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PicoZed FMC Carrier

Avnet Engineering Services

www.PicoZed.org

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PicoZed FMC Carrier

5 MAY 2015

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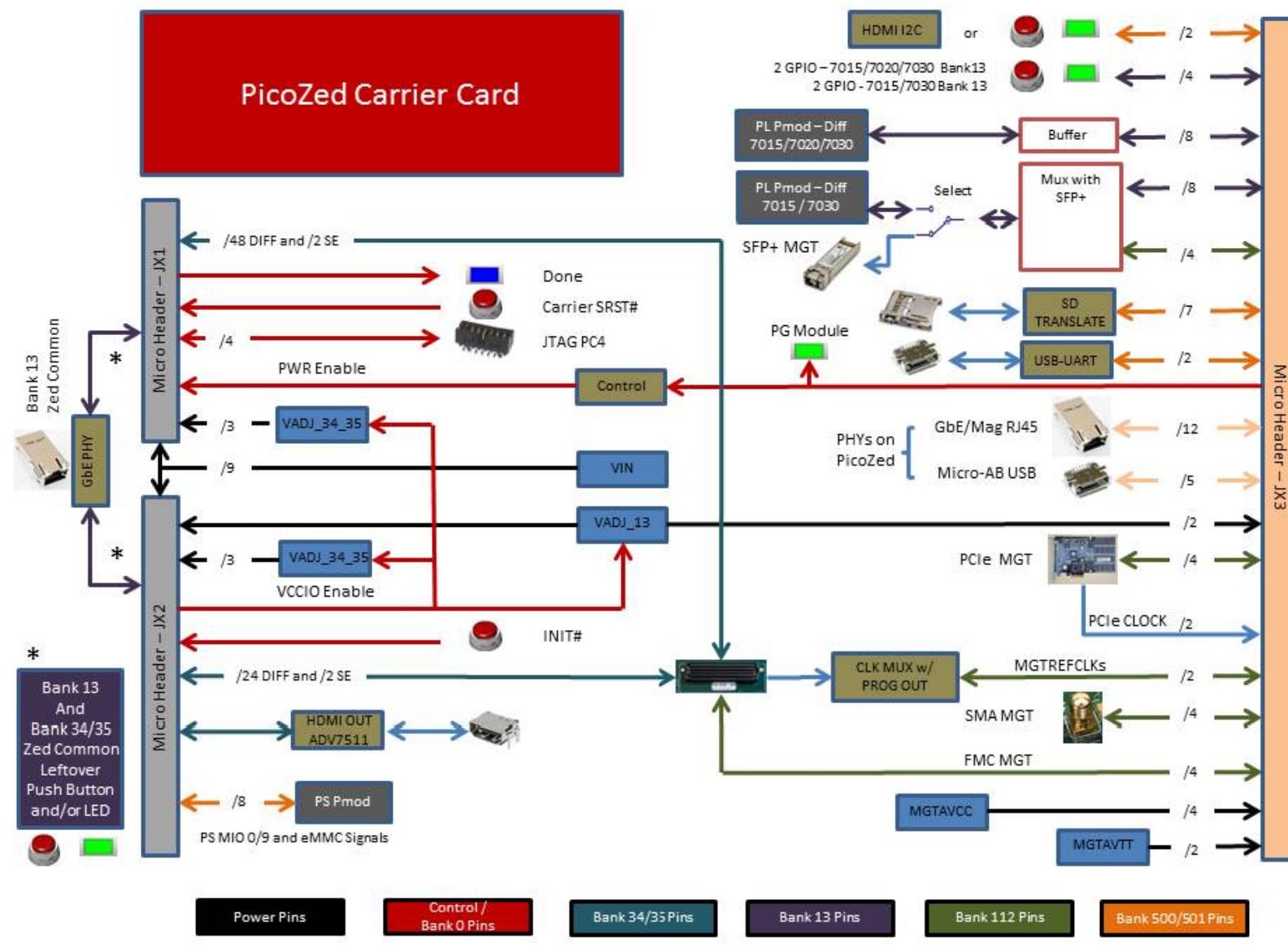
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Title: 01 - Avnet Lead Sheet_B.SchDoc		
Size:	Project Name:	Rev:
B	PicoZed FMC Carrier	C03
Date: 5/5/2015	Sheet 1 of 11	

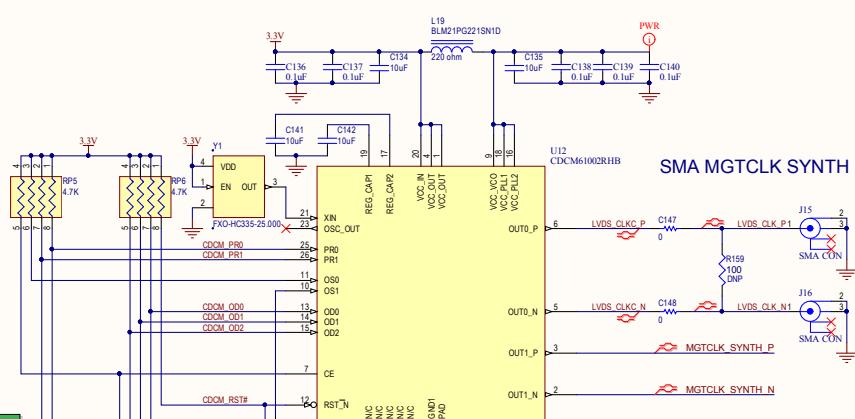
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Topology



CLOCKS & USB OTG

PCIe CLOCK SYNTHESIZER



**OPERATIONAL NOTE:
DEFAULT SW9 & SW10: OFF
OUTPUT FREQUENCY: 62.5000 MHz
SEE TI DATA SHEET FOR
ALL OTHER SETTINGS**

R177

CCDM61002 SW9, SW10 FREQ SELECTION TABLE							
FREQ - MHz:	SW9.2 (PR1):	SW9.1 (PRO):	SW10.4 (CE):	SW10.3 (OD2):	SW10.2 (OD1):	SW10.1 (OD0):	Interface:
62.5000	OFF	OFF	OFF	OFF	OFF	OFF	GigE
100.0000	ON	ON	OFF	OFF	ON	OFF	PCI Express
125.0000	OFF	OFF	OFF	ON	OFF	OFF	GigE
156.2500	OFF	ON	OFF	ON	OFF	OFF	10 GigE
200.0000	ON	ON	OFF	ON	OFF	ON	PCI Express
250.0000	OFF	OFF	OFF	ON	ON	OFF	GigE

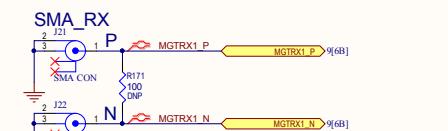
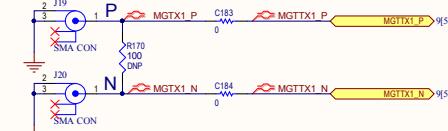
NOTE: For all other frequencies please see the TI datasheet

Note: "ON" is the UP position on switch.

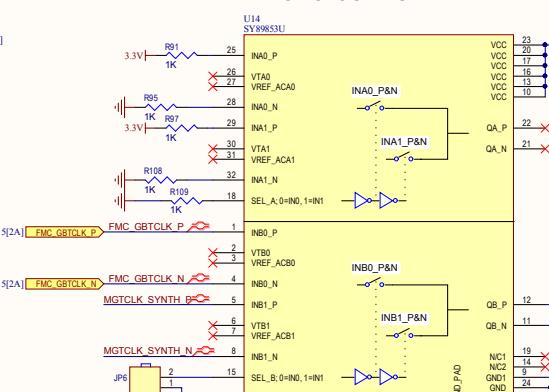
Note: "OFF" position is the DOWN position on the switch

SMA MGT DATA INPUTS

SMA_TX

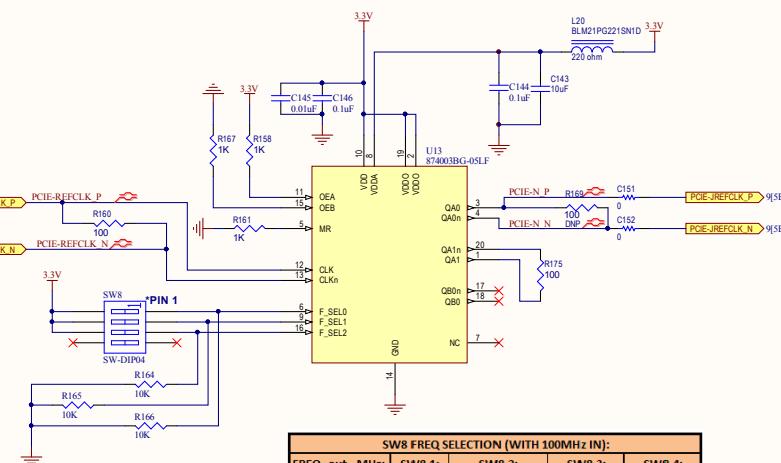


MGT CLOCK MULTIPLEXER



 OPERATIONAL NOTE:
JP6: ON=FMC CLK >QB
JP6: OFF=>MGT CLK >QB
Default: JP6=OFF, inputs are
internally pulled up by 25K.

PCIe JITTER ATTENUATOR



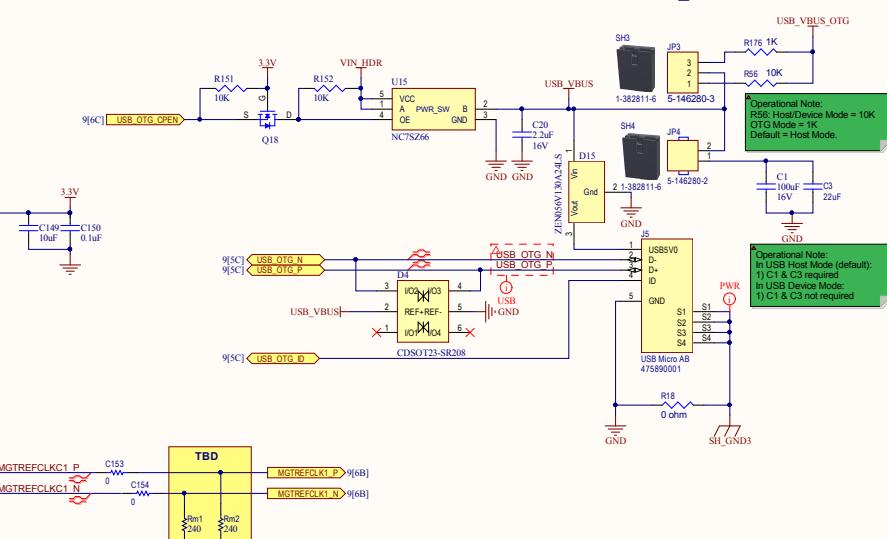
SW8 FREQ SELECTION ([WITH 100MHz IN]):				
FREQ_out - MHz:	SW8.1:	SW8.2:	SW8.3:	SW8.4:
100 - Default	OFF	OFF	ON	N/C
125	OFF	ON	OFF	N/C
250	OFF	OFF	OFF	N/C

"Note: ICS has an internal x5 multiplier

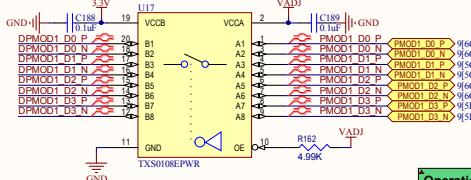
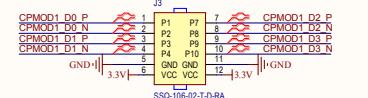
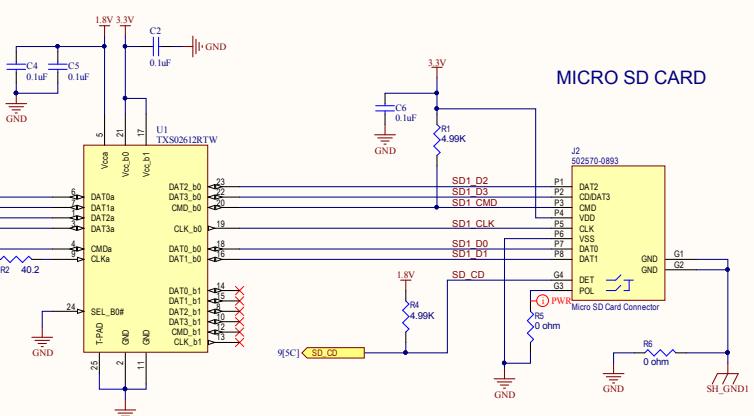
Note: "ON" is the UP position on the switch.

Note: "OFF" is the DOWN position on the switch

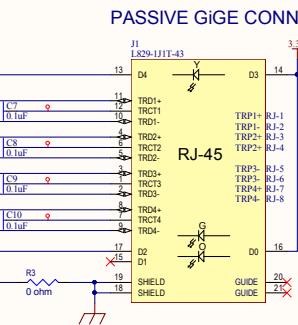
USB OTG



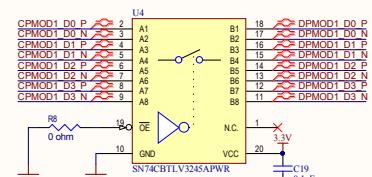
Peripherals - 1



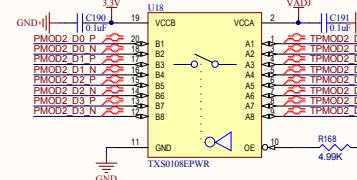
Layout Note:
ALL PMOD P/N signals
routed differentially.



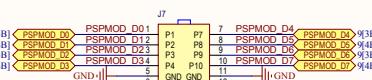
PI PMOD1 DISPLAY CKT



Operational Note:
PL PMOD data rates:
Open Drain: 2 Mb/s

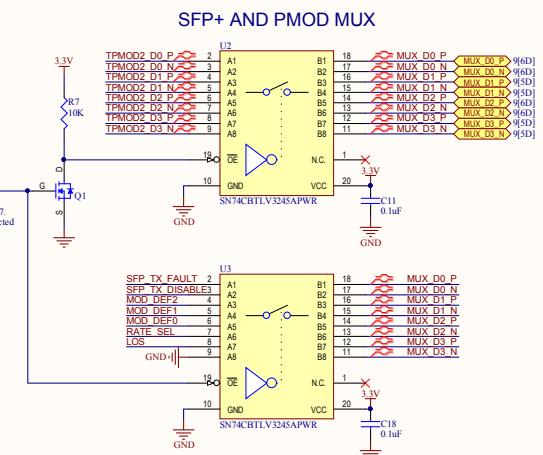
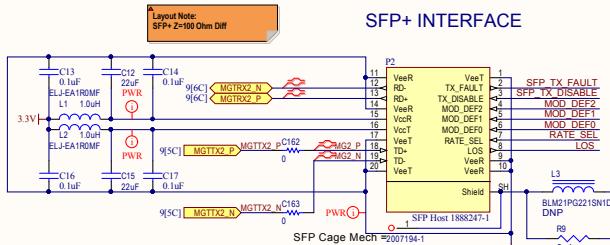


PS PMOD Interface



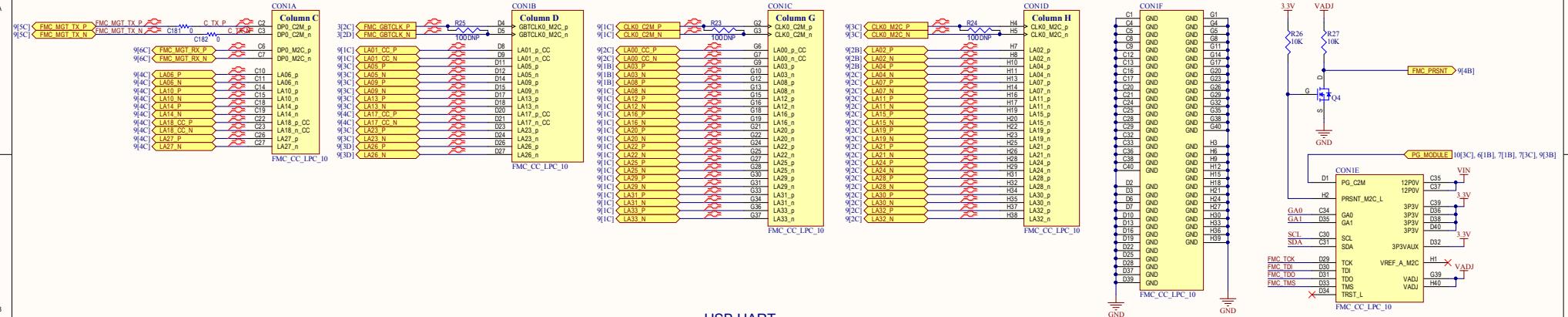
SEP+ INTERFACE

7[5C] PMOD/SFP+ MUX SEL

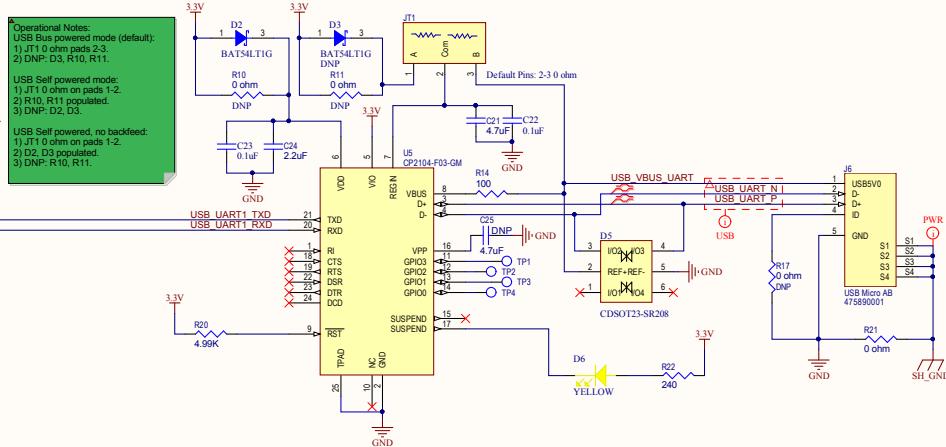
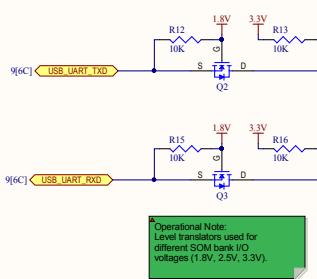


Peripherals - 2

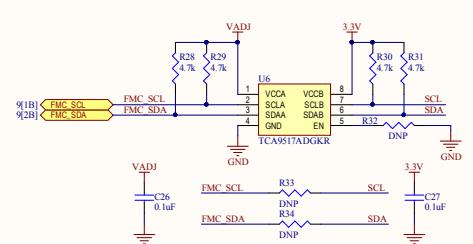
FMC LPC INTERFACE



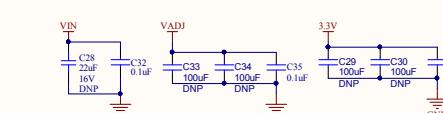
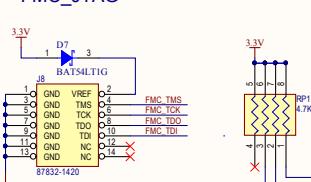
USB TX/RX LEVEL TRANSLATOR



I2C LEVEL TRANSLATOR

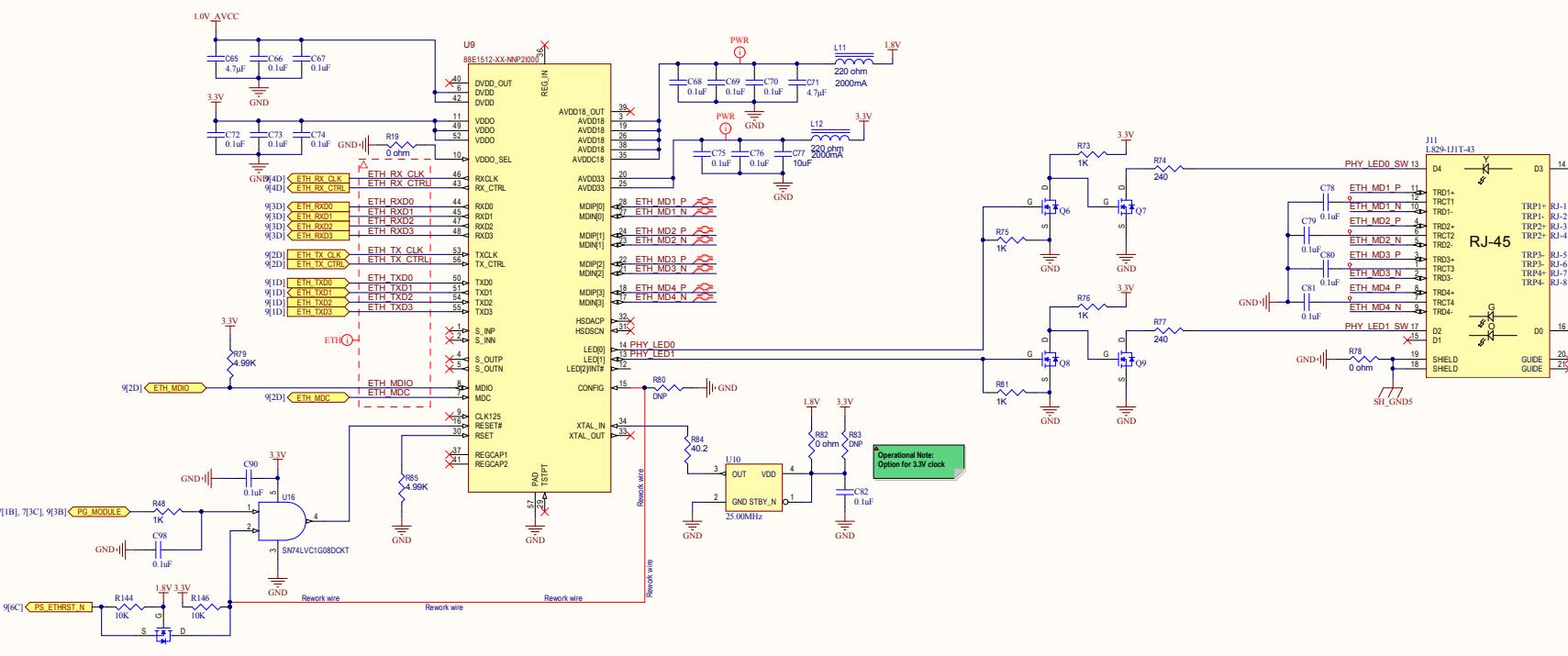


FMC_JTAG

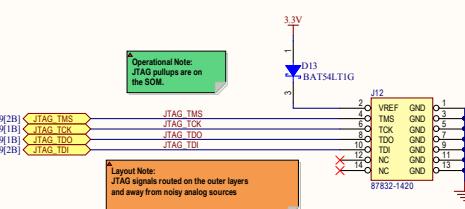


Peripherals - 3

ETHERNET PHY



PC4 JTAG

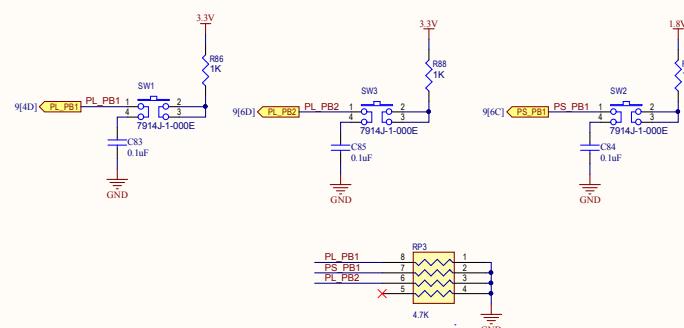


SWITCHES & LEDs

USER_PUSH_BUTTONS

Operational Notes:
1) All PBs and SWs are available on the 7015/2030 SOMs.

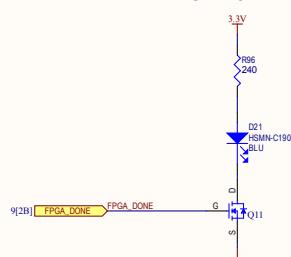
PG MODULE



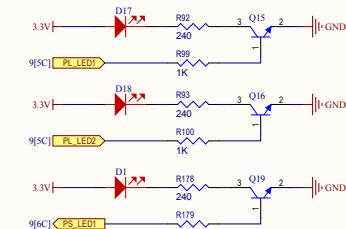
VIN_HDR_LED

3.3V → R84 (1k) → D19 (HSMN-C190 GRN) → GND

FPGA DONE LED

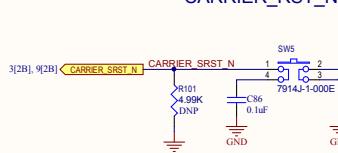


USER LEDs, 2 PL, 1 PS

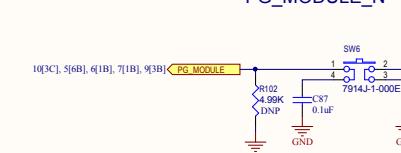


CONFIGURATION & CONTROL SWITCHES/JUMPERS

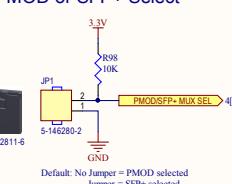
CARRIER_RST_N



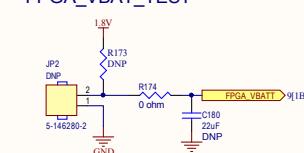
PG_MODULE_N



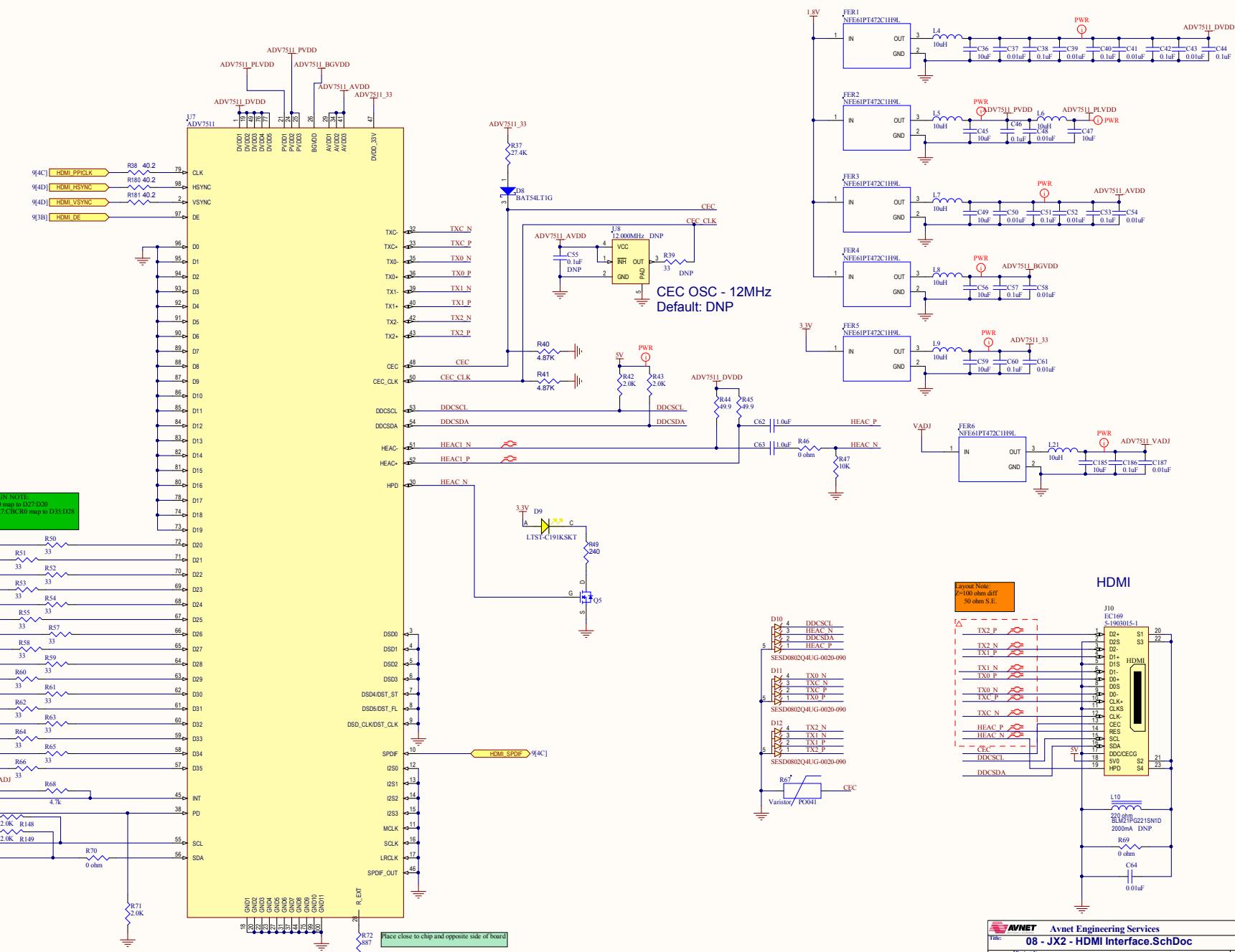
PMOD or SFP+ Select



FPGA_VBAT_TEST



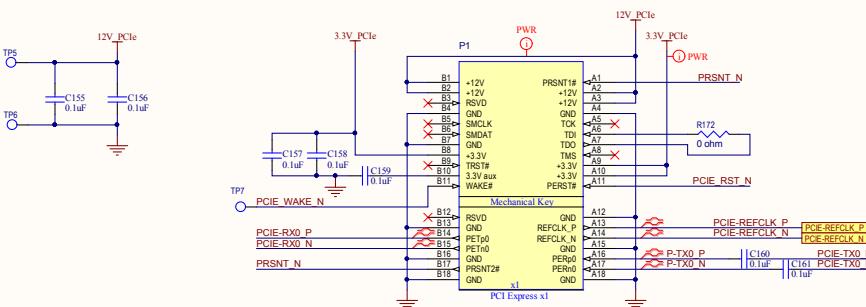
JX2 - HDMI Video Encoder



ADV7511 POWER SUPPLY FILTERS

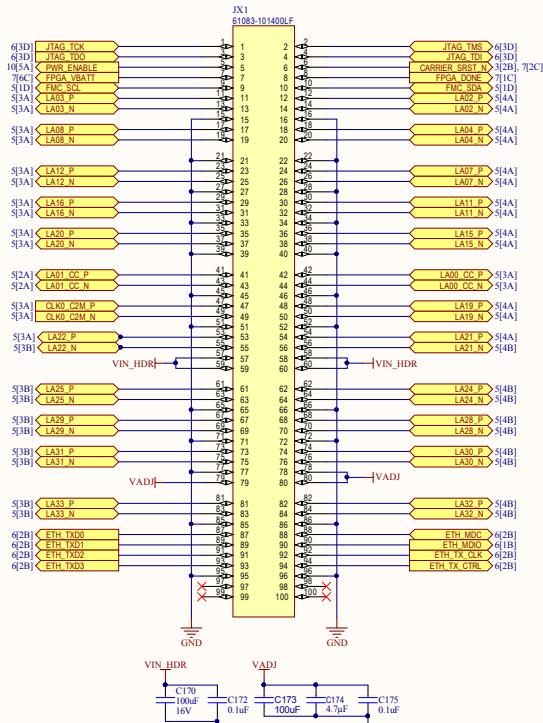
PCIe & SOM Connectors

PCIe x 1 EDGE CONNECTOR



Layout Note:
Route ALL PIN pairs differentially on all JX connectors.

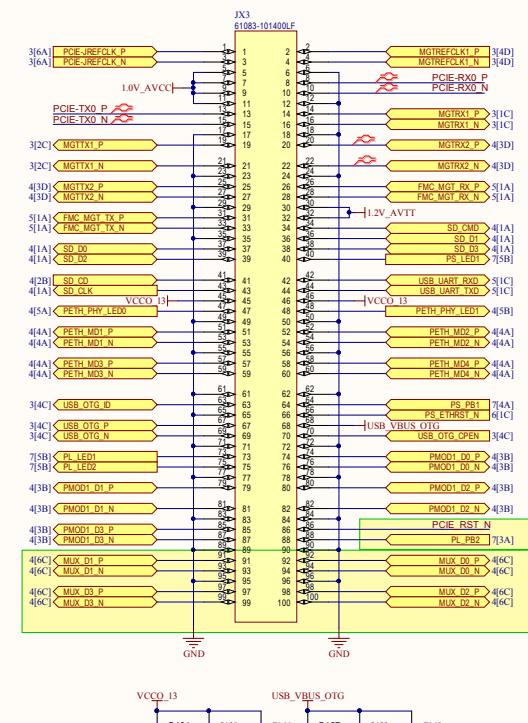
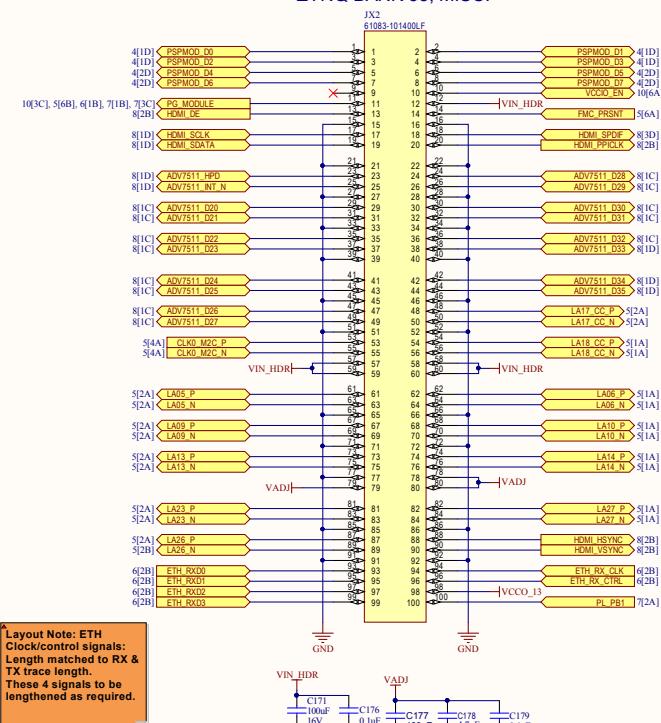
ZYNQ BANK 34, MISC.

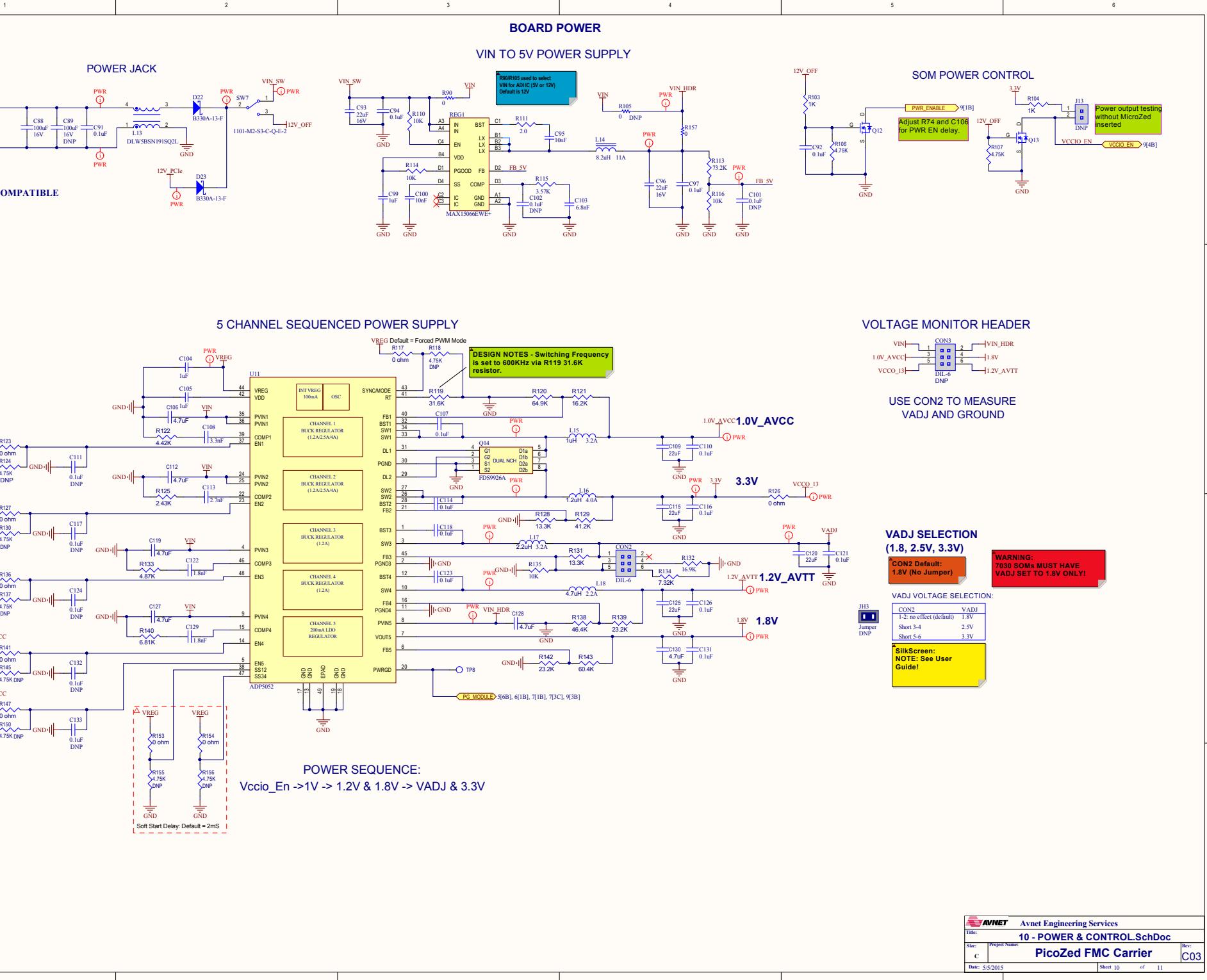


Layout Note:
ETH Clock/control signals:
Must be matched to RX &
TX trace length.
These 4 signals to be
lengthened as required.

VADJ on JX1 = VCCO_34
VADJ on JX2 = VCCO_35

ZYNQ BANK 35, MISC.





Revision Notes:

Revision A:
1) Initial design

Revision B:
1) Updated BOM
2) Updated power circuit
for 12V input

Revision C:
1) Revision 1st run
2) Modified BOM, CC pins
3) Translator on USB
4) Translators on PL PMODs

Revision C03:
1) Capacitors C147, C148, C151, C152, C153, C154, C162, C163, C181, C182, C183, C184 have been replaced with 10uF Zero Ohm resistors. The schematic shows these parts as resistor symbols, but maintain the capacitor designator for aid in finding where the parts have been changed.

2) J5 & J6 new PN: 475890001
3) L16 changed to PN: SRU0025-1R2Y
4) R23, R24, R25, R26 removed
5) U10 changed to Allegro ASD3-25.000MHZ-EC-T
6) Two additional rubber bumpers added to the board for stability.
7) Marvel PHY rework to change address from 0x00 to 0x01.
8) R23, R24, R25, R159, R169, R170, R171 removed.
9) Updated JPA operational note.

Mechanicals:



PZCC-FMC-PCB-C

PCB Mounting Holes



Bumper Standoffs

