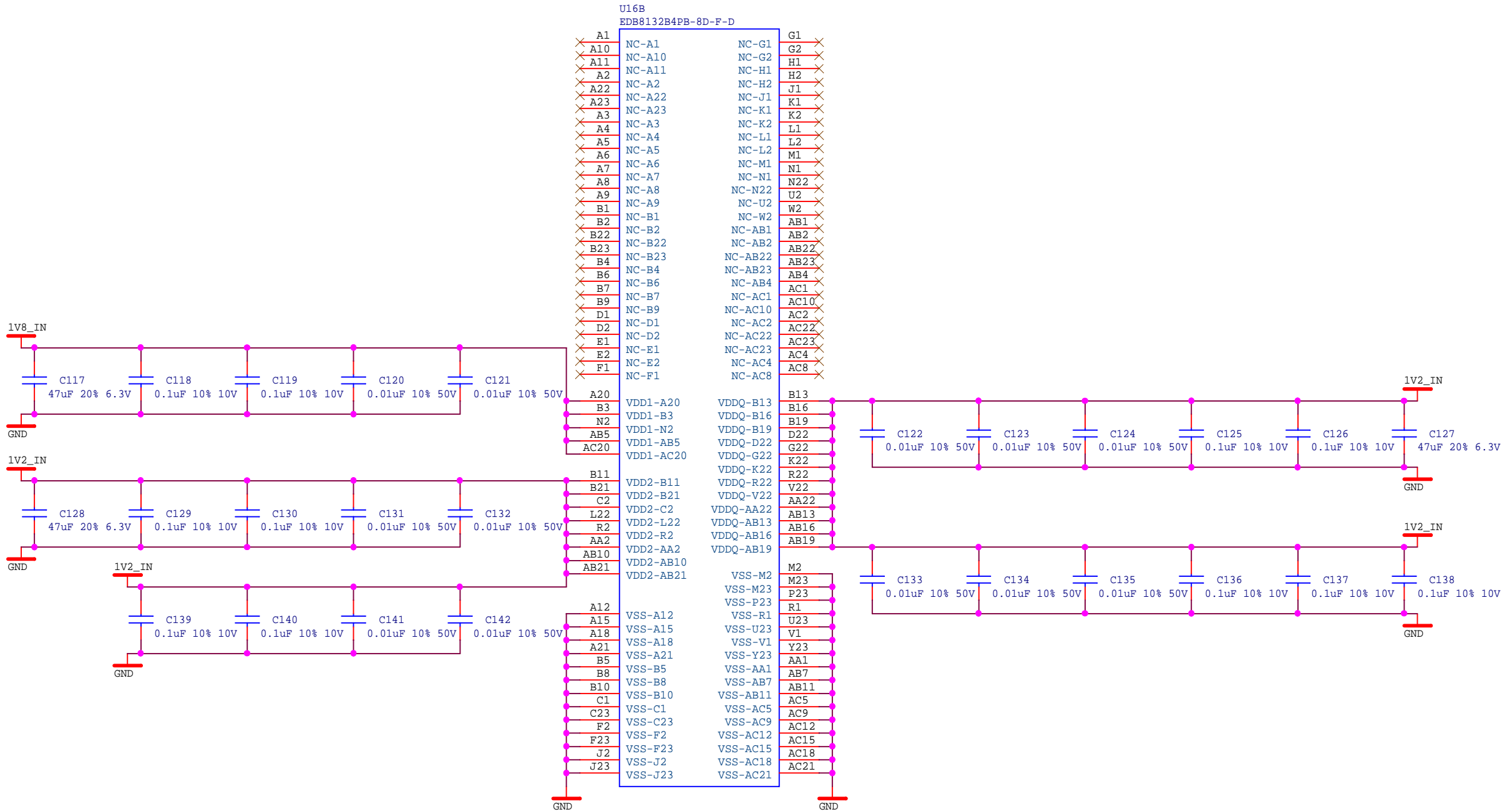


U14B
XC7Z010/XC7Z020

BANK 13



Only for XC7Z020





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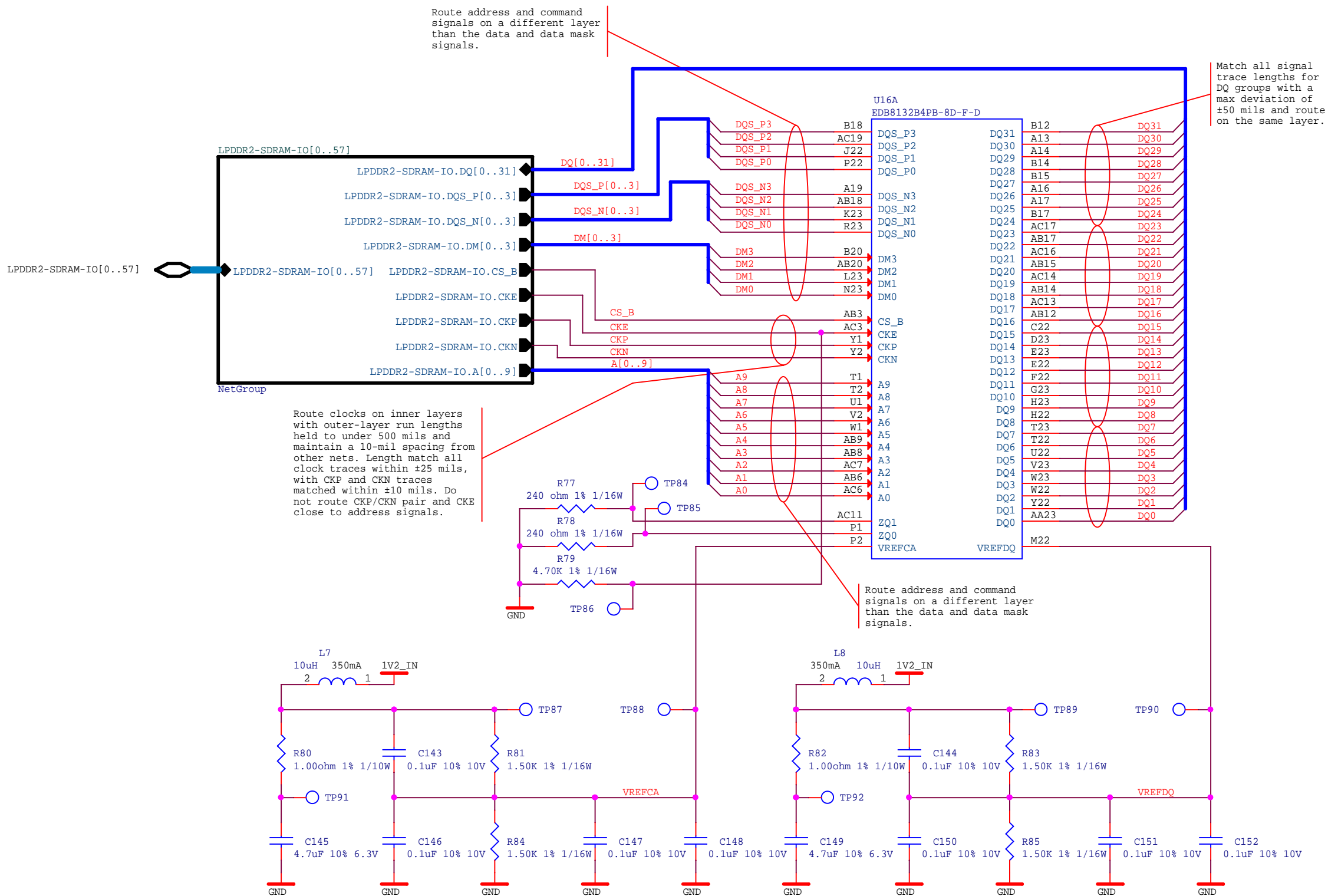
DRAWN BY	B. Hammond	DATE	11/22/2015
CHECKED BY	J. Weatherbee	DATE	11/23/2015
APPROVED BY	J. Weatherbee	DATE	11/23/2015

TITLE
snickerdoodle FPGA Module

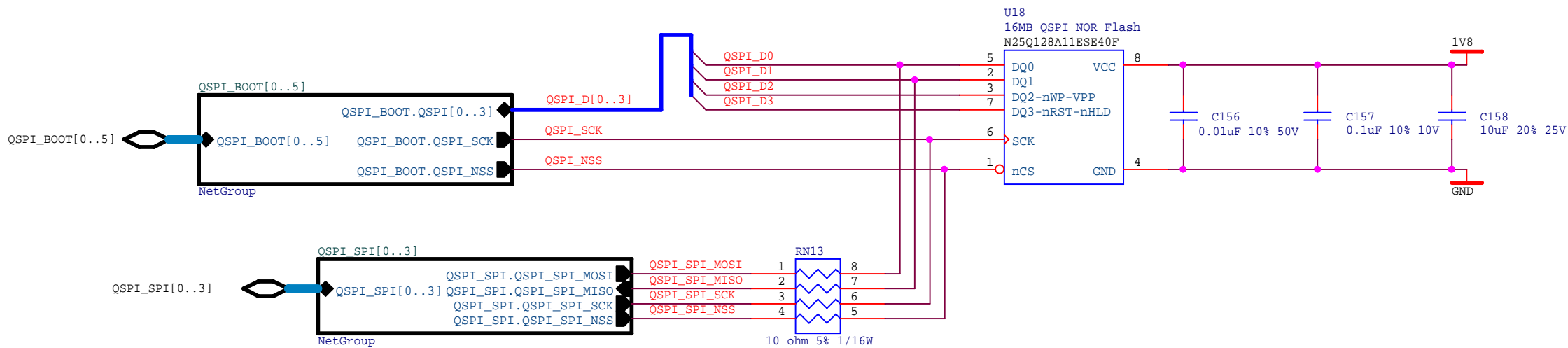
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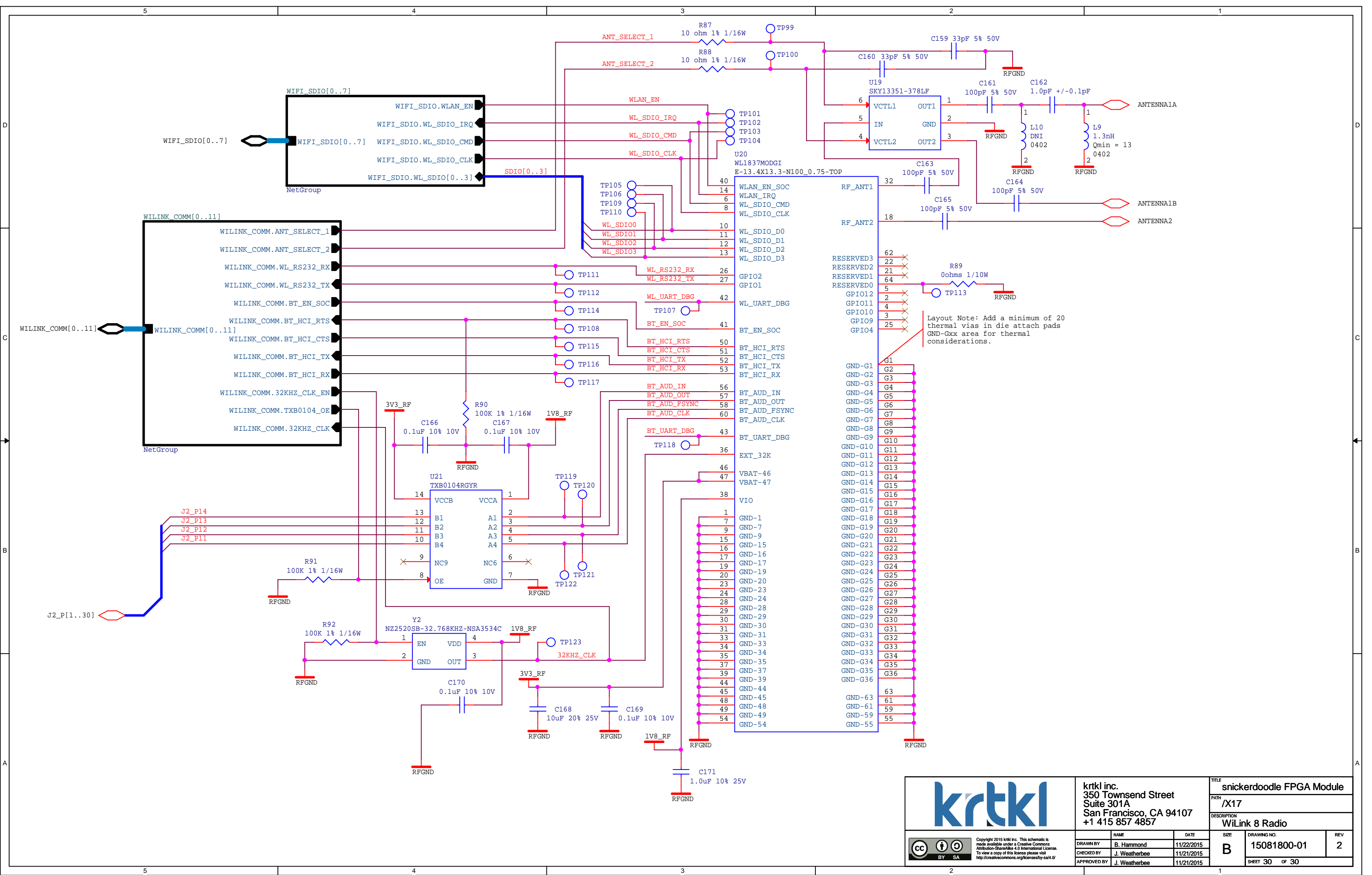
DESCRIPTION
LPDDR2 RAM

SIZE B	DRAWING NO. 15081800-01	REV 2
SHEET 26 OF 30		









		krtkl inc. 350 Townsend Street Suite 301A San Francisco, CA 94107 +1 415 857 4857		TITLE snickerdoodle FPGA Module		
				PATH /X17		
		Copyright 2015 krtkl inc. This schematic is made available under a Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license please visit http://creativecommons.org/licenses/by-sa/4.0/		DESCRIPTION WiLink 8 Radio		
				SIZE B	DRAWING NO. 15081800-01	REV 2
DRAWN BY B. Hammond		DATE 11/22/2015		SHEET 30 OF 30		
CHECKED BY J. Weatherbee		DATE 11/21/2015				
APPROVED BY J. Weatherbee		DATE 11/21/2015				