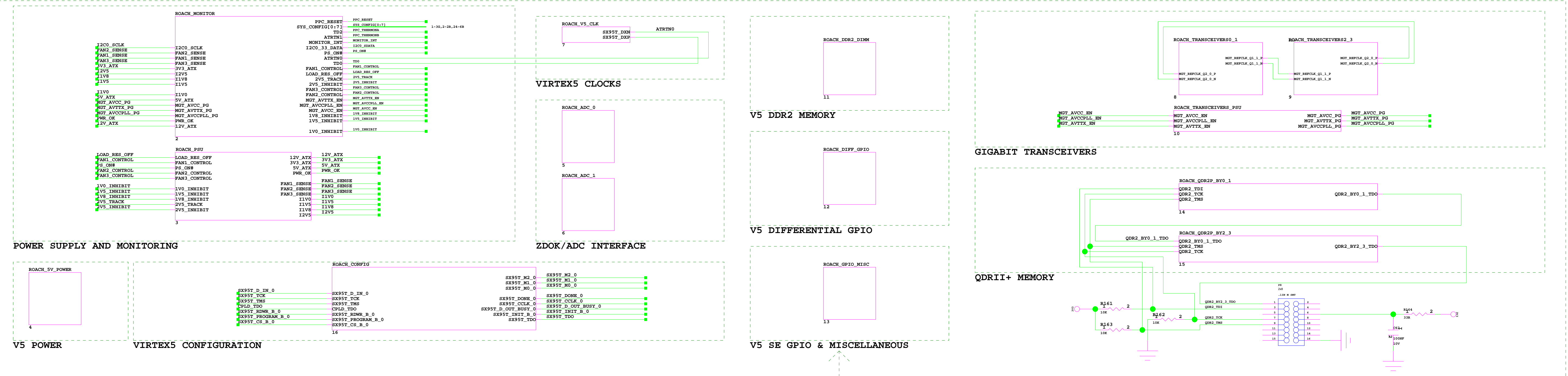
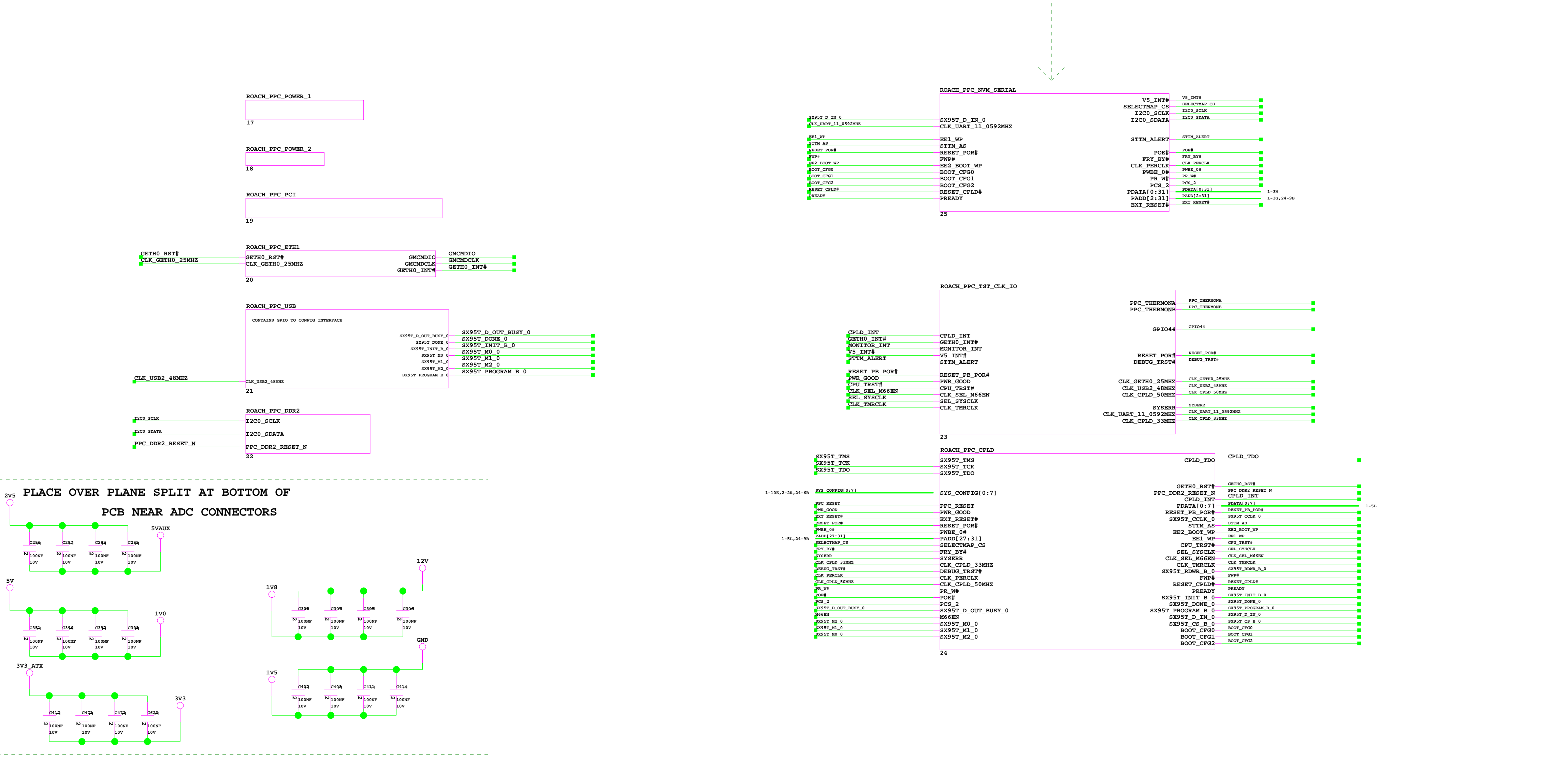


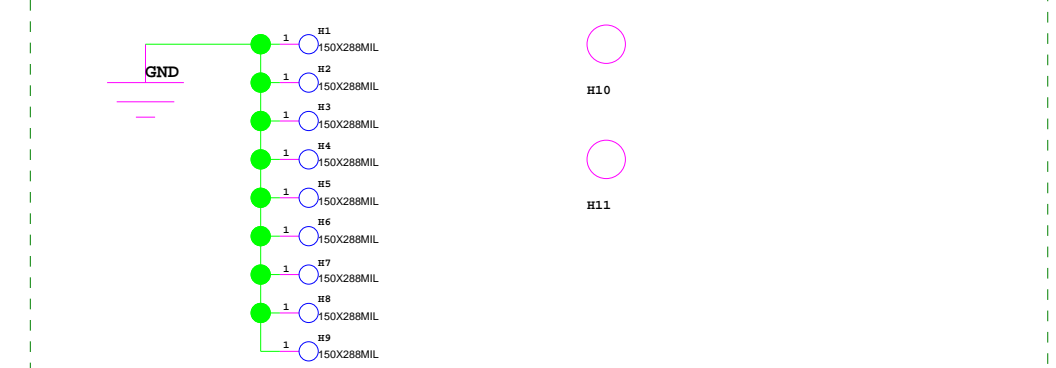
# VIRTEX5



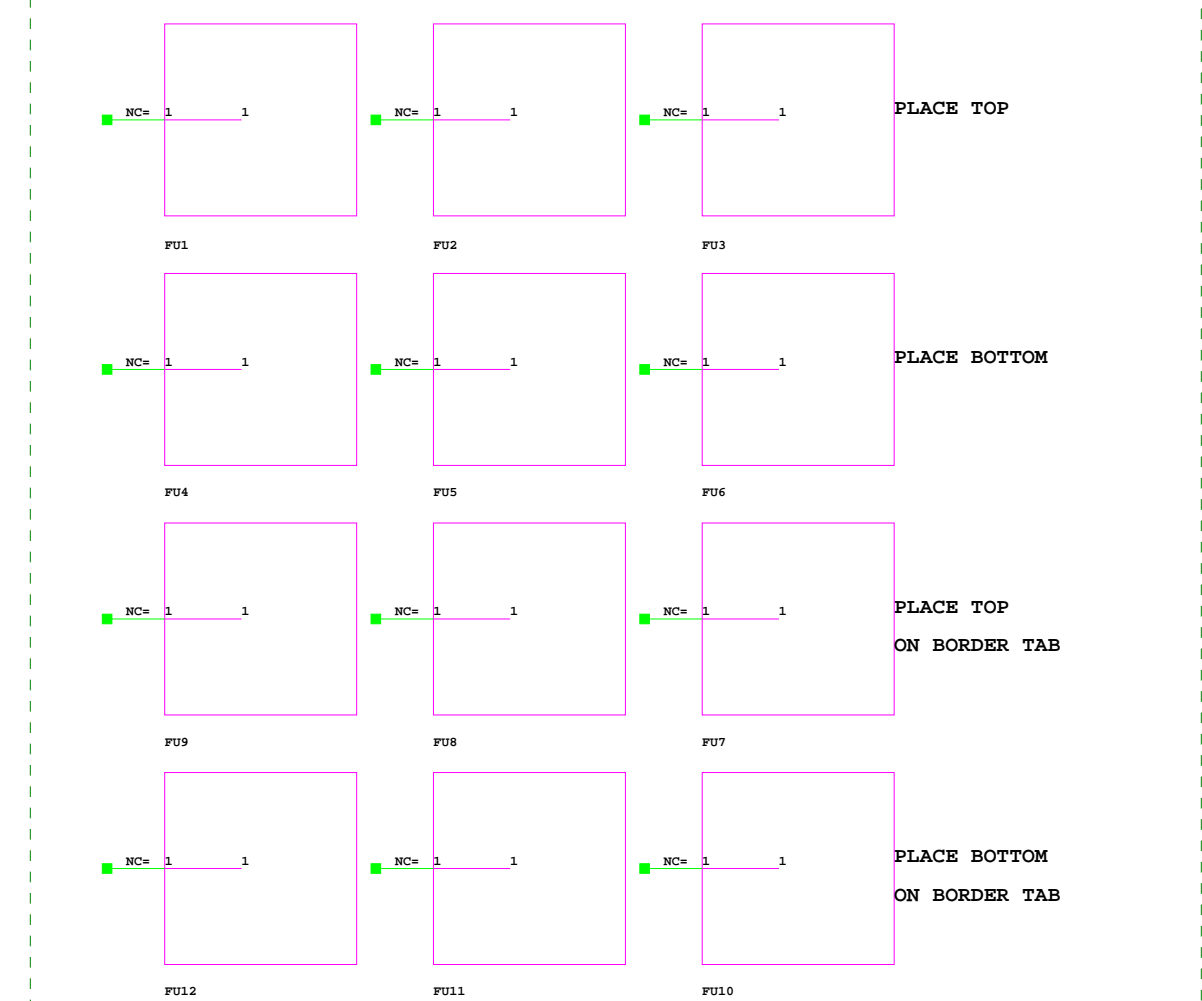
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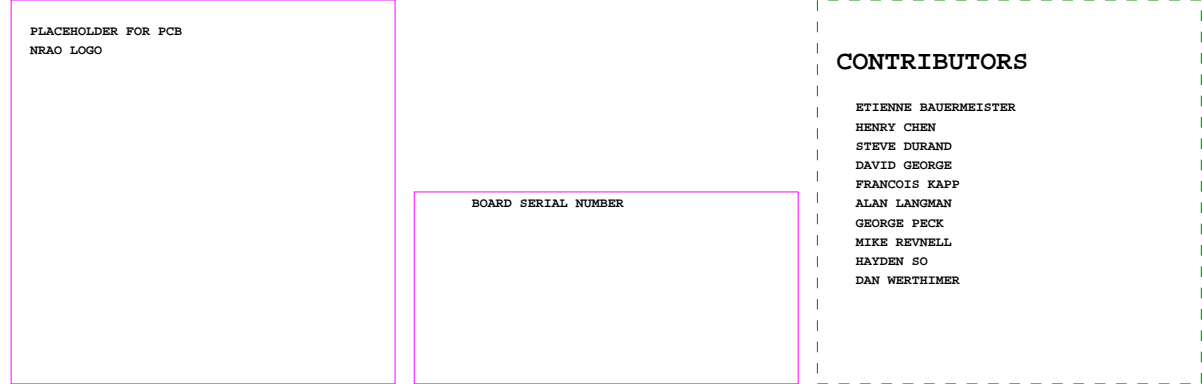
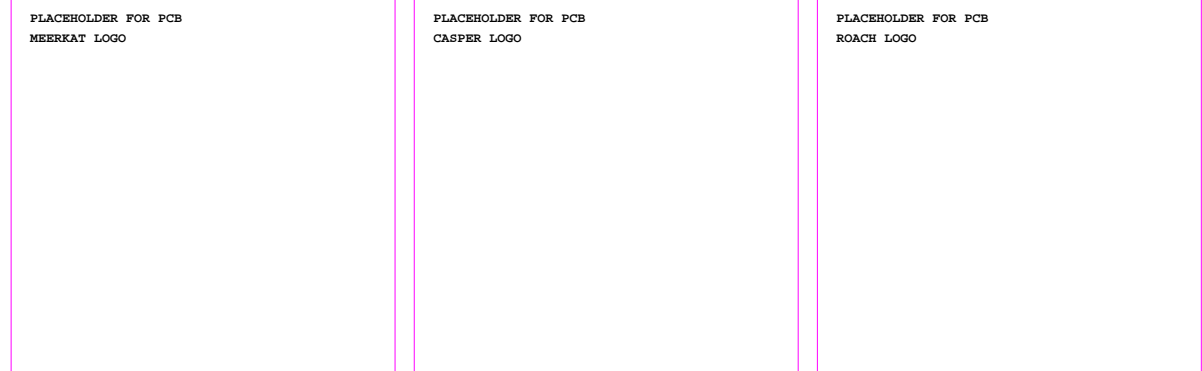
## MECHANICAL



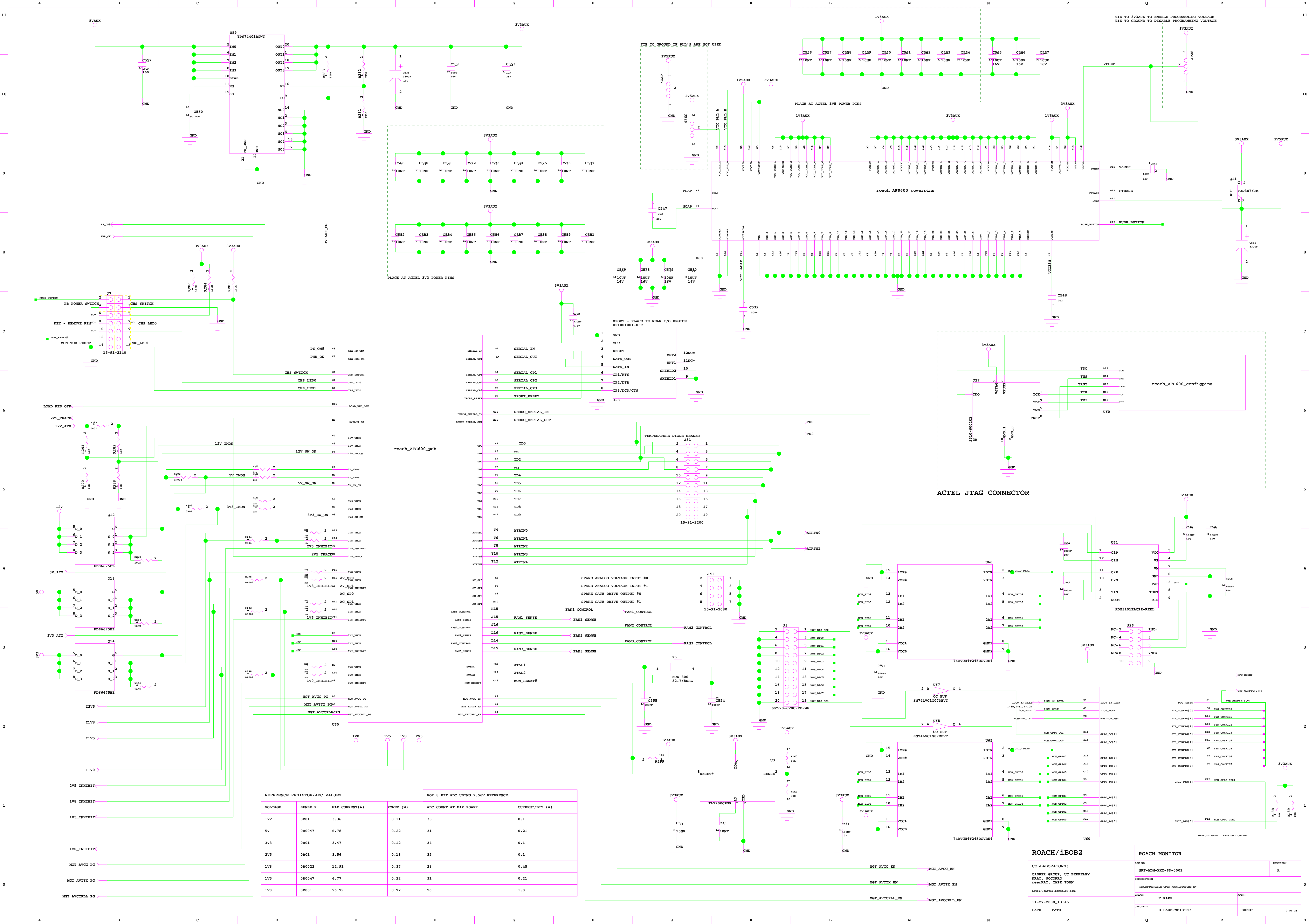
## BOARD FIDUCIALS



## LOGO'S



ROACH/iBOB2		ROACH_TOP	
COLLABORATORS:		DOC NO	REVISION
CASPER GROUP, UC BERKELEY		ROACH	1.0.2
DESCRIPTION		RECONFIGURABLE OPEN ARCHITECTURE HW	
http://casper.berkeley.edu/		BRANCH:	APP:
11-27-2008_13:45		F KAPP	
PATH		CHECKED:	E BAUERMEISTER
		SHEET	1 OF 25



REFERENCE RESISTOR/ADC VALUES					FOR 8 BIT ADC USING 2.56V REFERENCE:	
VOLTAGE	SENSE R	MAX CURRENT (A)	POWER (W)	ADC COUNT AT MAX POWER	CURRENT/BIT (A)	
12V	0R01	3.36	0.11	33	0.1	
5V	0R0047	6.78	0.22	31	0.21	
3V3	0R01	3.47	0.12	34	0.1	
2V5	0R01	3.56	0.13	35	0.1	
1V8	0R0022	12.91	0.37	28	0.45	
1V5	0R0047	6.77	0.22	31	0.21	
1V0	0R001	26.79	0.72	26	1.0	

ROACH/iBOB2

COLLABORATORS:  
CASPER GROUP, UC BERKELEY  
NRAD, SOCCORRO  
BEEKAT, CAPE TOWN  
<http://casper.berkeley.edu/>

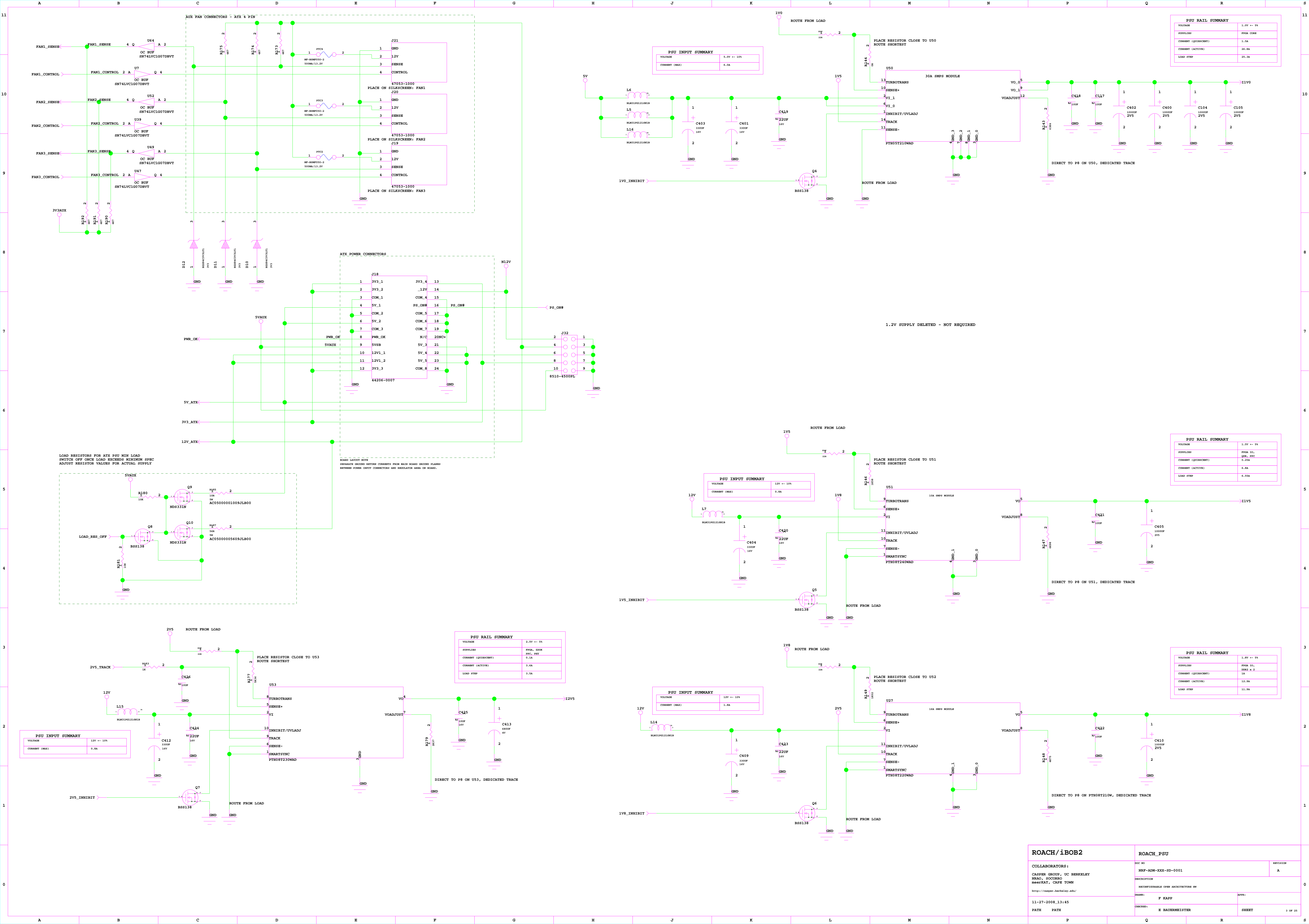
11-27-2008\_13:45  
PATH PATH

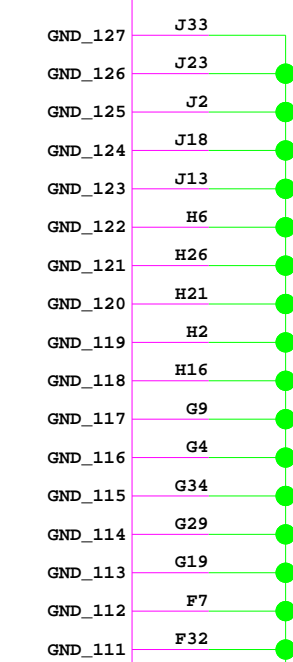
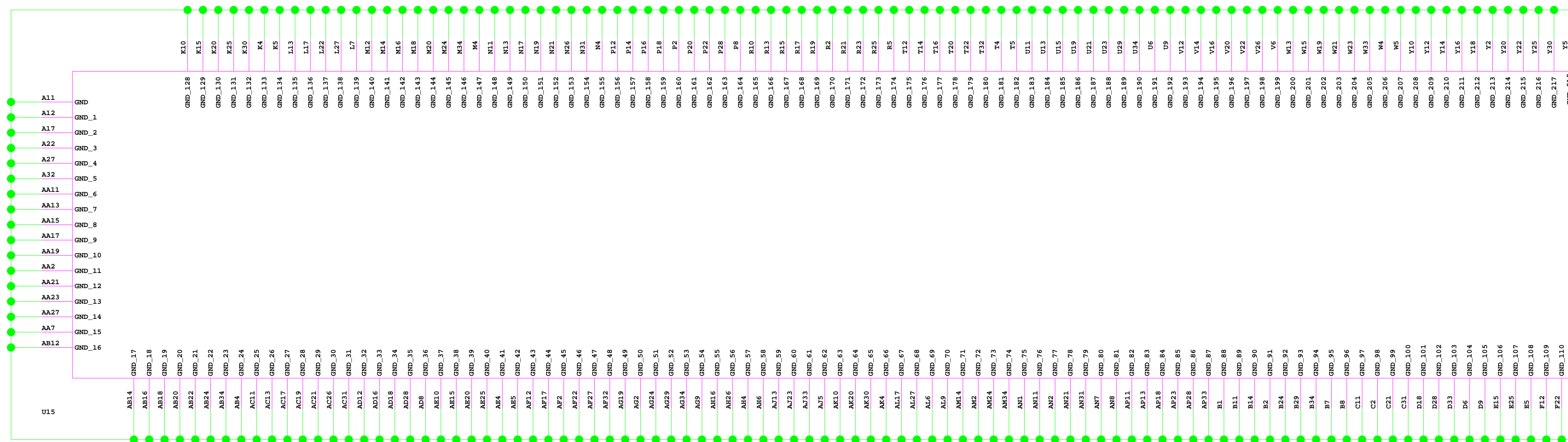
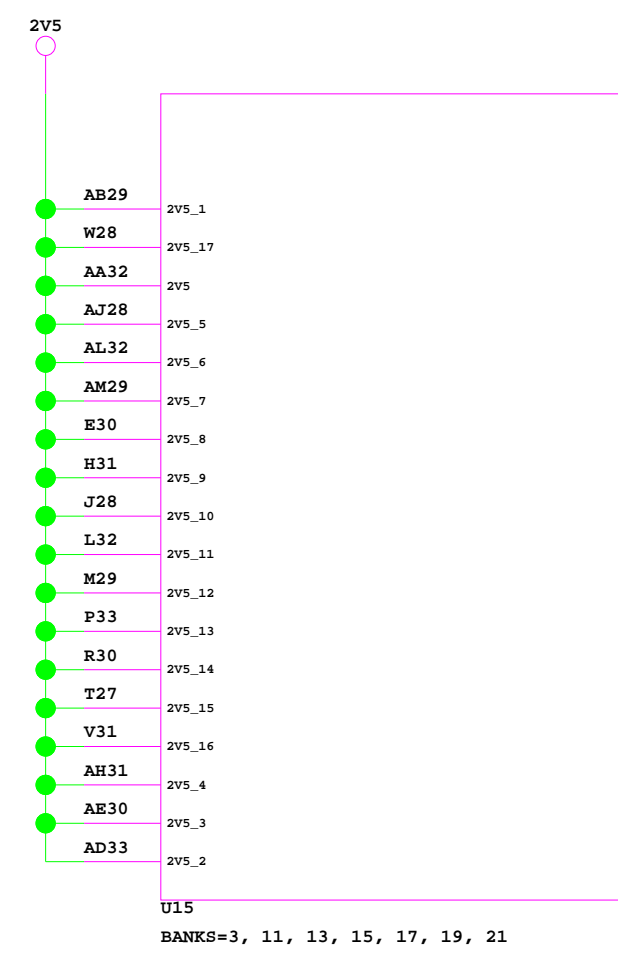
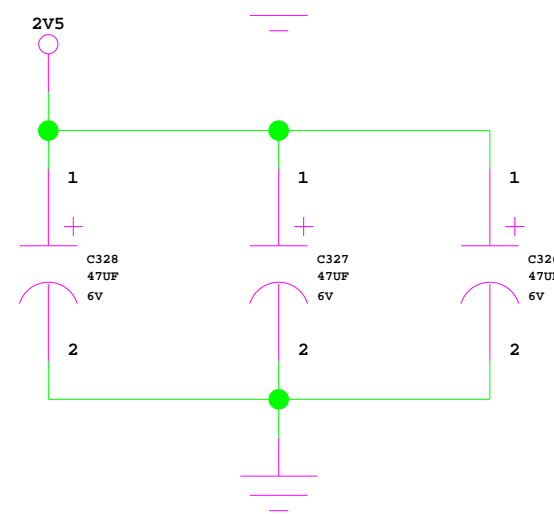
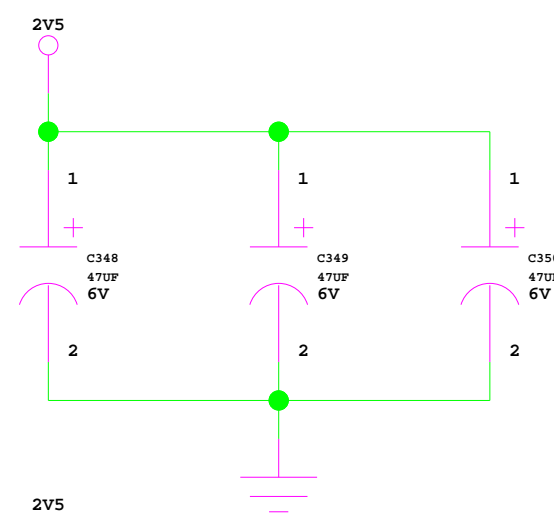
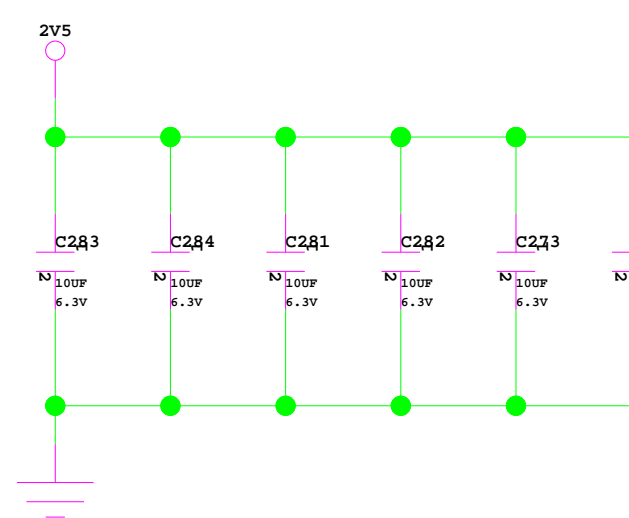
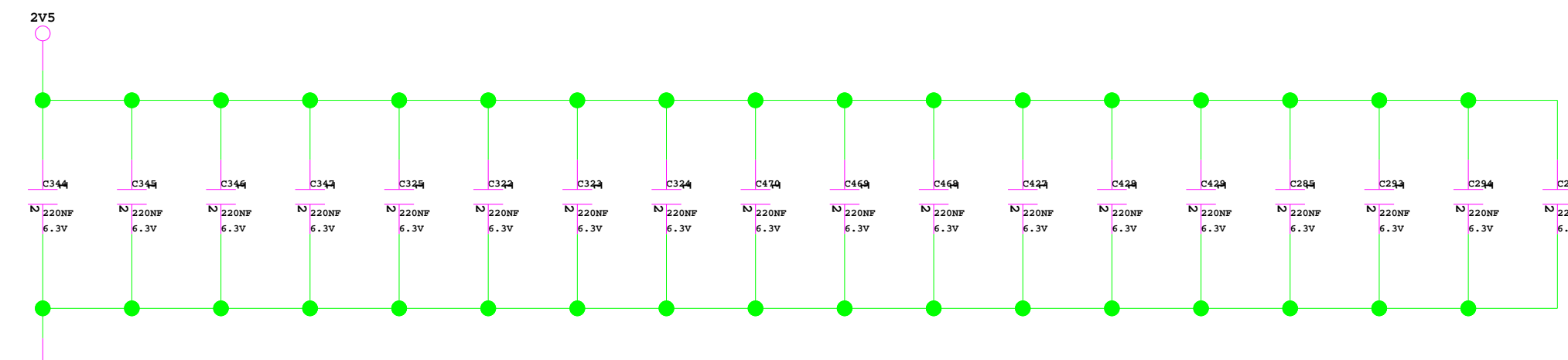
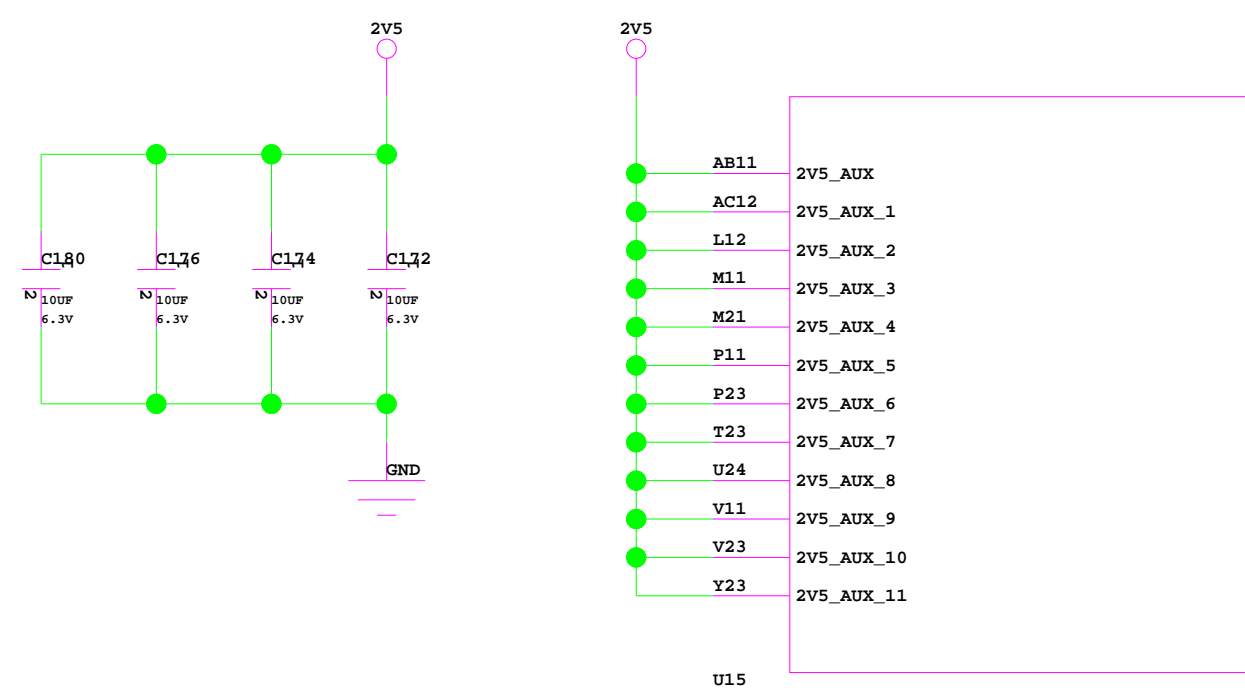
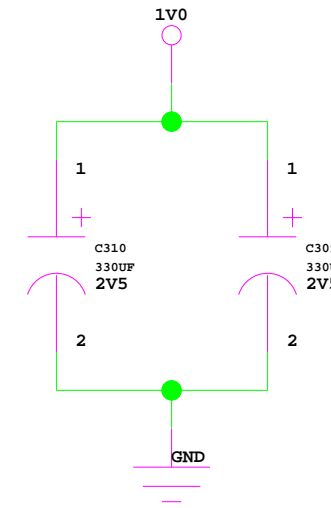
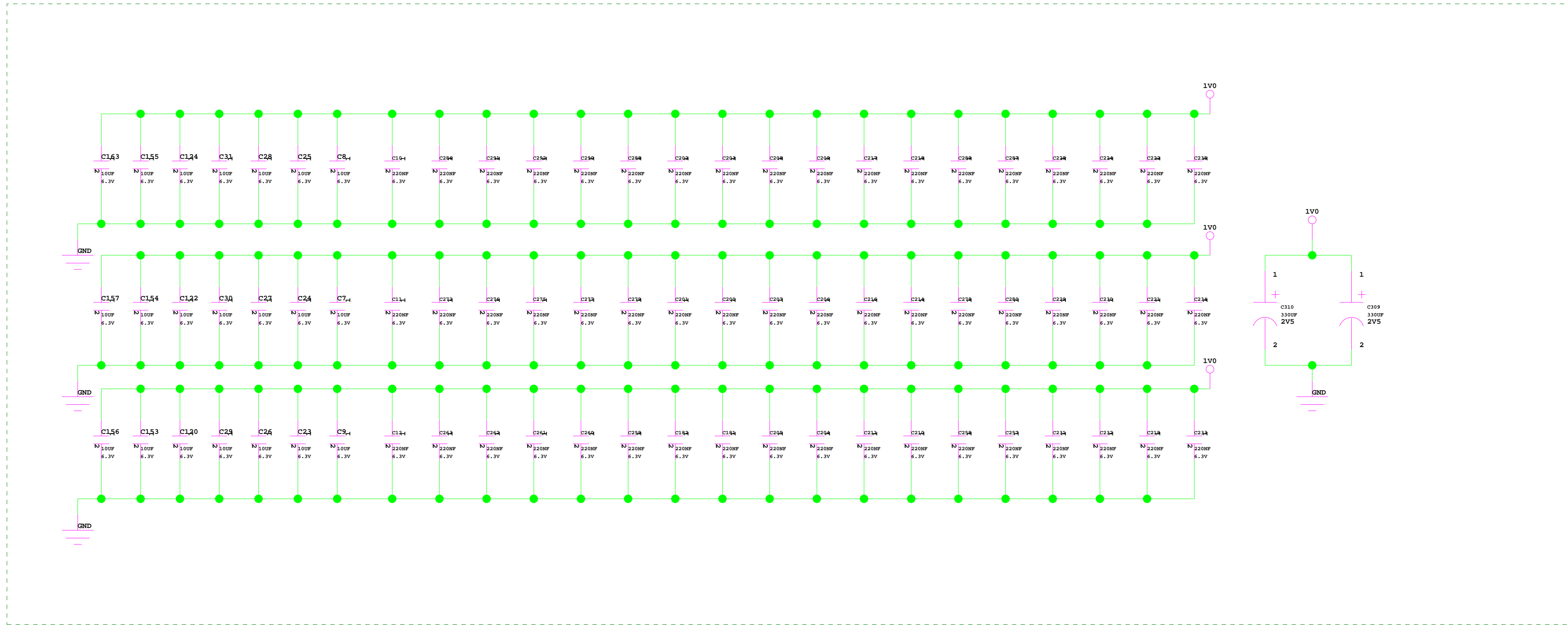
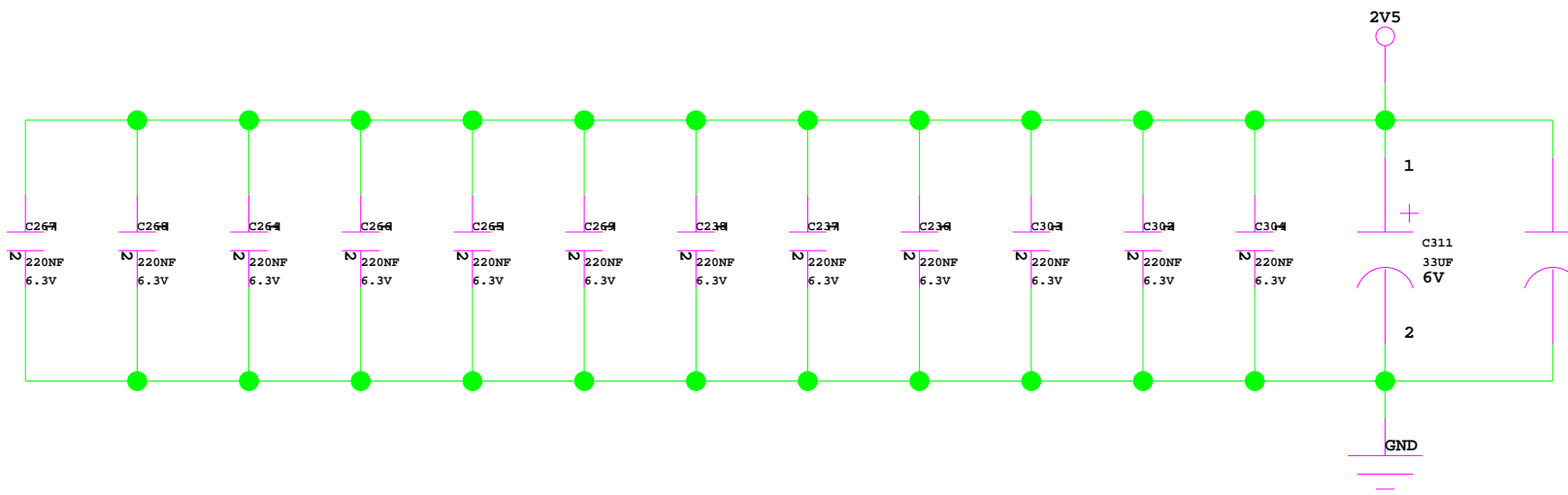
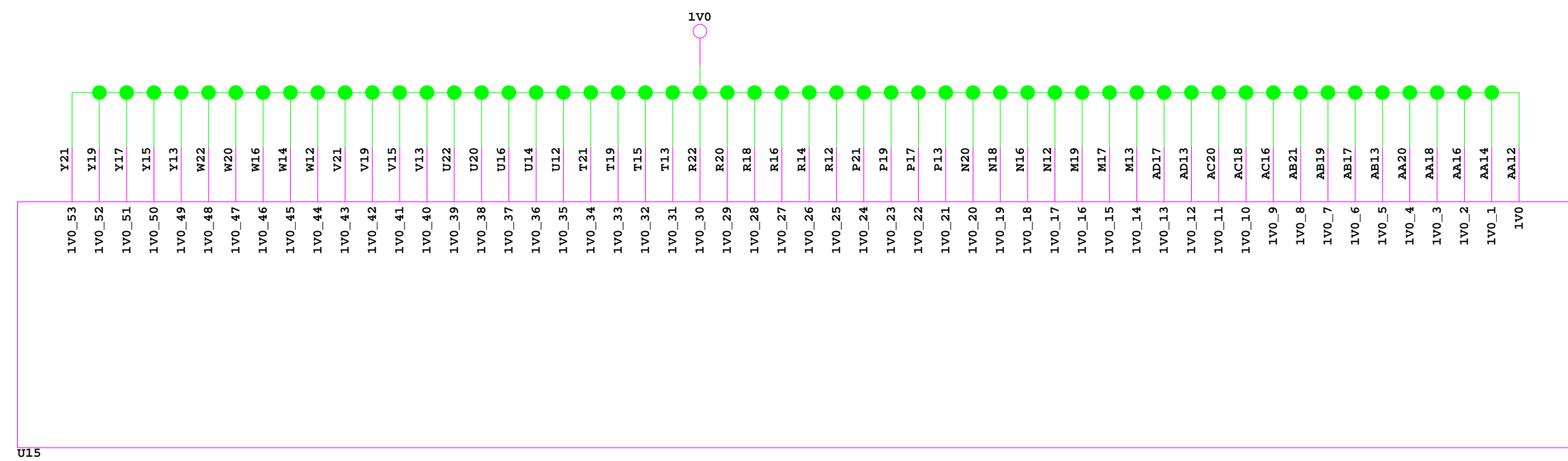
ROACH\_MONITOR

DOC NO: NRP-ADM-XXX-BD-0001  
DESCRIPTION: RACONFIGURABLE OPEN ARCHITECTURE RM  
DRAWN: F KAPP  
CHECKED: K BAUERMEISTER

REVISION: A  
SHEET 2 OF 25





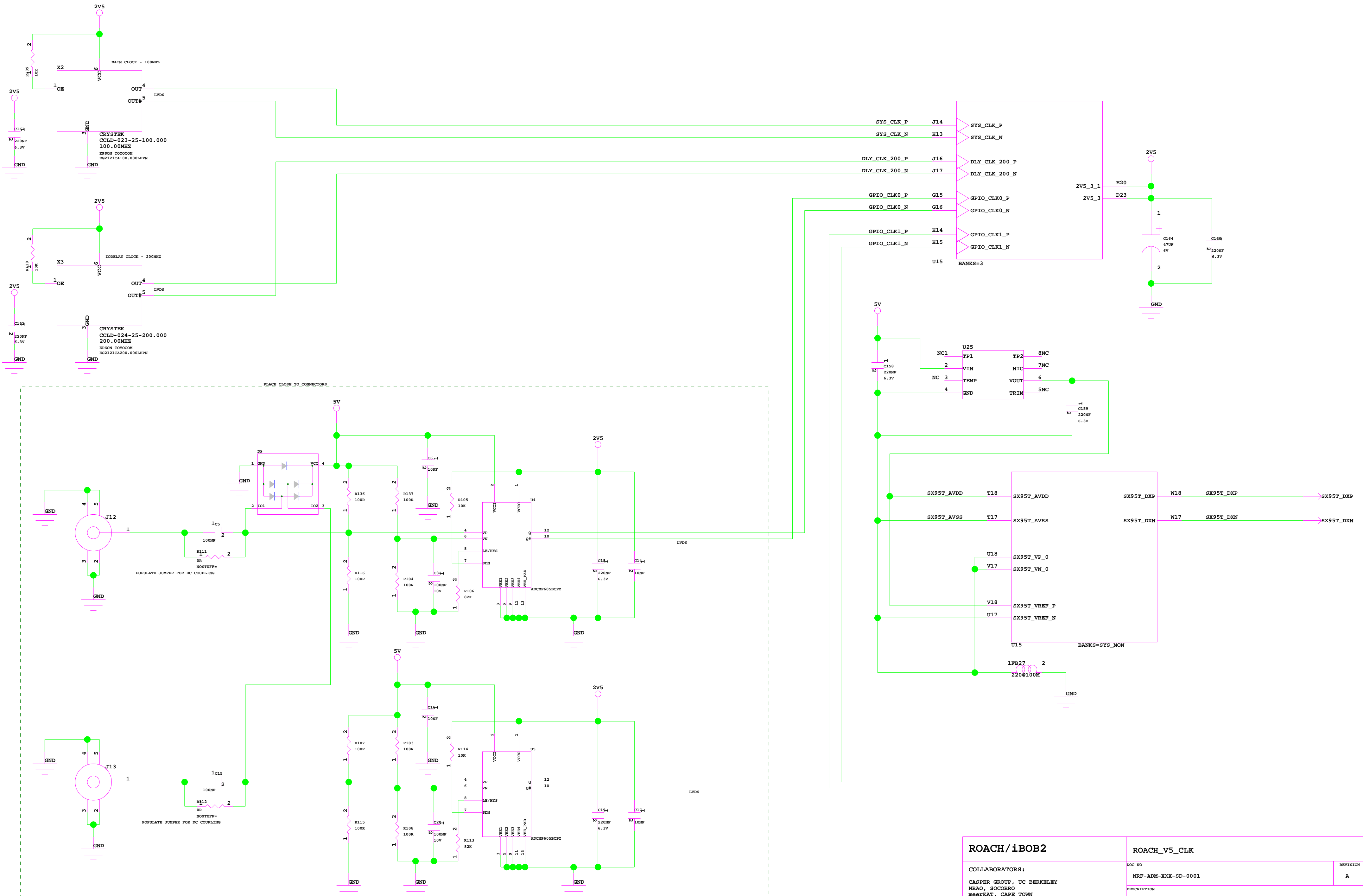


ROACH / iBOB2		ROACH_5V_POWER	
COLLABORATORS:		DOC NO	REVISION
CAPSER GROUP, UC BERKELEY BRAND, ESCORRO MEERKAT, CAPE TOWN		NRP-ADM-XXX-SD-0001	A
DESCRIPTION		RECONFORMABLE OPEN ARCHITECTURE SW	
http://casper.berkeley.edu/		PRJNM:	APPR:
11-27-2008-13:45		F KAPP	
PATH PATH		CHECKED:	SHEET
		E BAUMHEIMER	4 OF 2

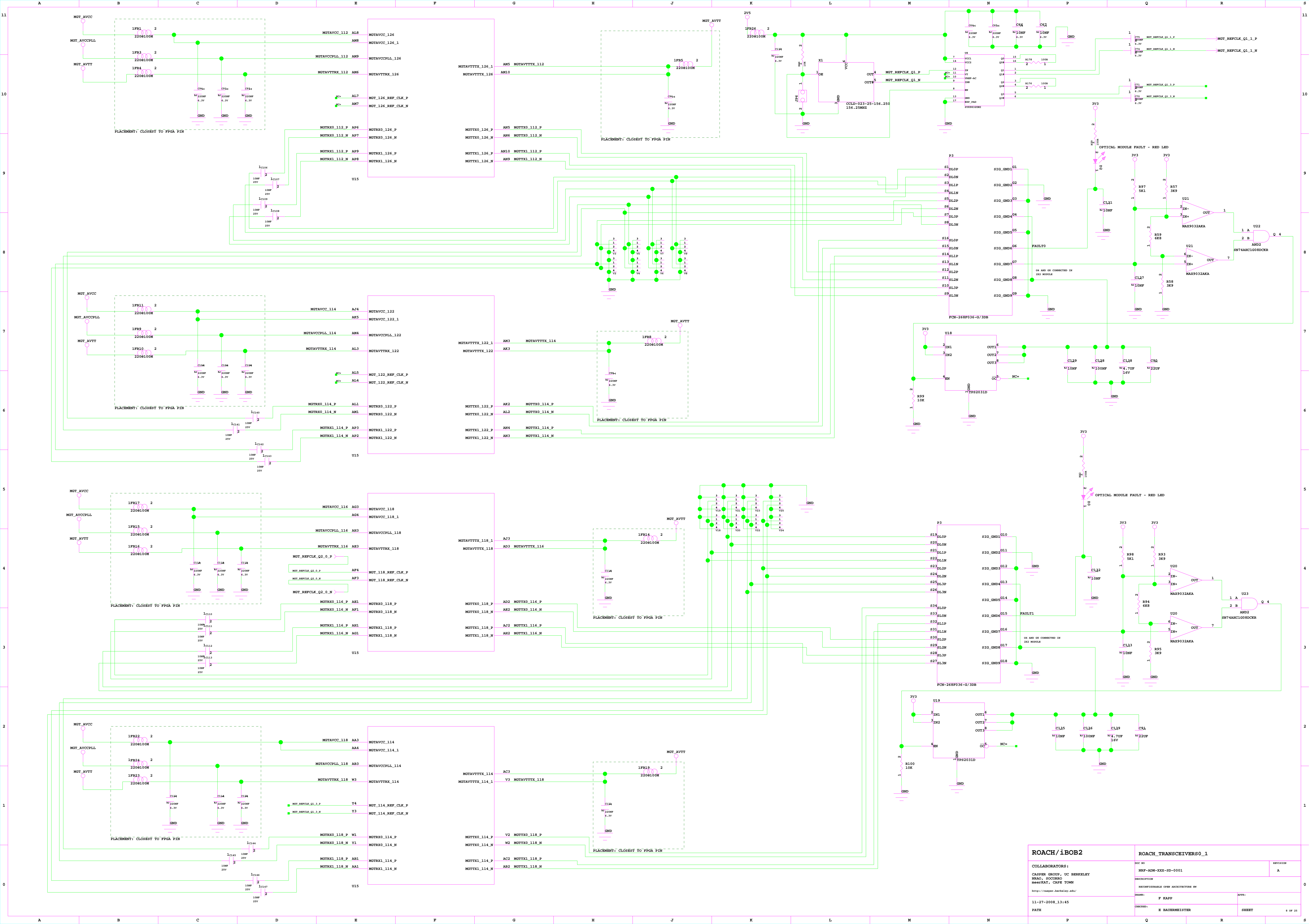




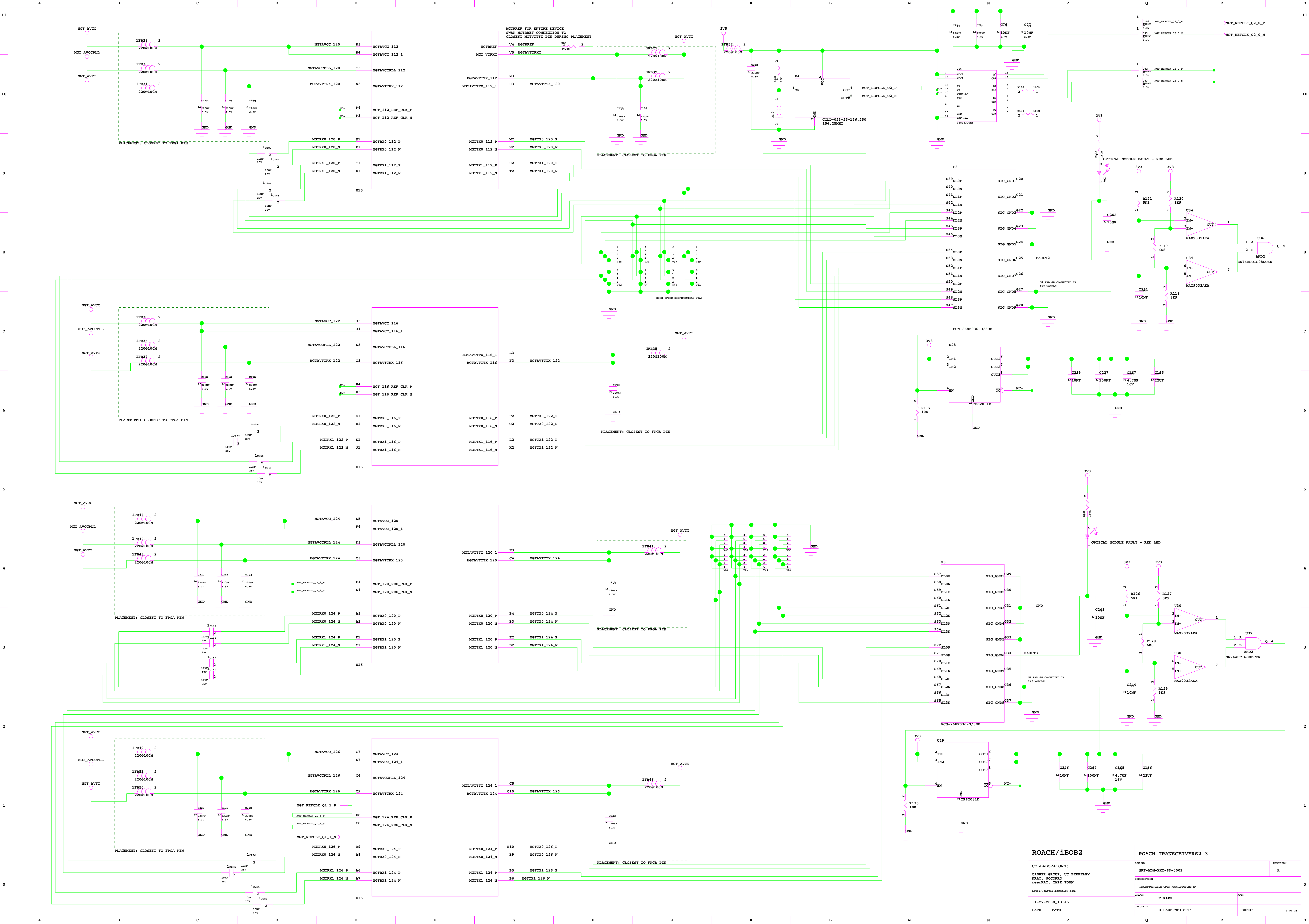


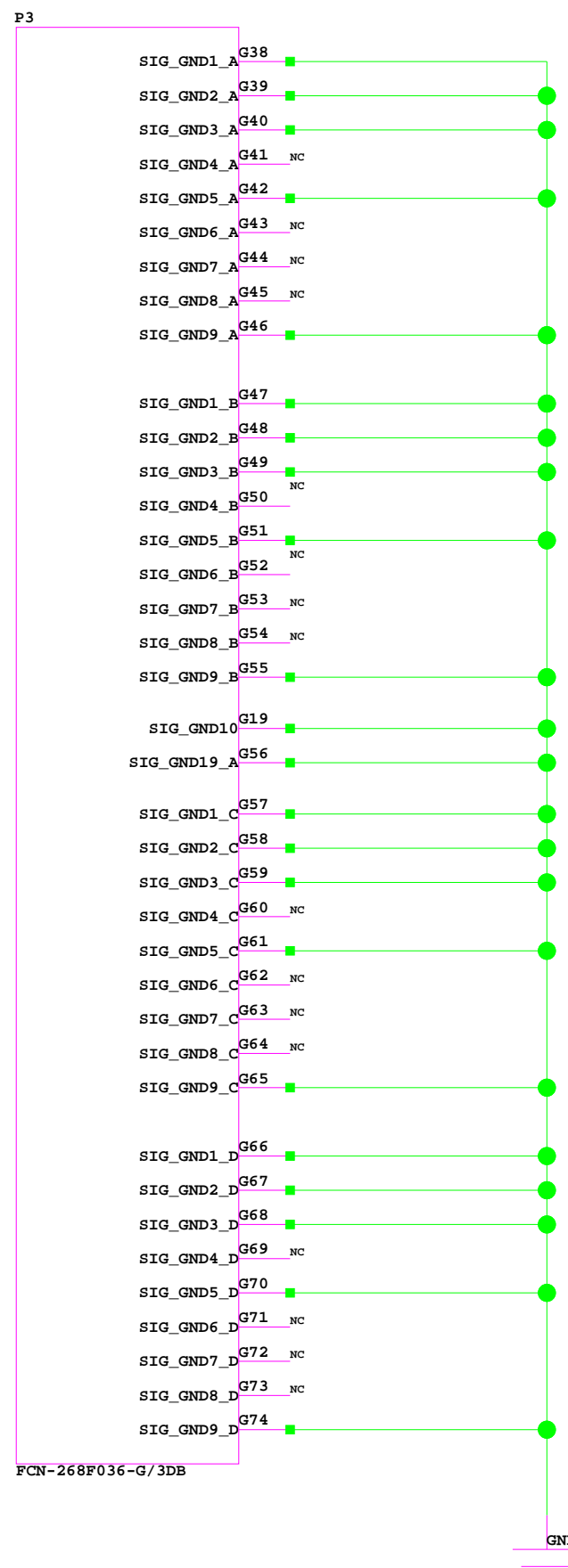
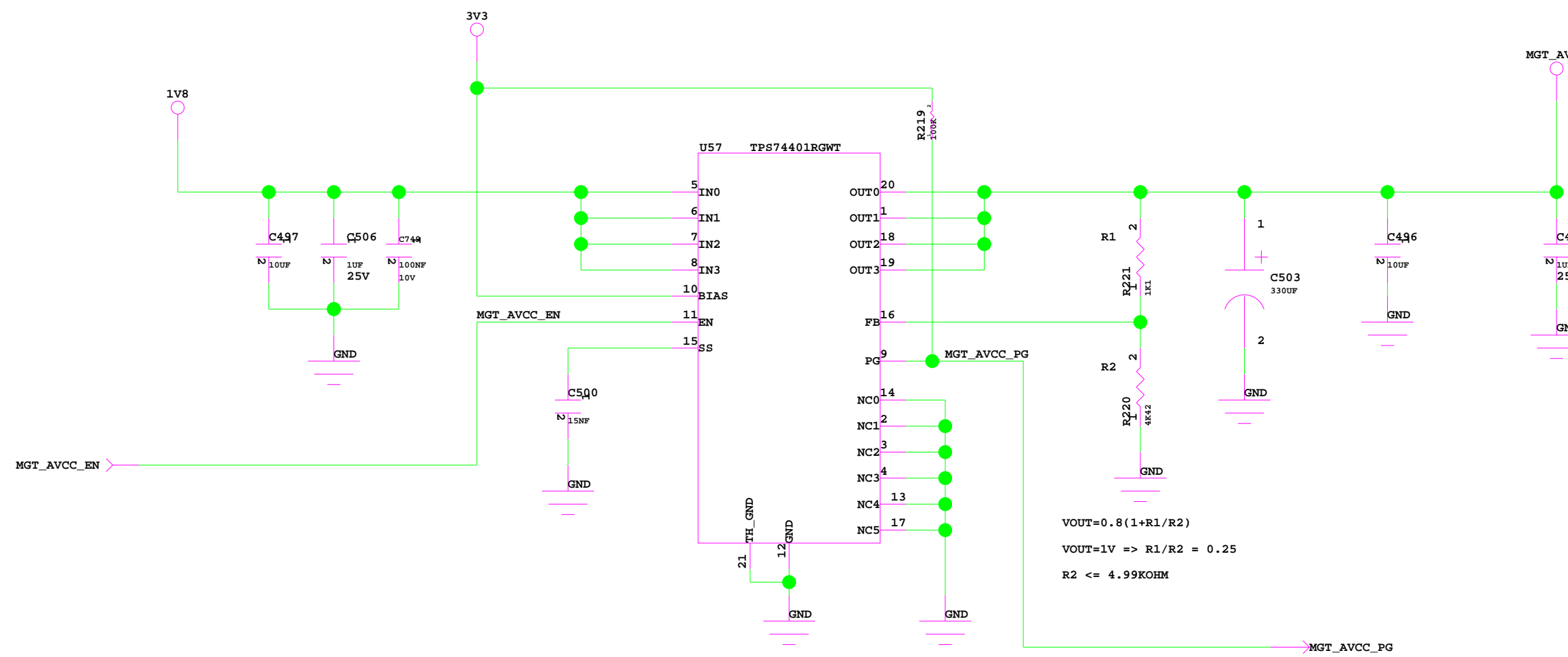
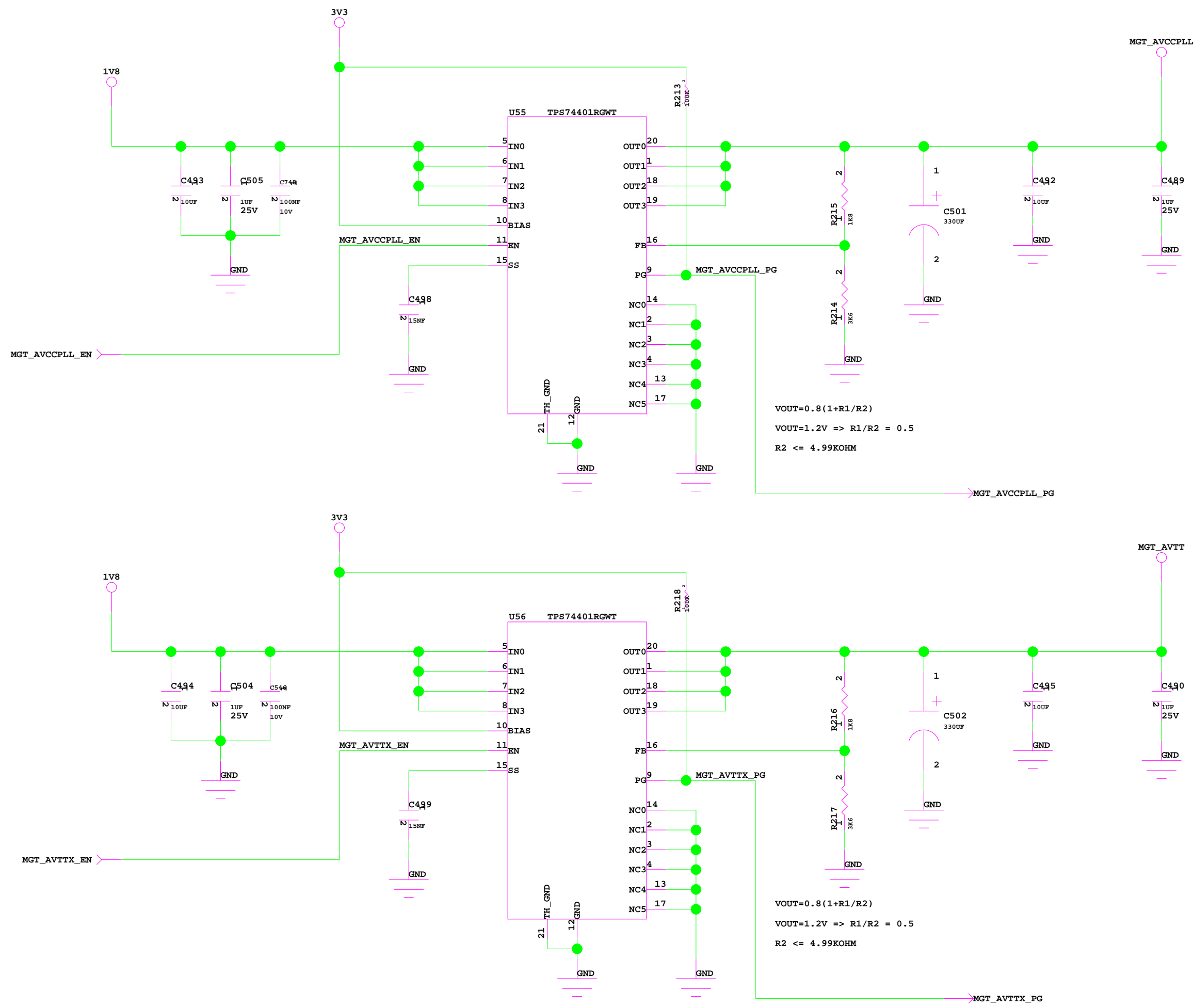


ROACH/iBOB2		ROACH_V5_CLK	
COLLABORATORS: CASPER GROUP, UC BERKELEY NRAO, SOCORRO meerKAT, CAPE TOWN  http://casper.berkeley.edu/	DOC NO NRF-ADM-XXX-SD-0001		REVISION A
	DESCRIPTION RECONFIGURABLE OPEN ARCHITECTURE HW		
	DRAWN: F KAPP		APPR:
	CHECKED: E BAUERMEISTER		SHEET 7 OF 25
11-27-2008_13:45			
PATH    PATH			



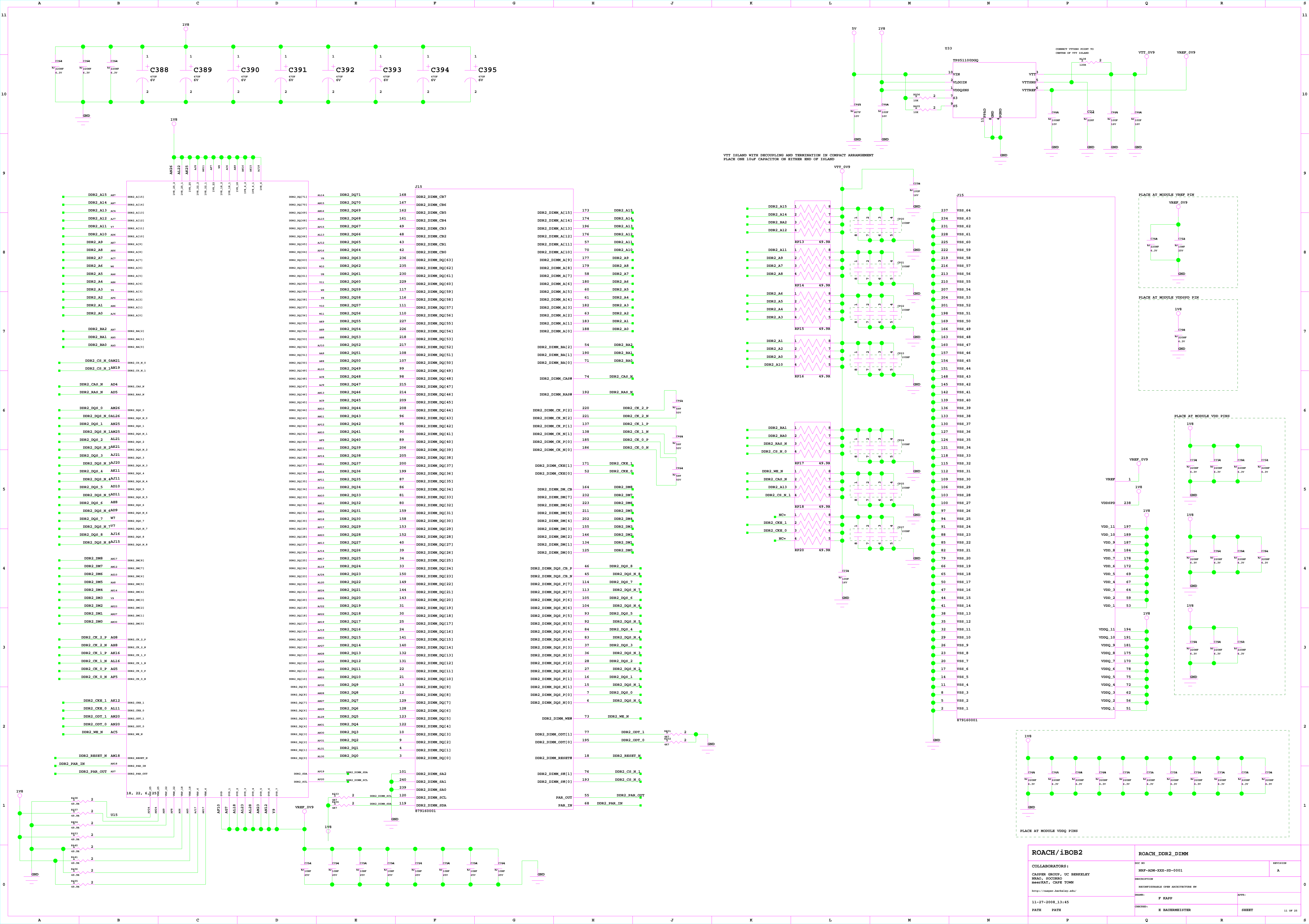




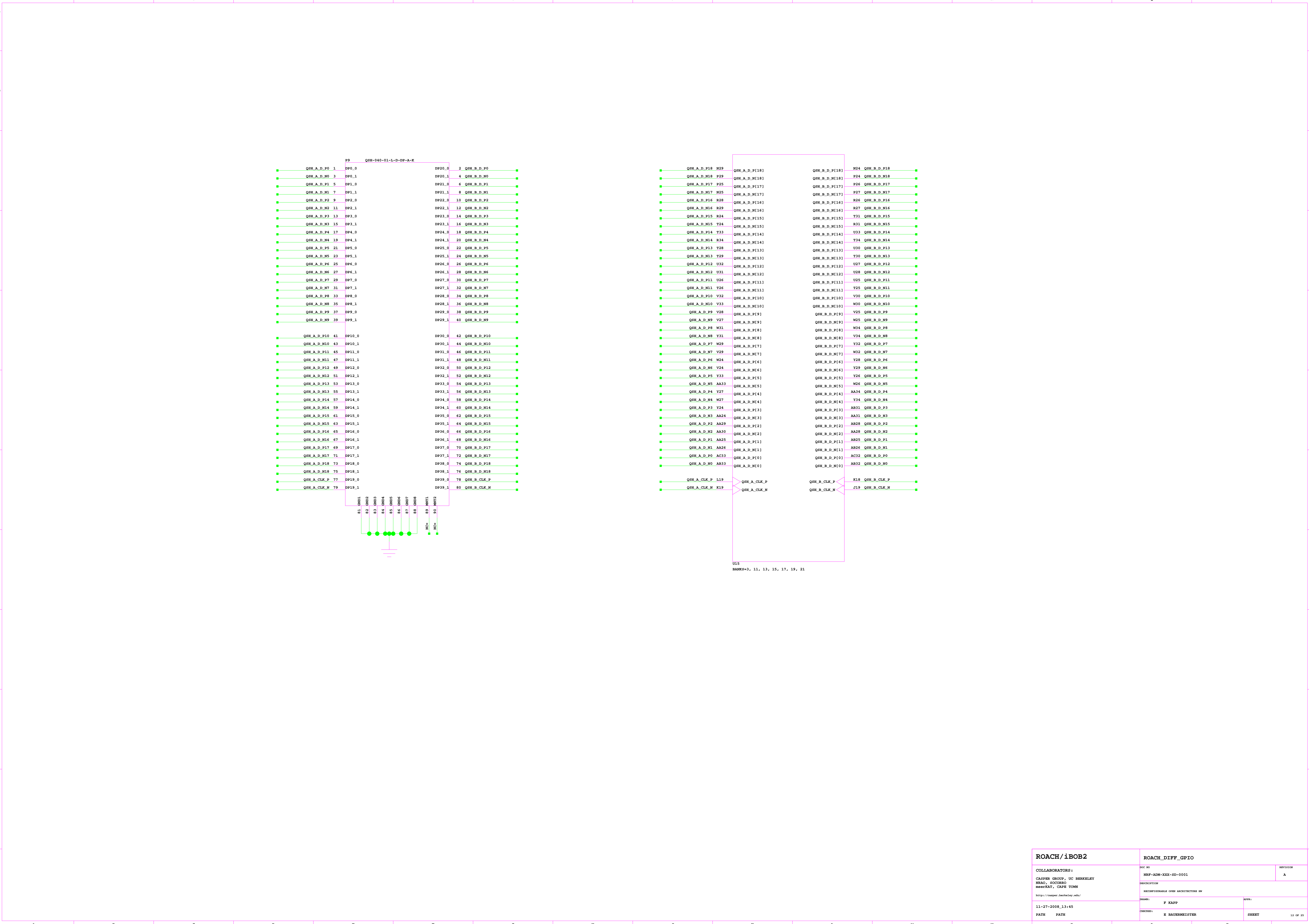


ROACH/iBOB2				ROACH_TRANSCEIVERS_PSU			
COLLABORATORS:				DOC NO:	NRF-ADN-XXIX-BD-0001		REVISION:
CASPER GROUP, UC BERKELEY						A	
NRAD, SOCORRO				DESCRIPTION:			
BEEFAT, CAPE TOWN				RECONFIGURABLE OPEN ARCHITECTURE IM			
http://casper.berkeley.edu/				DRAWN:	F KAPP		APPV:
11-27-2008_13:45				CHECKED:	E BAUERMEISTER		SHEET
PATH	PATH						10 OF 35

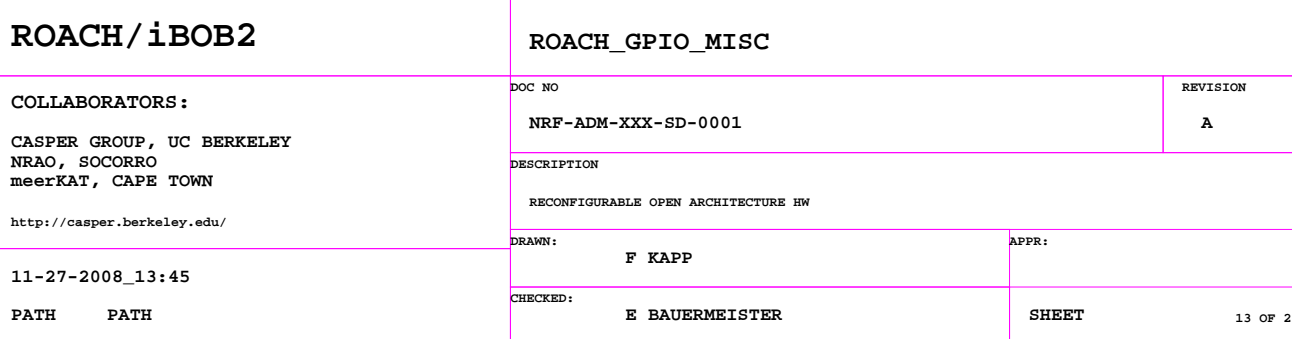


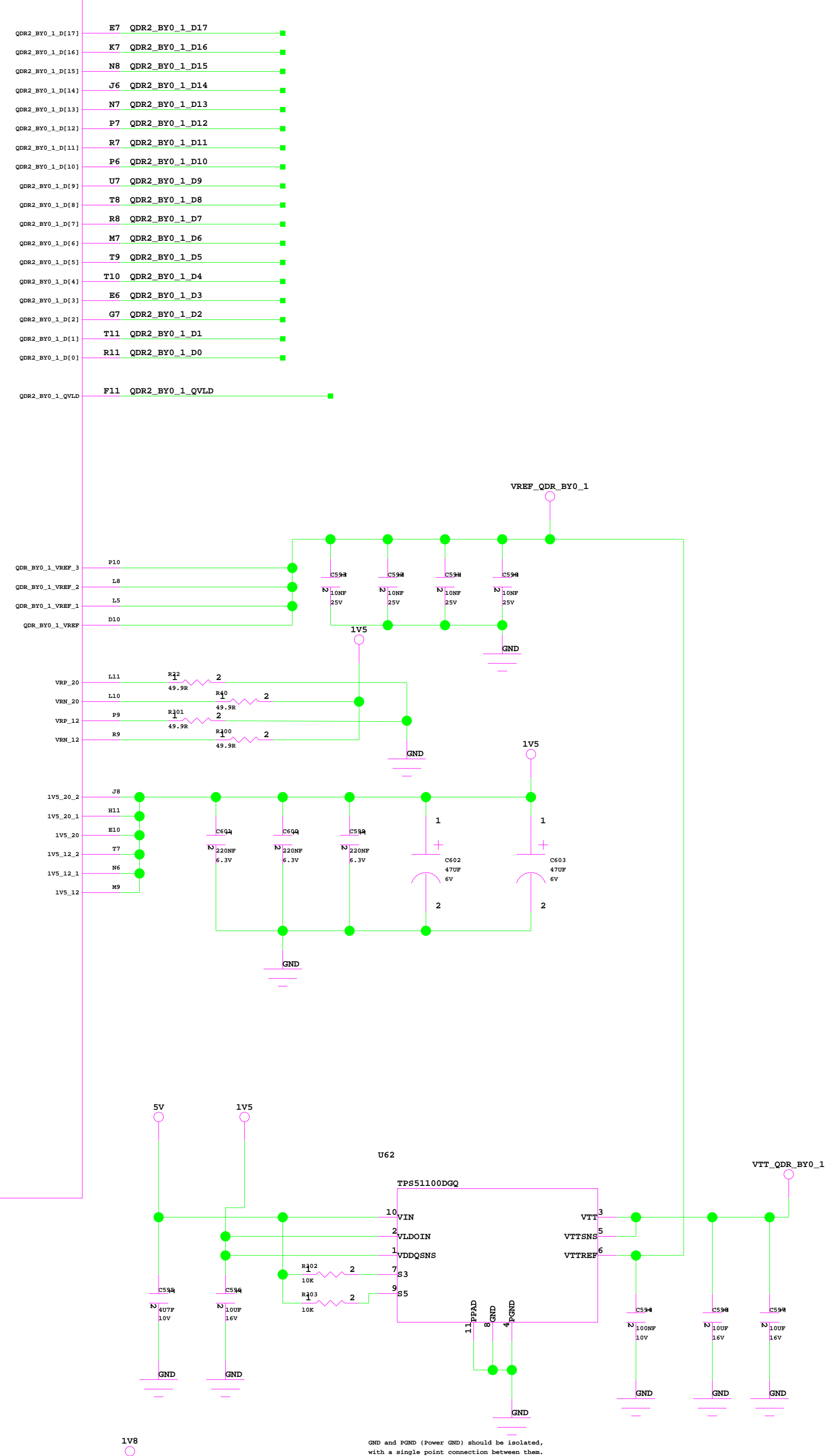
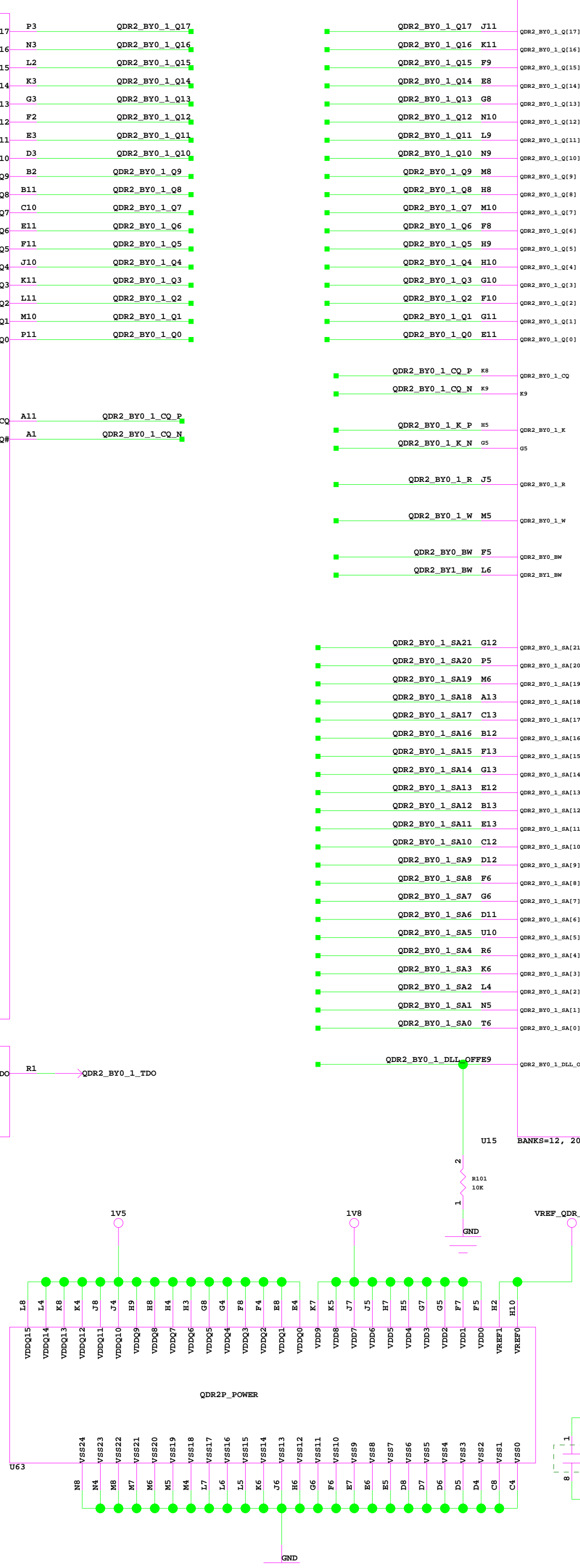
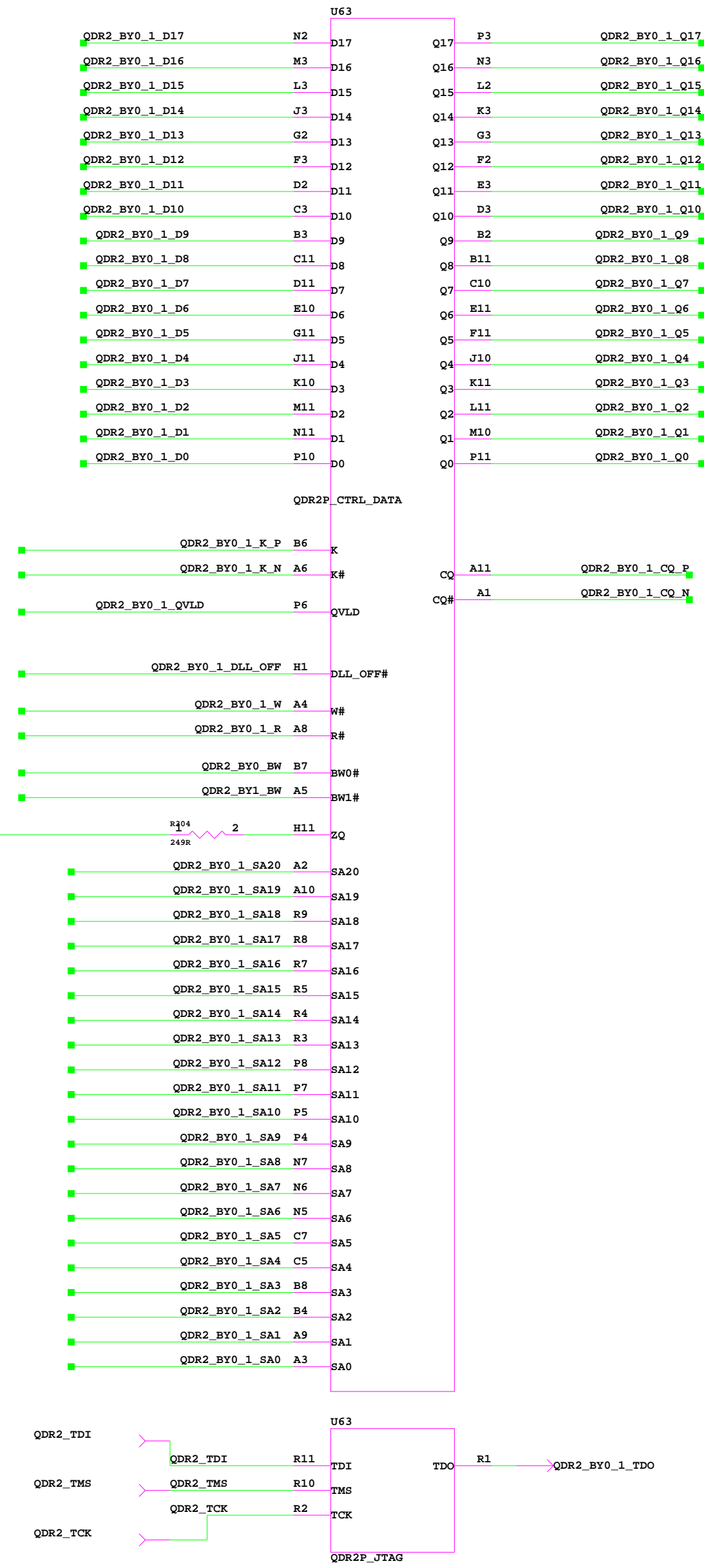
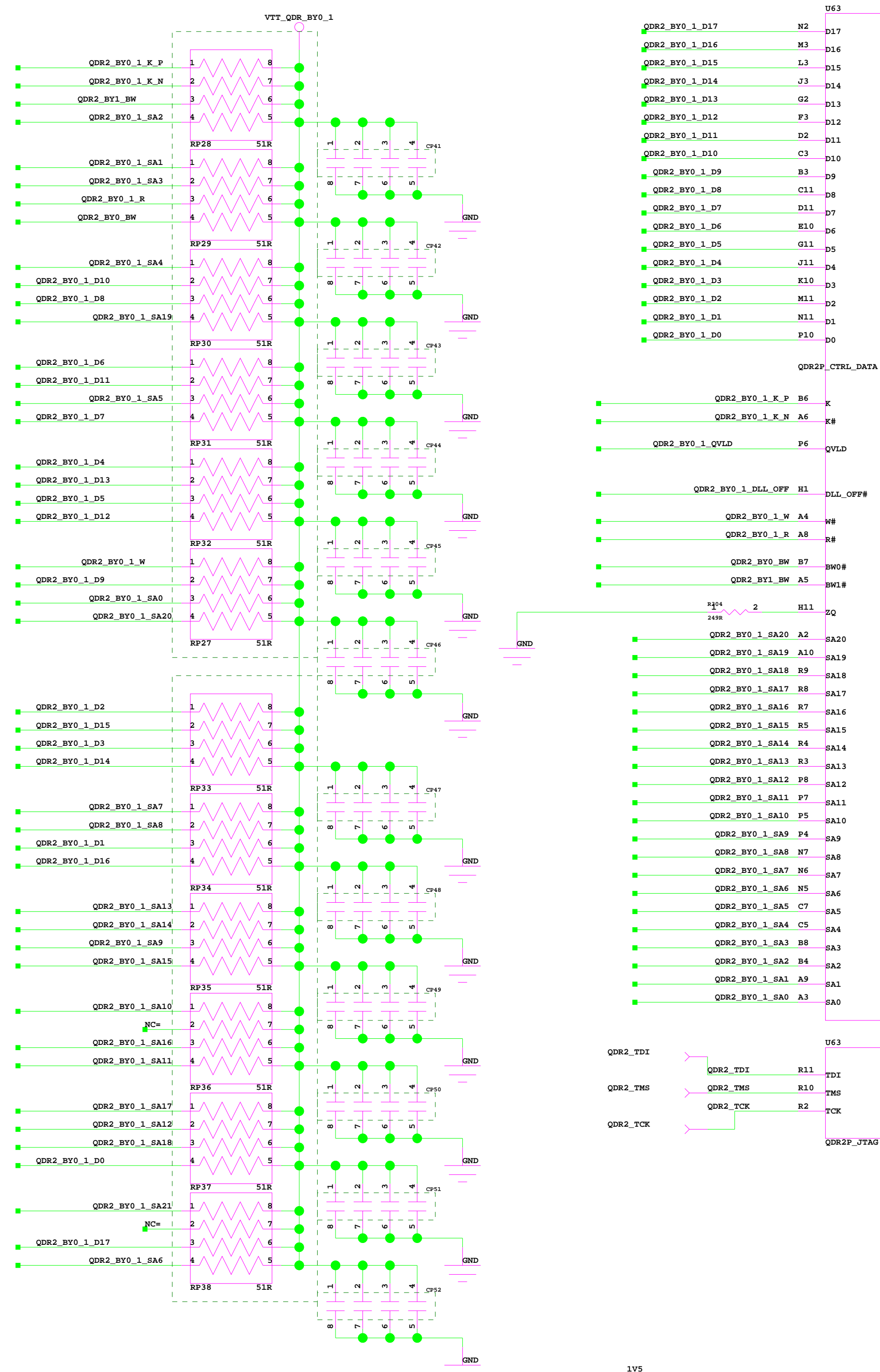






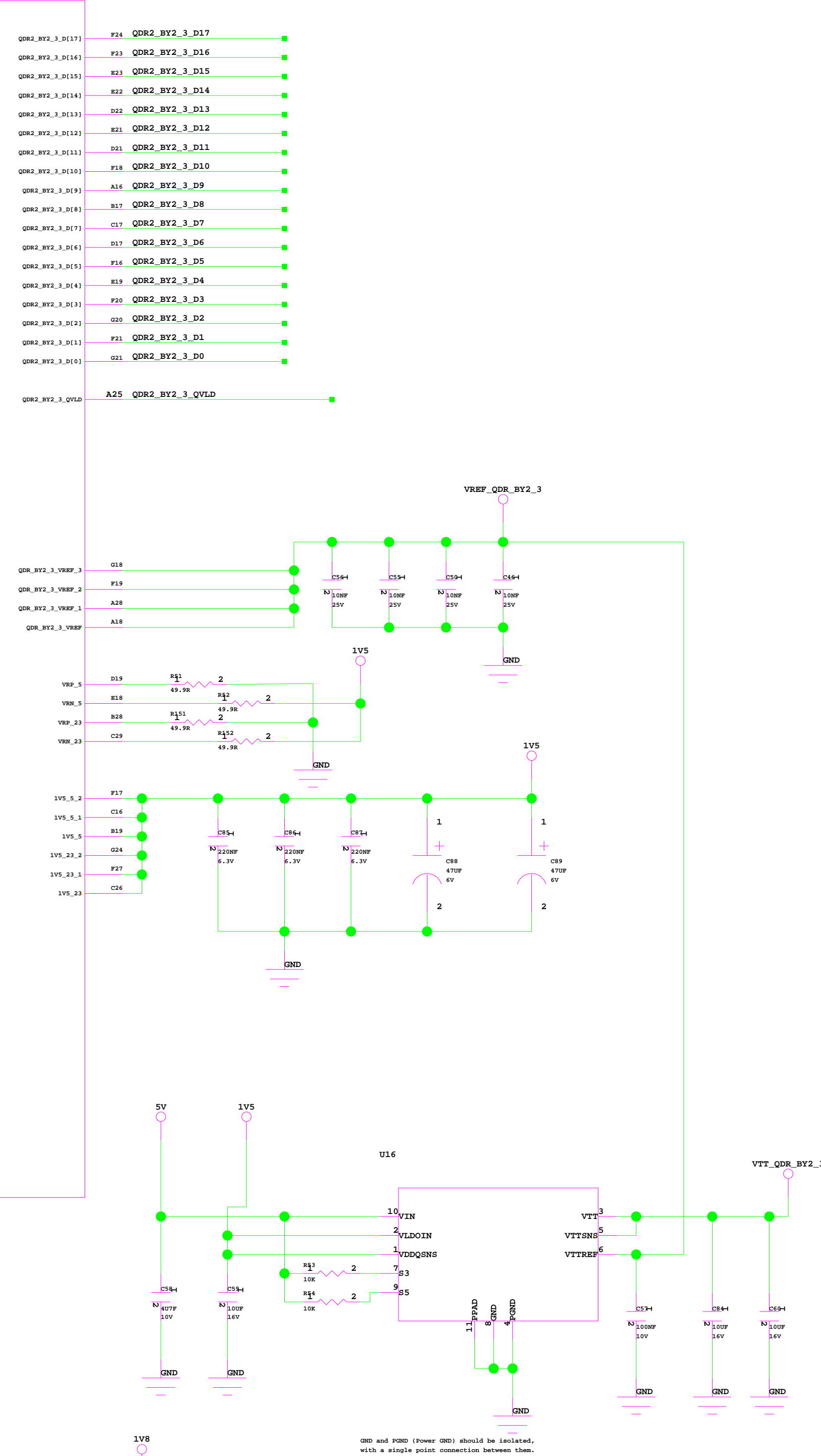
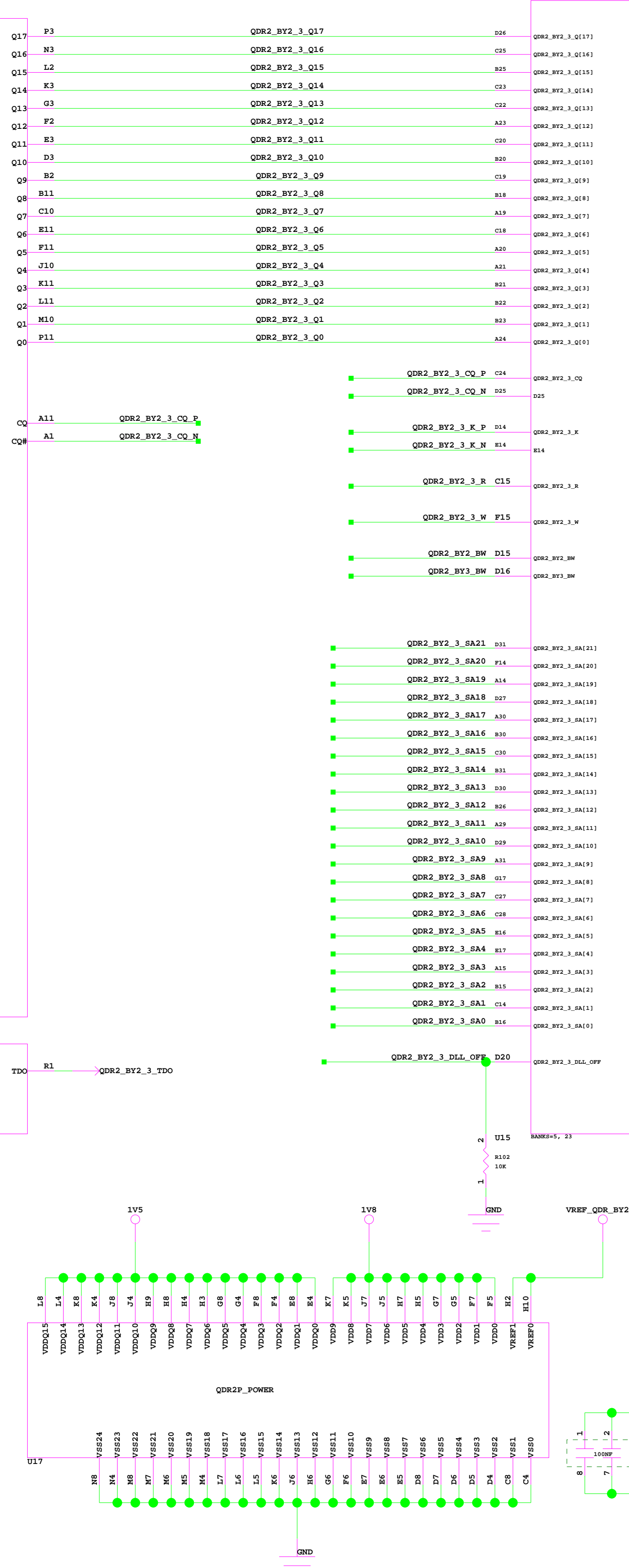
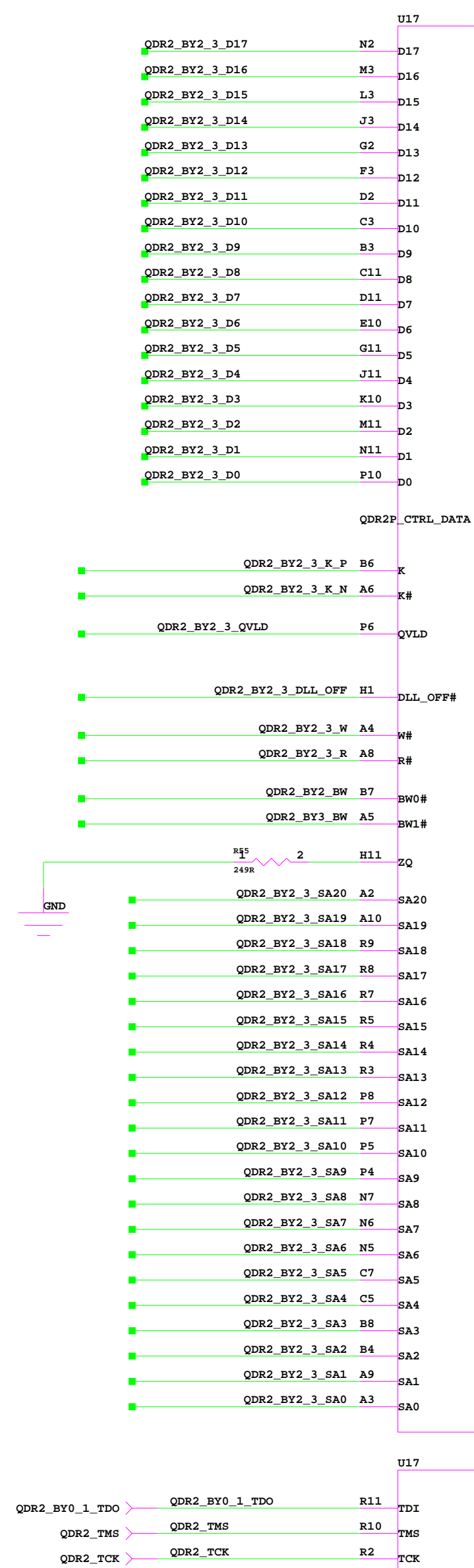
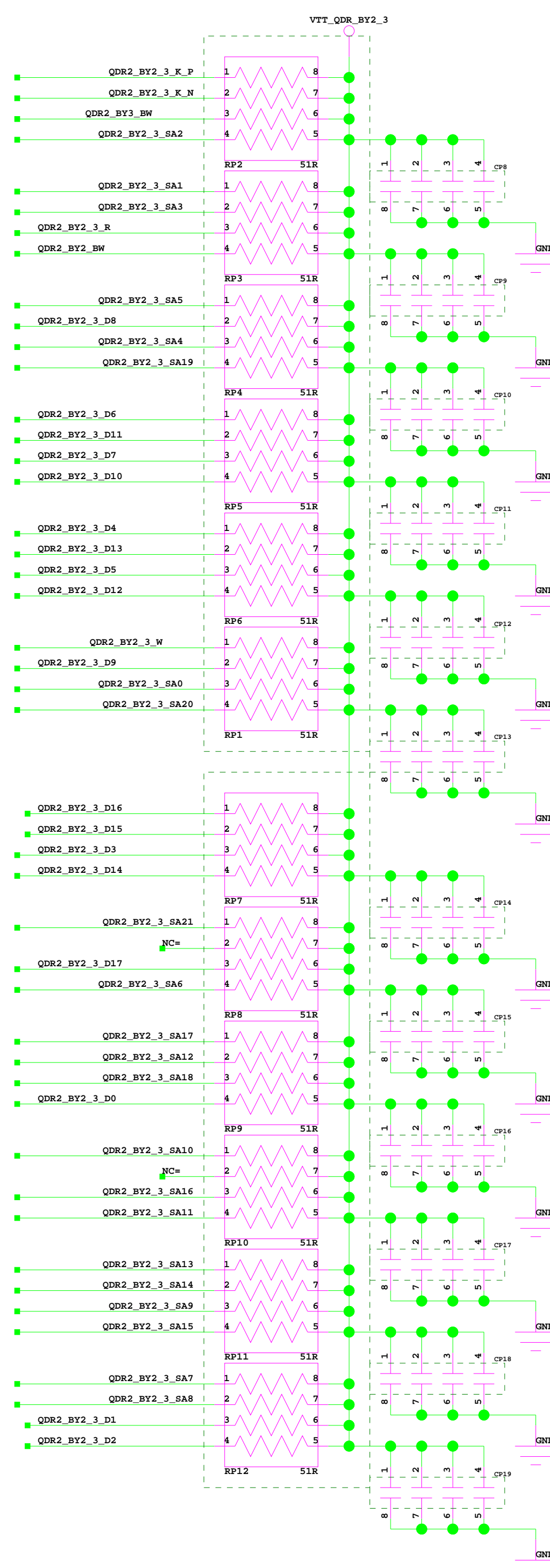
ROACH/iBOB2				ROACH_DIFF_GPIO			
COLLABORATORS: CASPER GROUP, UC BERKELEY NRAD, SOCCORRO MEXFAT, CAPE TOWN  <a href="http://casper.berkeley.edu/">http://casper.berkeley.edu/</a>				DOC NO: NRF-ADM-XXIX-SD-0001		REVISION: A	
				DESCRIPTION: RECONFIGURABLE OPEN ARCHITECTURE SW			
				DRAWN: F KAPP		APPV:	
11-27-2008_13:45				CHECKED: E BAUERMEISTER		SHEET	
PATH		PATH				13 OF 25	





<b>ROACH / iBOB2</b>		<b>ROACH_QDR2P_BY0_1</b>	
<b>COLLABORATORS:</b> CASPER GROUP, UC BERKELEY BRAD, EUGENE BEEBEKAT, CAPE TOWN  <a href="http://casper.berkeley.edu/">http://casper.berkeley.edu/</a>		DOC NO:  <b>NRP-ADM-XXX-SD-0001</b>  DESCRIPTION:  RECONFIGURABLE OPEN ARCHITECTURE HW	REVISION:  <b>A</b>
<b>11-27-2008_13:45</b>		DRAWN:  <b>F KAPP</b>	APPR:   
PATH      PATH	CHECKED:  <b>E BAUERMEISTER</b>	SHEET	14 OF

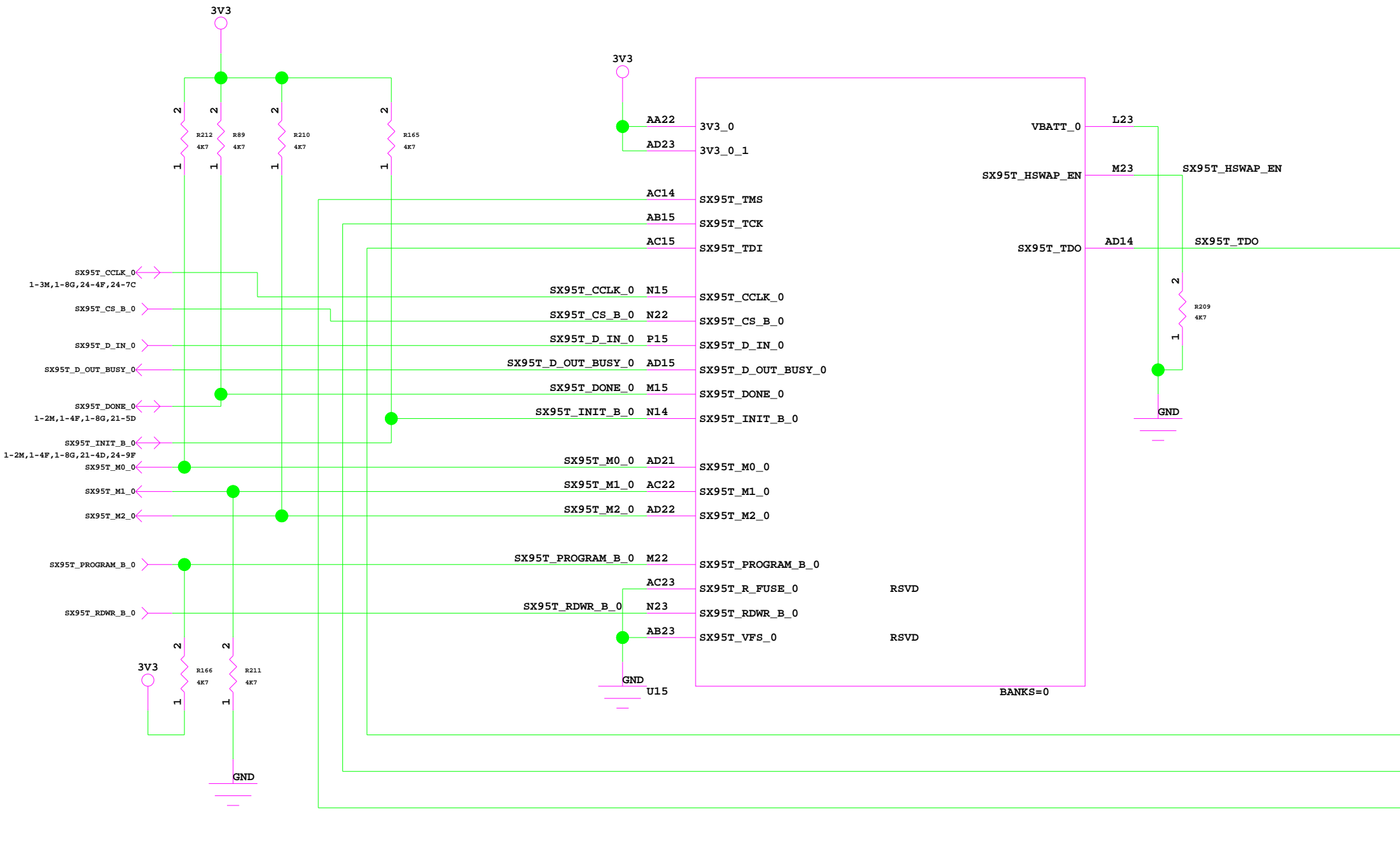
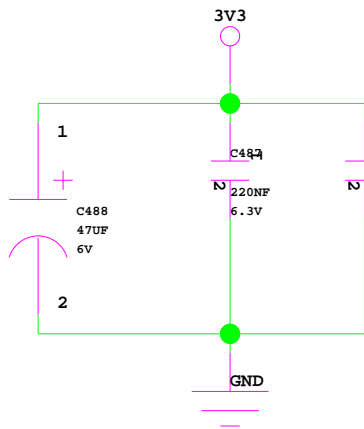




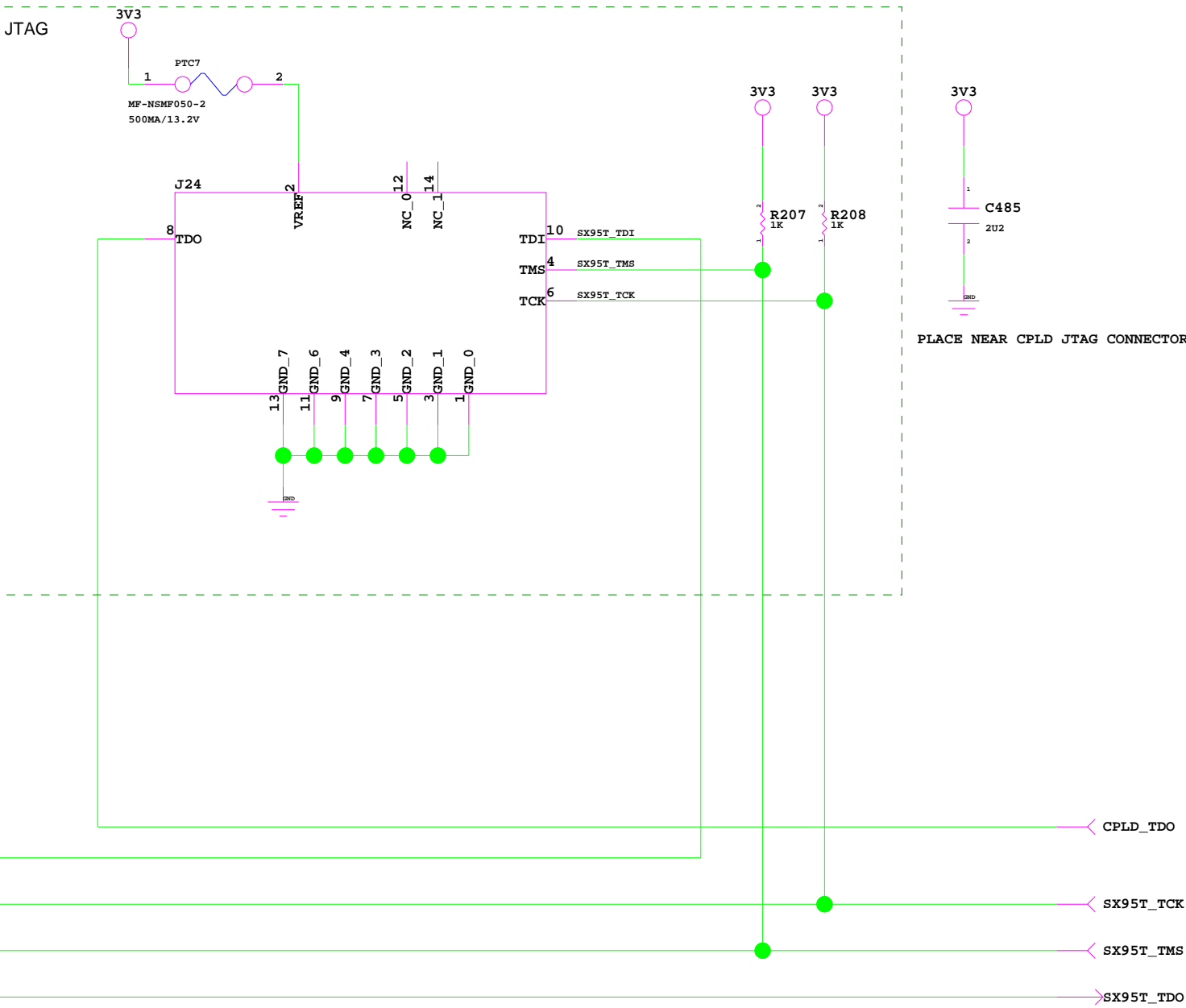
ROACH/iBOB2		ROACH_QDR2P_B2_3	
COLLABORATORS:		DOC NO	REVISION
CASPER GROUP, UC BERKELEY		NRP-ADM-XXX-SD-0001	A
BRAND, ESCORCED		DESCRIPTION	
MEETKAT, CAPE TOWN		RECONFIGURABLE CODE ARCHITECTURE HW	
http://casper.berkeley.edu/		ISSUED:	APPROV:
11-27-2008 13:45		F KAPP	
PATH PATH		CHECKED:	SHEET
		E BAUERMEISTER	15 OF

TBD

VALID CONFIGURATION MODES			
Configuration Mode	M[2:0]	Bus Width	CCLK Direction
Master Serial	000	1	Output
Master SPI	001	1	Output
Master BPI-Up	010	8, 16	Output
Master BPI-Down	011	8, 16	Output
Master SelectMAP	100	8, 16	Output
JTAG	101	1	Input (TCK)
Slave SelectMAP	110	8, 16, 32	Input
Slave Serial	111	1	Input



### Xilinx Programing Cable

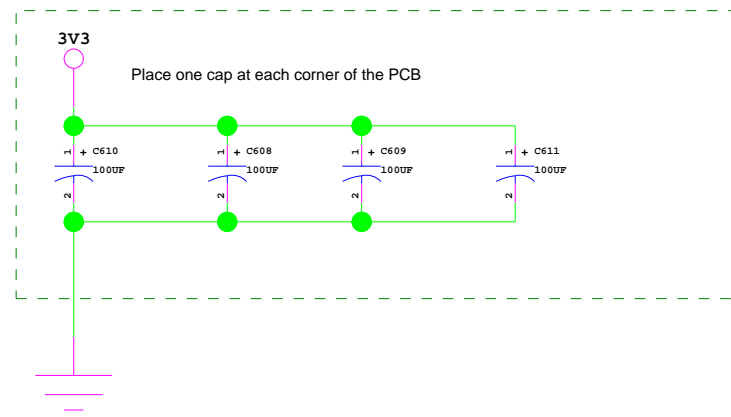


ROACH/iBOB2		ROACH_CONFIG	
COLLABORATORS: CASPER GROUP, UC BERKELEY NRAO, SOCORRO meerKAT, CAPE TOWN  http://casper.berkeley.edu/		DOC NO NRF-ADM-XXX-SD-0001  DESCRIPTION RECONFIGURABLE OPEN ARCHITECTURE HW	REVISION A
11-27-2008_13:45		DRAWN: F KAPP	APPR:
PATH	PATH	CHECKED: E BAUERMEISTER	SHEET 16 OF 25





REMOVED 3V3 GENERATION



REMOVED +12V GENERATION

REMOVED -12V GENERATION

REMOVED +1V GENERATION

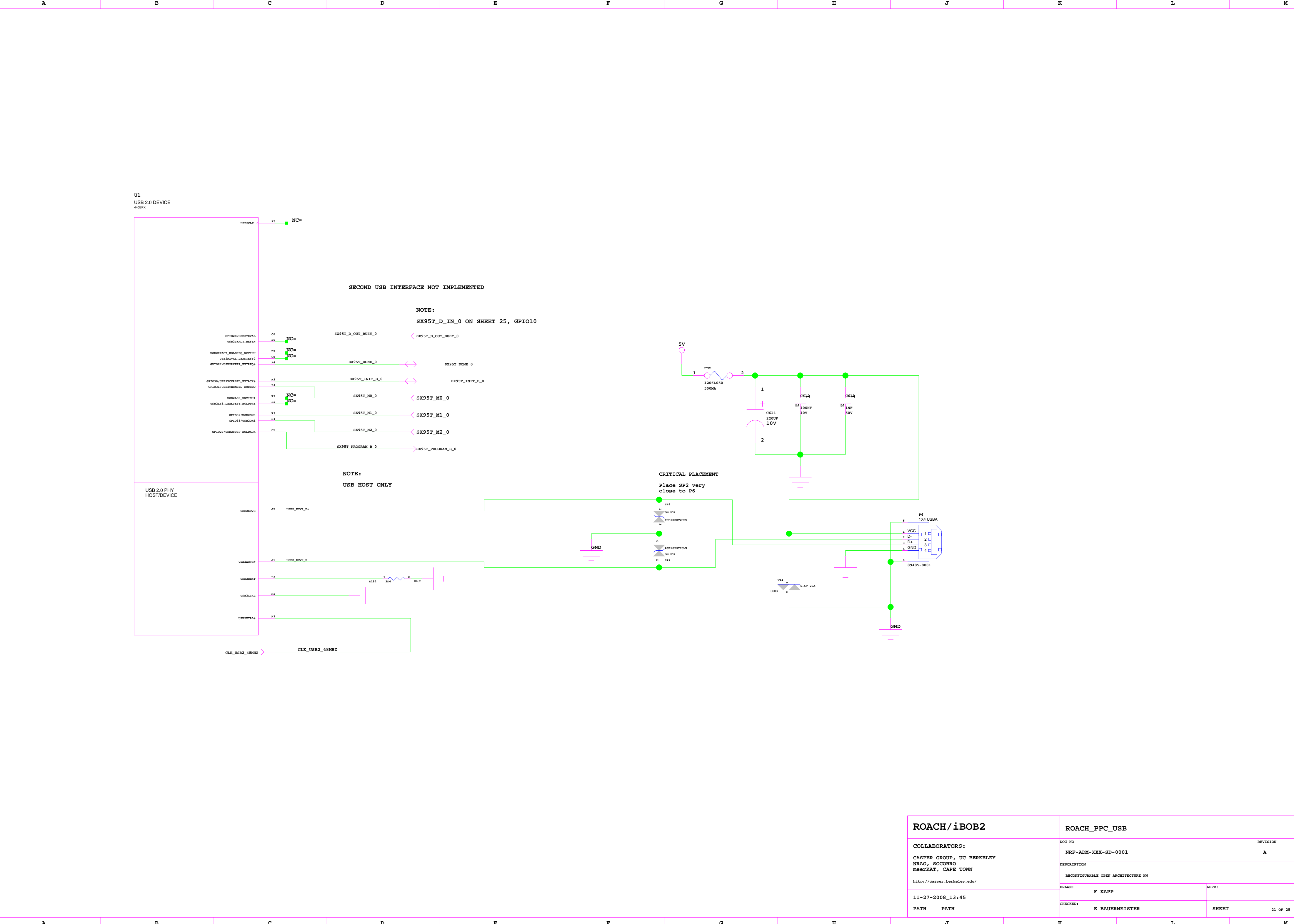
REMOVED +2V5 GENERATION

ROACH/iBOB2		ROACH_PPC_POWER_2	
COLLABORATORS:		DOC NO	REVISION
CASPER GROUP, UC BERKELEY NRAO, SOCORRO meerKAT, CAPE TOWN		NRF-ADM-XXX-SD-0001	A
http://casper.berkeley.edu/		DESCRIPTION	
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11-27-2008_13:45		DRAWN: F KAPP	APPR:
PATH	PATH	CHECKED: E BAUERMEISTER	SHEET 18 OF 25

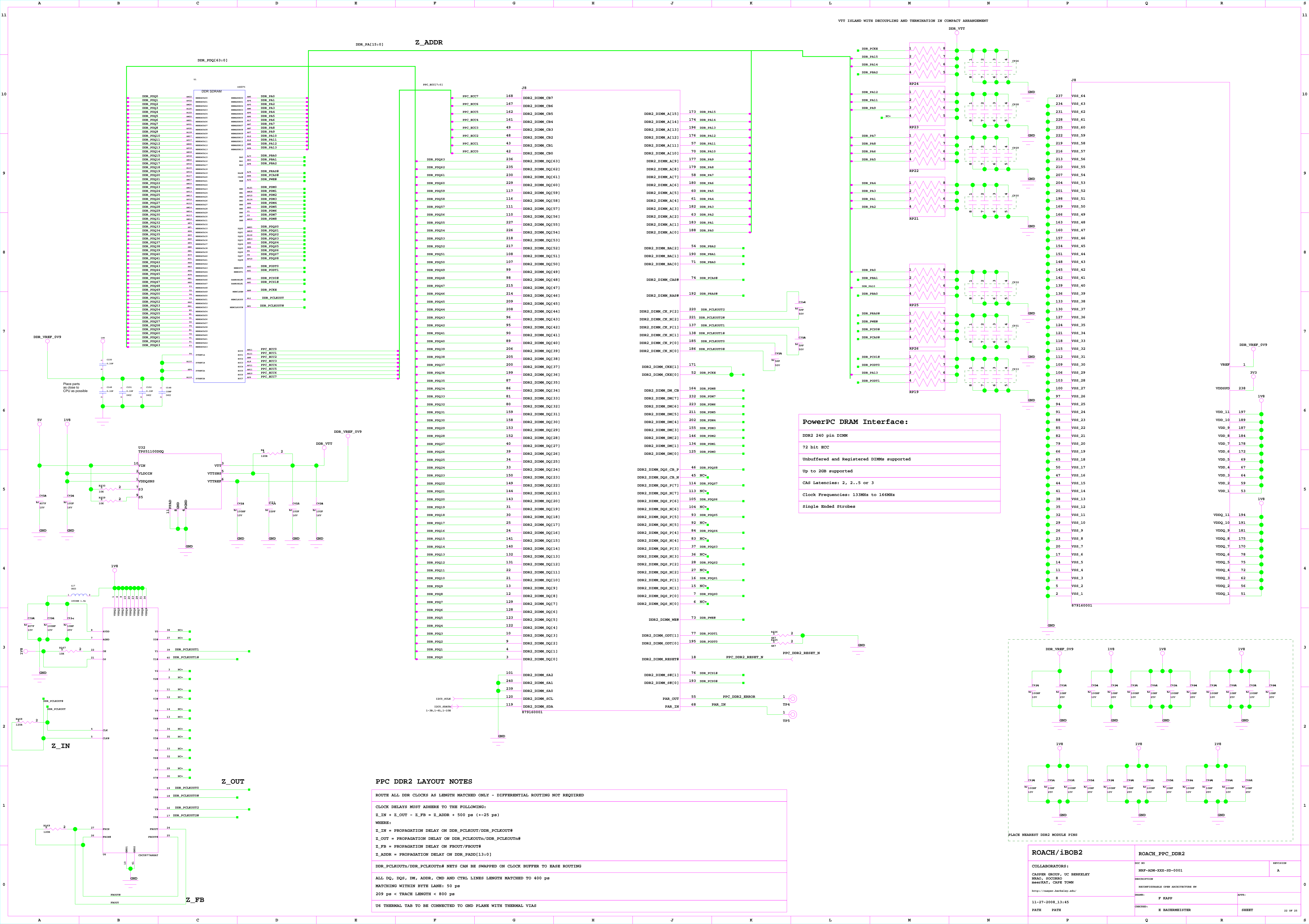








ROACH/iBOB2		ROACH_PPC_USB	
COLLABORATORS: CASPER GROUP, UC BERKELEY NRAO, SOCCORRO meerkAT, CAPE TOWN  http://casper.berkeley.edu/  11-27-2008_13:45 PATH      PATH	DOC NO NRF-ADM-XXX-SD-0001		REVISION A
	DESCRIPTION RECONFIGURABLE OPEN ARCHITECTURE HW		
	DRAWN: F KAPP		APPR: E BAUERMEISTER
	CHECKED: E BAUERMEISTER		SHEET 21 OF 25



Critical Placement and Route  
Clock Rules:

Clock Rules:  
CLK\_UART\_11.0592mhz = as short as possible  
CLK\_SYS\_33mhz = as short as possible  
CLK\_CPLD\_33mhz = CLK\_SYS\_33mhz

Critical Placement and Route  
Clock Rules:

Clock Rules:  
CLK\_PC3\_66/33mhz = as short as possible  
CLK\_PC3\_66/33mhz = CLK\_PC3\_66/33mhz  
CLK\_PC1\_66/33mhz = CLK\_PC3\_66/33mhz + 2.5°  
CLK\_GETH0\_25mhz = as short as possible  
CLK\_GETH1\_25mhz = CLK\_GETH0\_25mhz  
CLK\_CPLD\_50mhz = as short as possible  
CLK\_USB2\_0\_48mhz = as short as possible  
CLK\_USB2\_0\_12mhz = as short as possible

TRACE & JTAG CONNECTORS

Critical placement and routing  
of the Trace connector and nets.  
Up to CPU frequency/4

TRACE PORT

ROACH/iBOB2

ROACH\_PPC\_TST\_CLK\_IO

COLLABORATORS:  
CASPER GROUP, UC BERKELEY  
NRAD, SOCORRO  
MEXFAT, CAPE TOWN

11-27-2008\_13:45

PATH PATH

DOC NO  
NRF-ADN-XXX-SD-0001

DESCRIPTION  
RACONFIGURABLE OPEN ARCHITECTURE SW

DRAWN:  
F KAPP

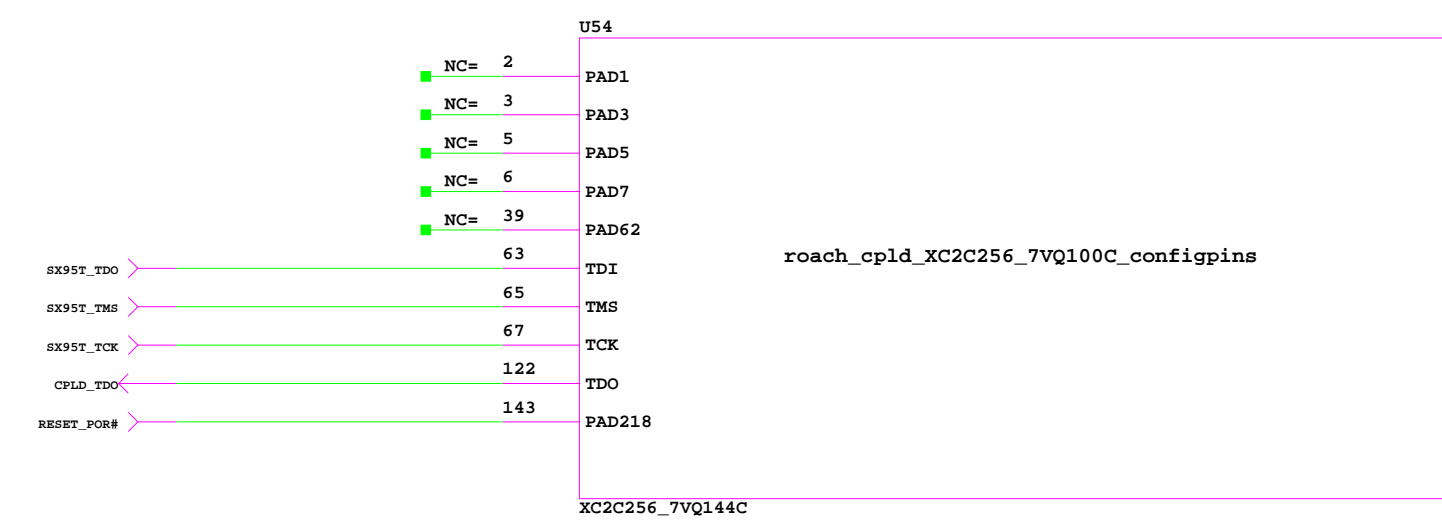
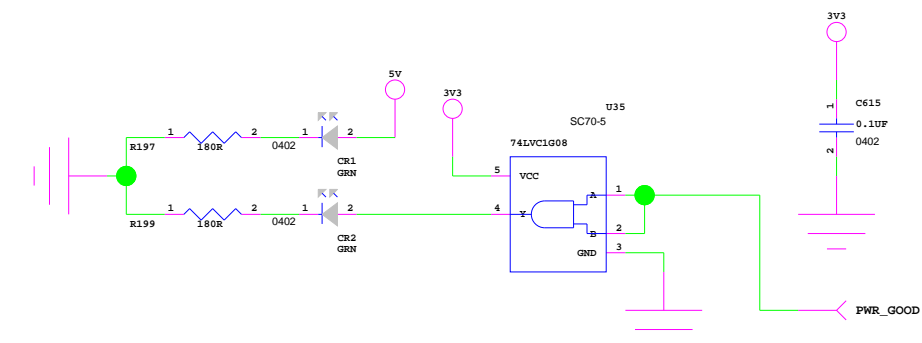
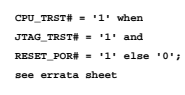
CHECKED:  
E BAUERMEISTER

REVISION  
A

APPV:  
SHEET

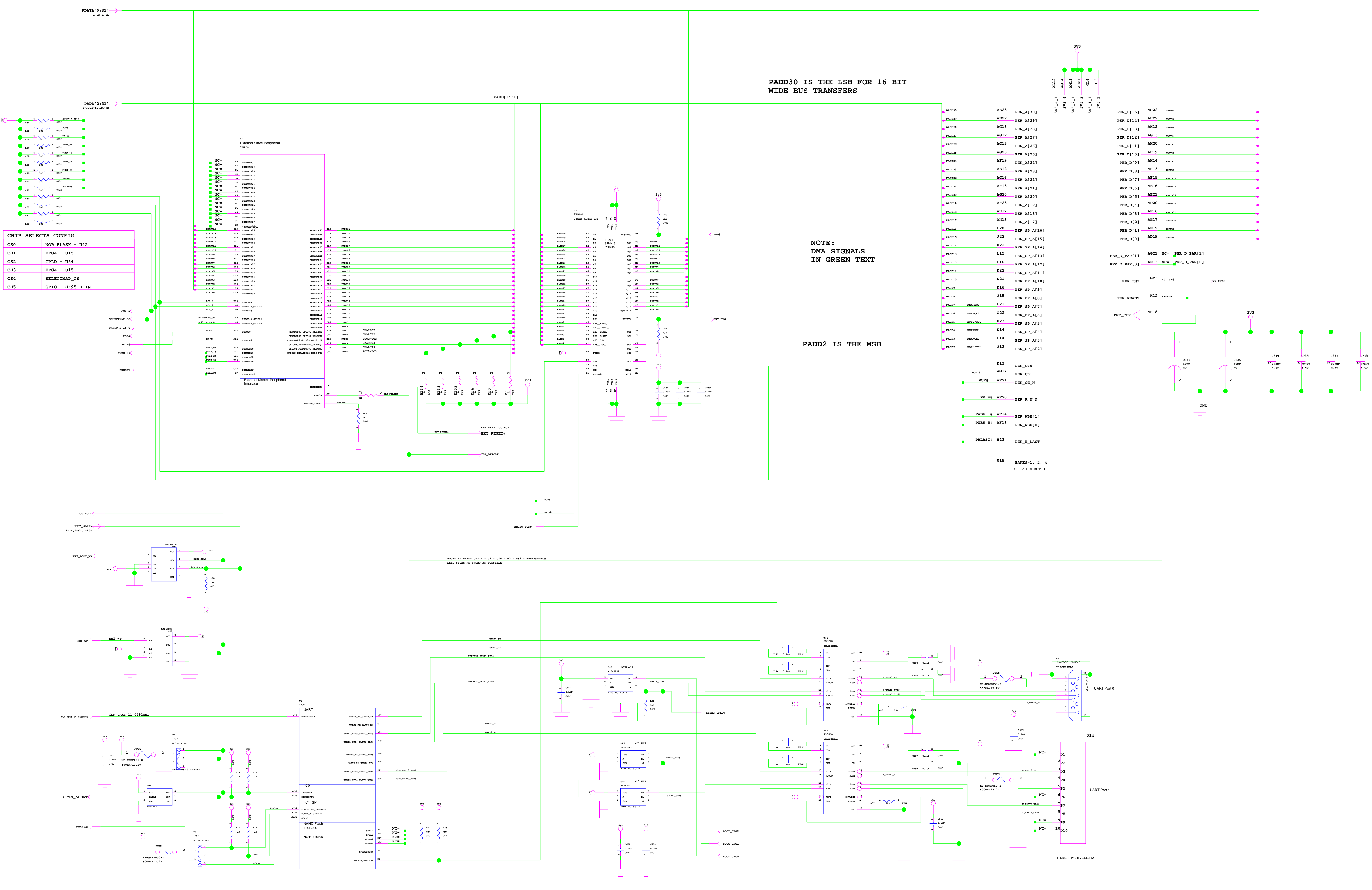
23 OF 25





ROACH/iBOB2		ROACH_FPC_CPLD	
COLLABORATORS:		DOC NO	REVISION
CASPER GROUP, UC BERKELEY		NRP-ADM-XXX-SD-0001	A
NRAD, SOCCORRO		DESCRIPTION	
BEEKEAT, CAPE TOWN		RECONFIGURABLE OPEN ARCHITECTURE HW	
<a href="http://casper-berkeley.edu/">http://casper-berkeley.edu/</a>		DRAWN:	APPR:
11-27-2008.13:45		F KAPP	
PATH PATH		CHECKED:	SHEET
		E BAUERHEIMER	24 OF 24





PADD30 IS THE LSB FOR 16 BIT WIDE BUS TRANSFERS

NOTE: DMA SIGNALS IN GREEN TEXT

PADD2 IS THE MSB

ROACH/iBOB2

COLLABORATORS:  
CASPER GROUP, UC BERKELEY  
NRAD, SOCCORO  
MEEKAT, CAPE TOWN  
<http://casper.berkeley.edu/>

ROACH\_PPC\_NVM\_SERIAL

DOC NO: NRP-ADN-XXX-BD-0001  
REVISION: A  
DESCRIPTION: RATIONFURNABLE OPEN ARCHITECTURE IM  
DRAWN: F KAPP  
CHECKED: K BAUERMEISTER  
DATE: 11-27-2008\_13:45  
PATH: PATH