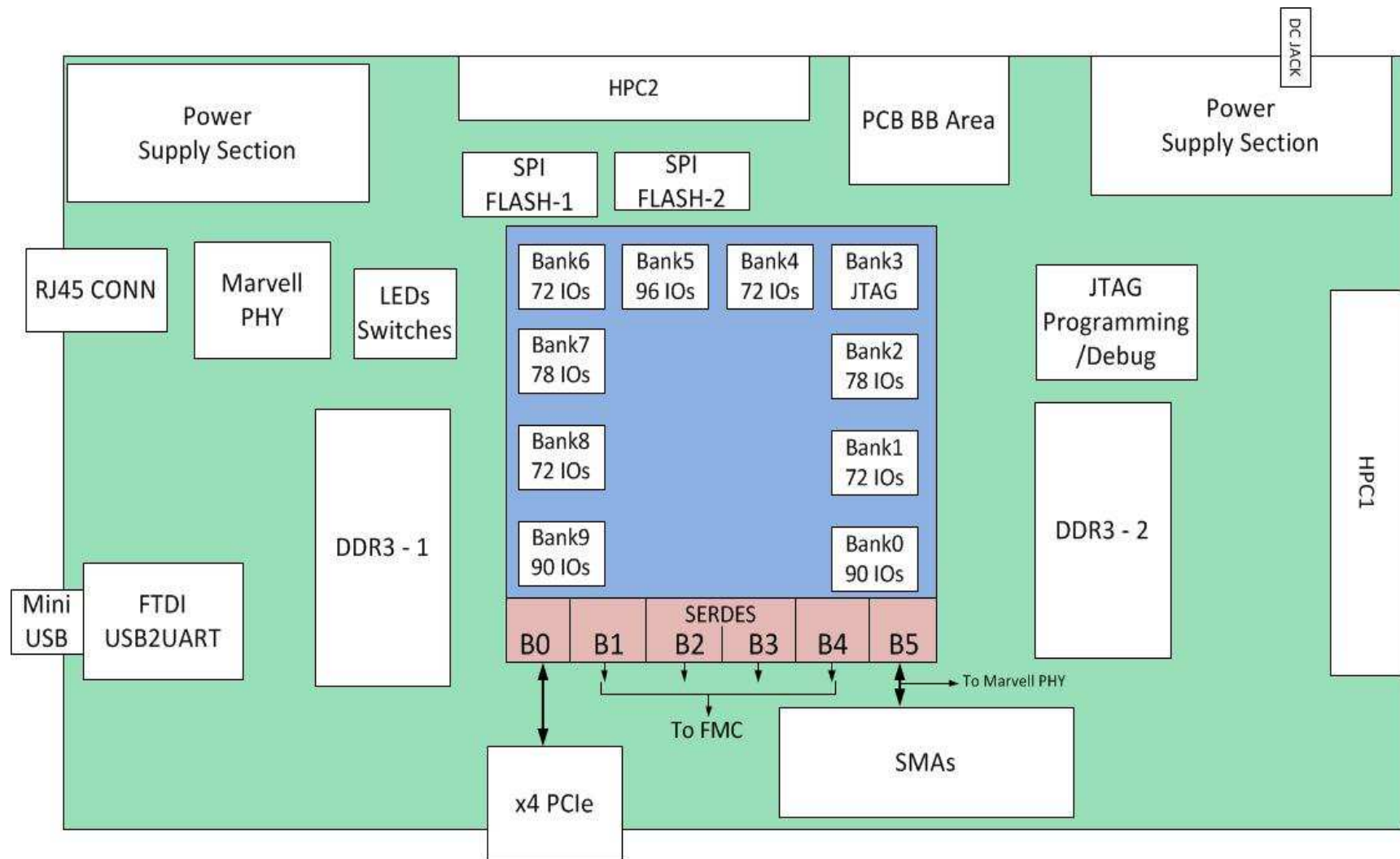


# RTG4\_DEV\_KIT

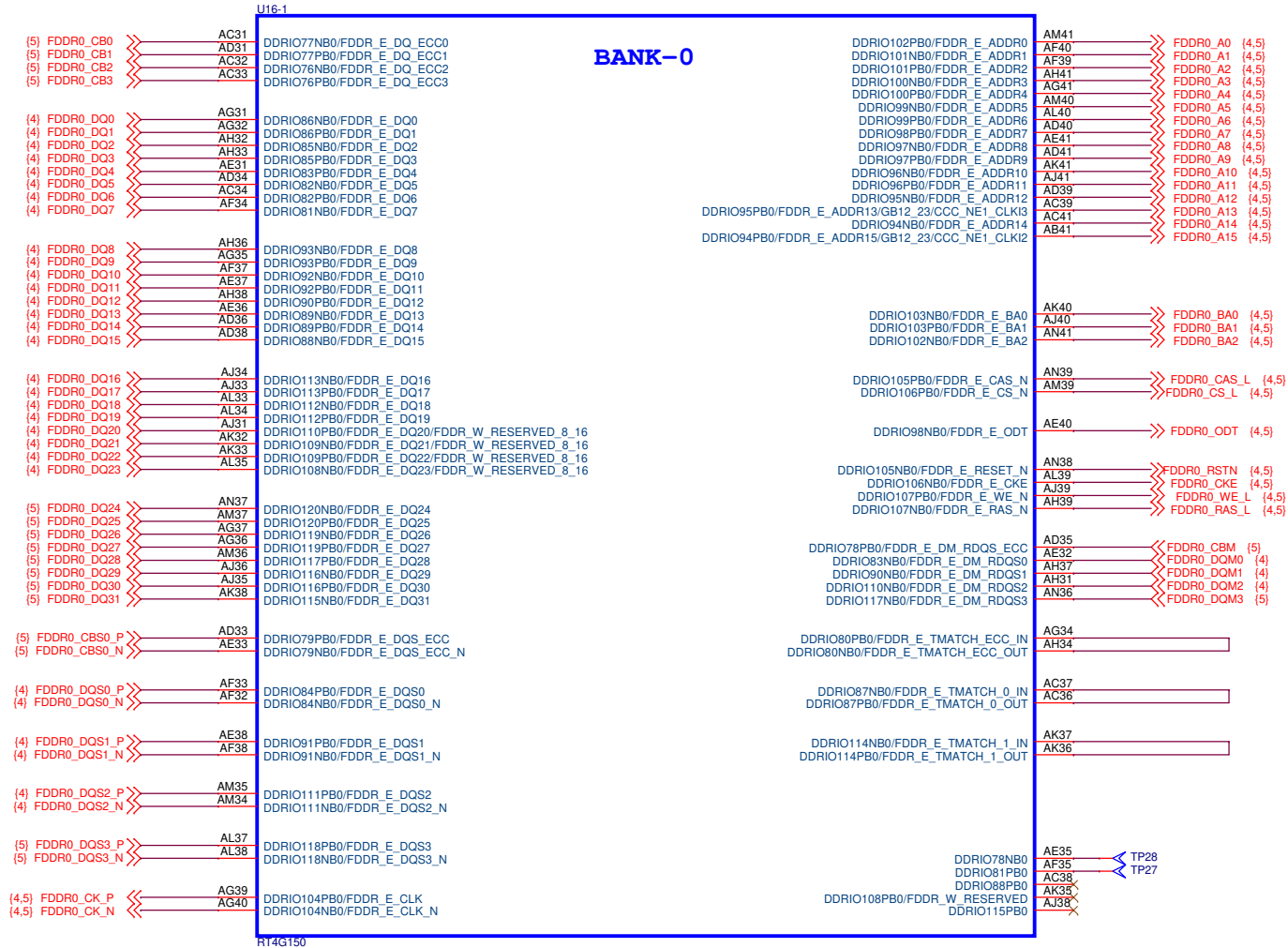
## ISLRTG4DEMO1ZB\_Rev\_B

PAGE NO	TITLE	PAGE NO	TITLE
01	TITLE PAGE	24	SERDES4 CONNECTION
02	BLOCK DIAGRAM	25	SERDES5 CONNECTION
03	BANK0-FDDR0 CONNECTION	26	FMC_CONNECTOR-HPC1
04	DDR3-SDRAM INTERFACE 1-FDDR0	27	FMC_CONNECTOR-HPC2
05	DDR3-SDRAM INTERFACE 2-FDDR0	28	BREAD BOARD CONNECTOR
06	BANK-1 CONNECTION	29	PROGRAMMING BLOCK DIAGRAM
07	BANK-2,3 & MISC CONNECTION	30	PROGRAMMING CIRCUITRY
08	BANK-4 CONNECTION	31	DEBUGGING CIRCUITRY
09	BANK-5 CONNECTION	32	CLOCK CIRCUITRY
10	BANK-6 CONNECTION	33	POWER CONNECTION
11	BANK-7 CONNECTION	34	GROUND & NC CONNECTION
12	BANK-8 CONNECTION	35	DECOUPLING CAPACITOR CONNECTION
13	BANK9-FDDR1 CONNECTION	36	POWER SCHEME
14	DDR3-SDRAM INTERFACE 1-FDDR1	37	12V POWER SUPPLY CONNECTION
15	DDR3-SDRAM INTERFACE 2-FDDR1	38	POWER HEADER CONNECTION
16	MARVELL PHY-88E1340S	39	POWER SUPPLIES-1
17	MARVELL PHY - RJ45 INTERFACE	40	POWER SUPPLIES-2
18	FT4232H CIRCUITRY	41	POWER SUPPLIES-3
19	SERDES BLOCK DIAGRAM	42	POWER SUPPLIES-4
20	SERDES0 CONNECTION	43	POWER SUPPLIES-5
21	SERDES1 CONNECTION	44	POWER SUPPLIES-6
22	SERDES2 CONNECTION	45	POWER LEDs
23	SERDES3 CONNECTION		

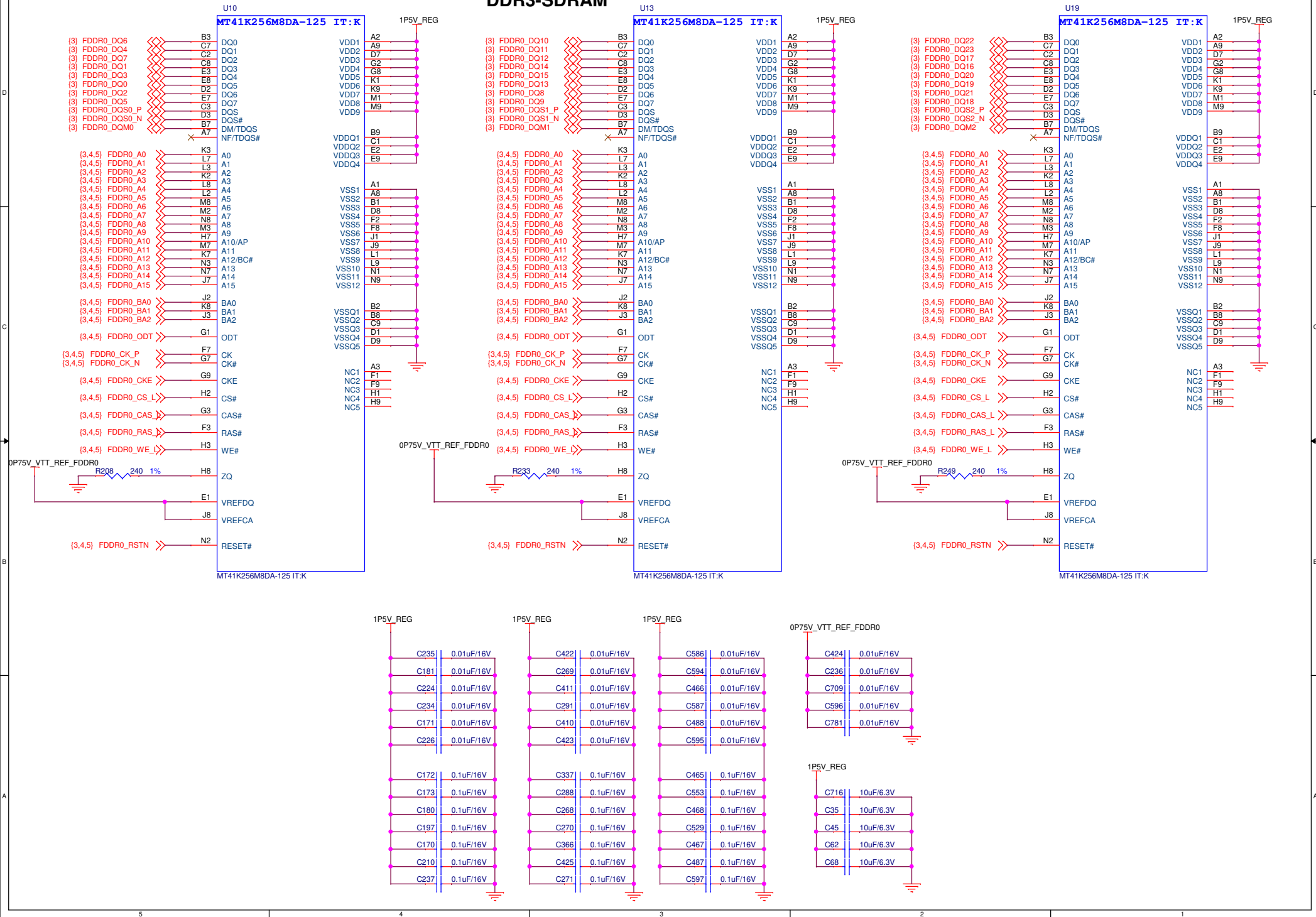
# BLOCK DIAGRAM



# MEMORY INTERFACE

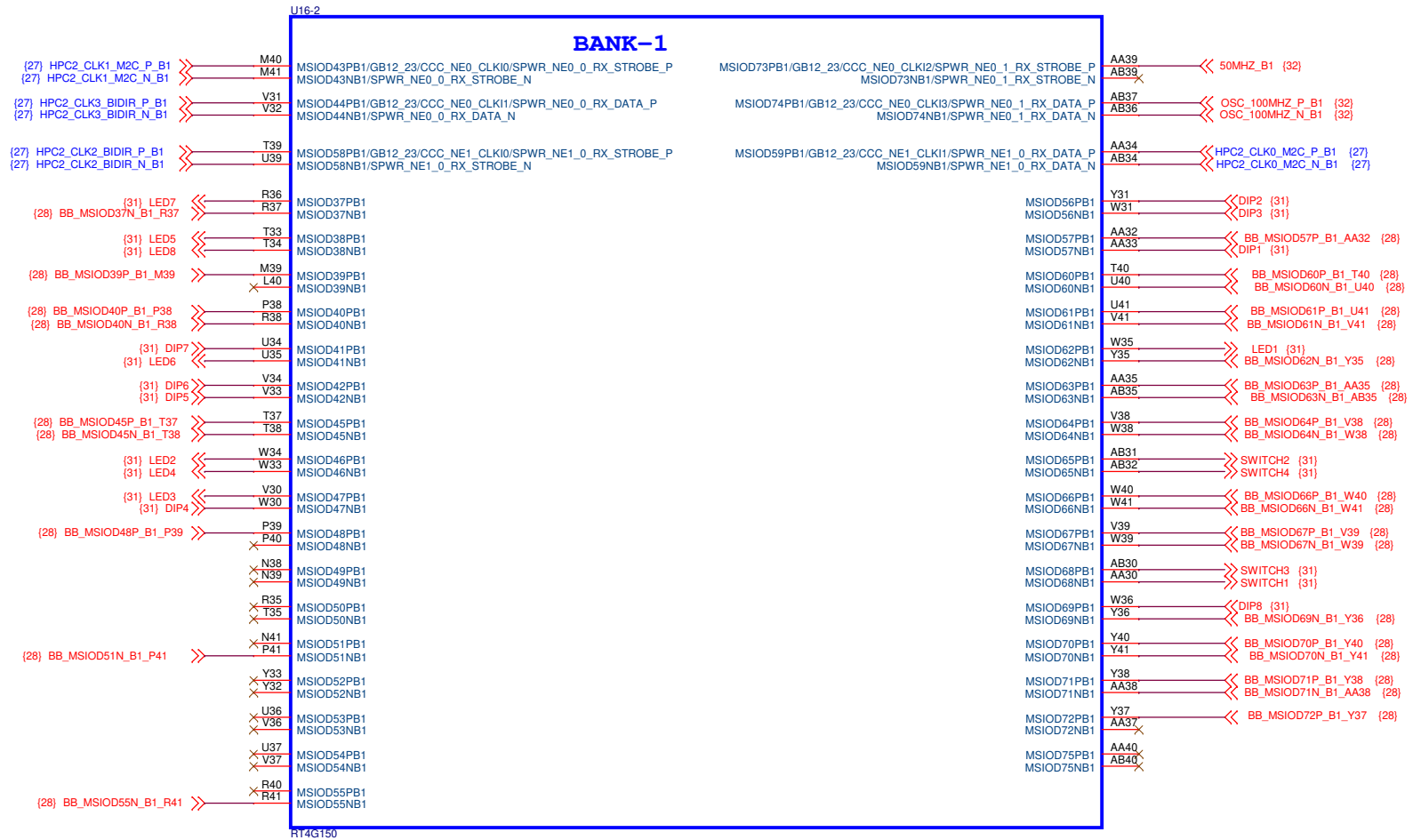


# DDR3-SDRAM

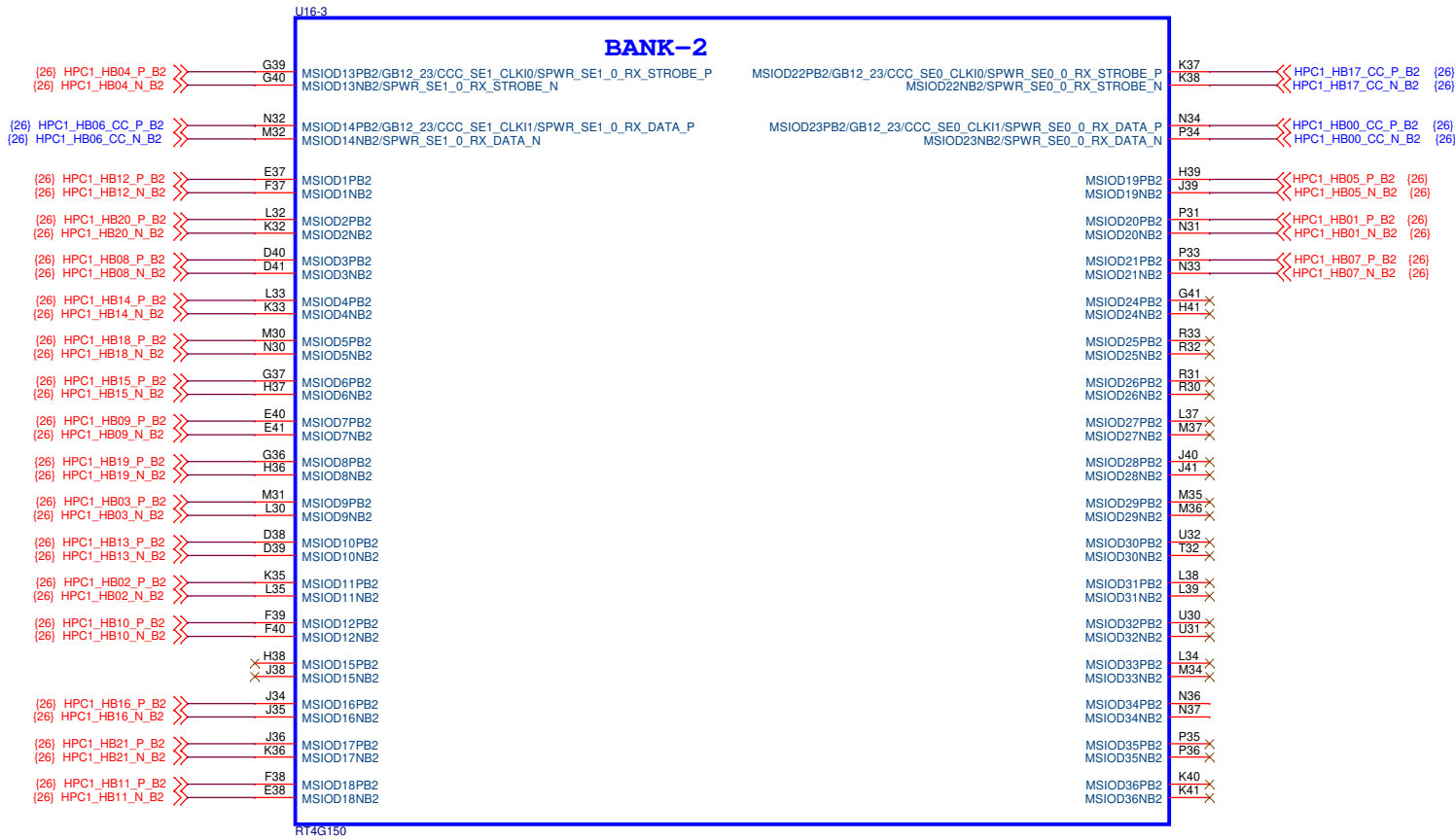




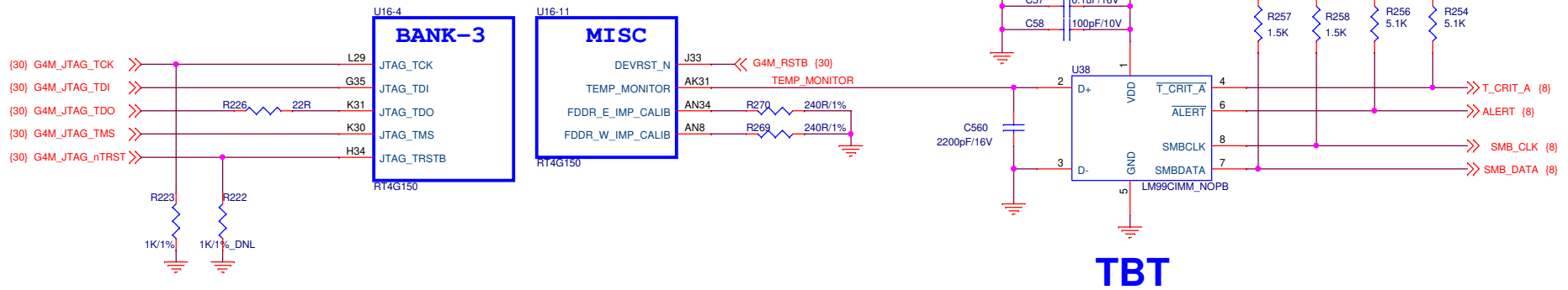
**BANK-1**

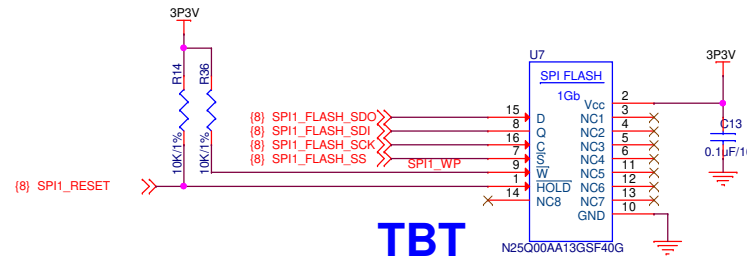


# BANK-2



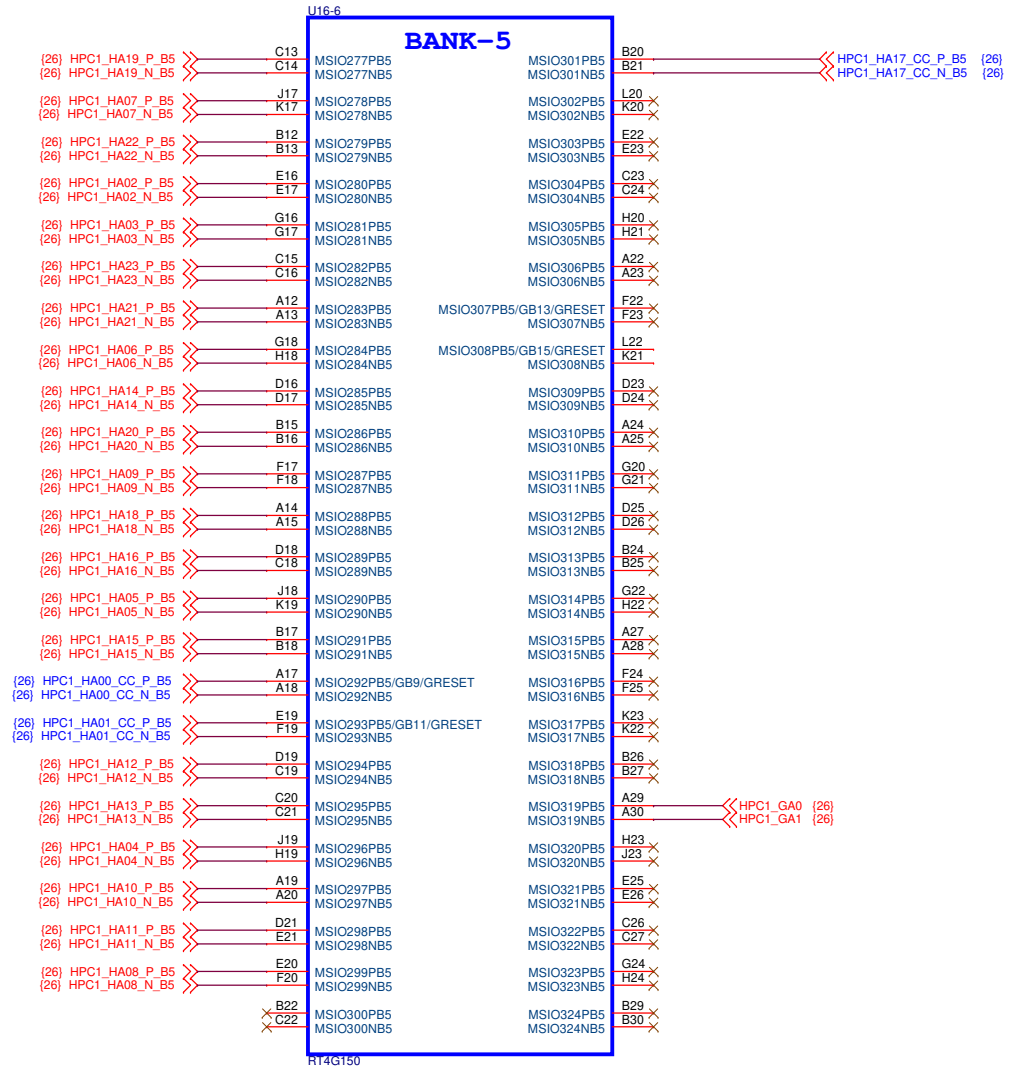
# BANK-3 & MISC



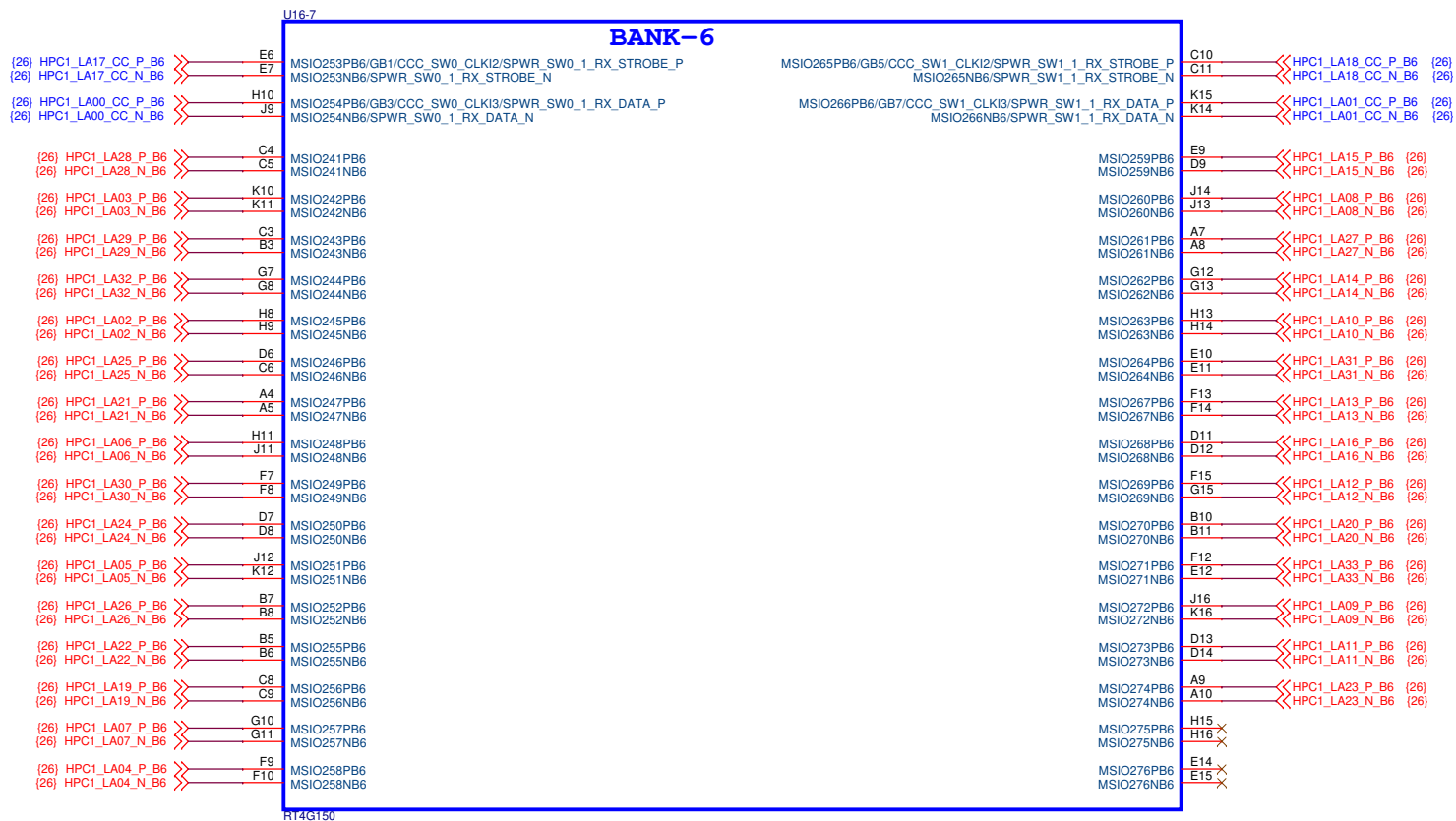
**BANK-4**



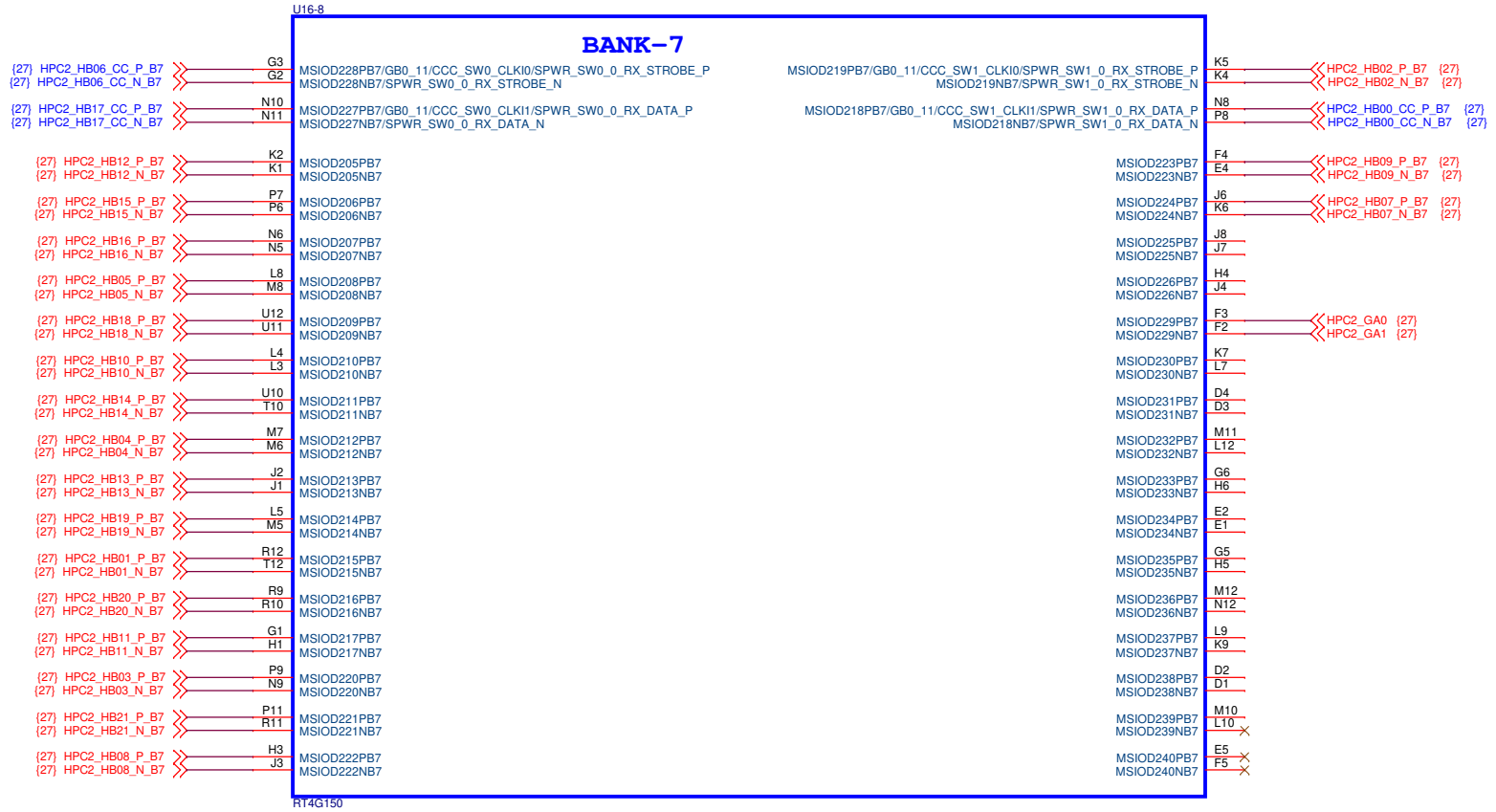
BANK-5



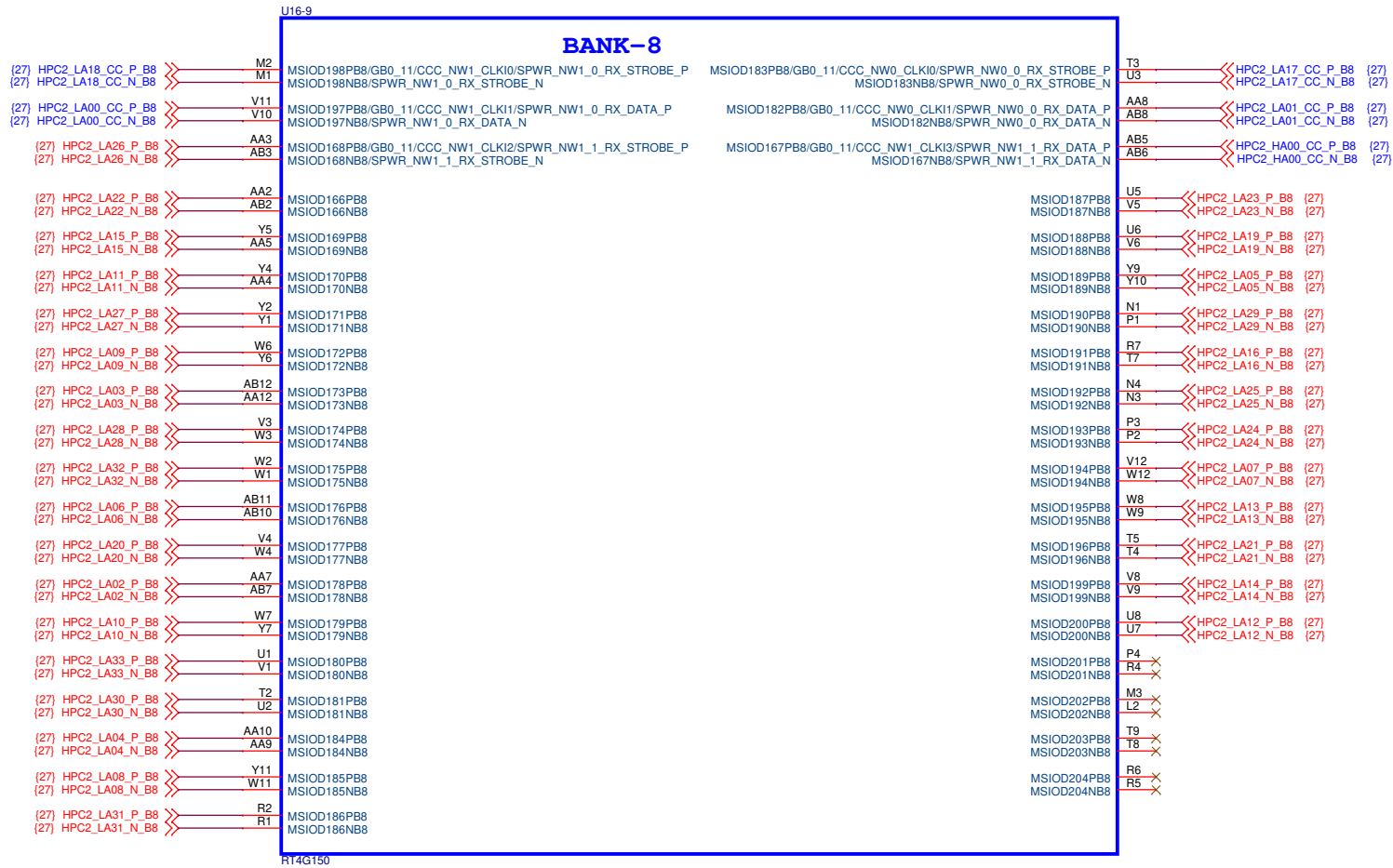
# BANK-6



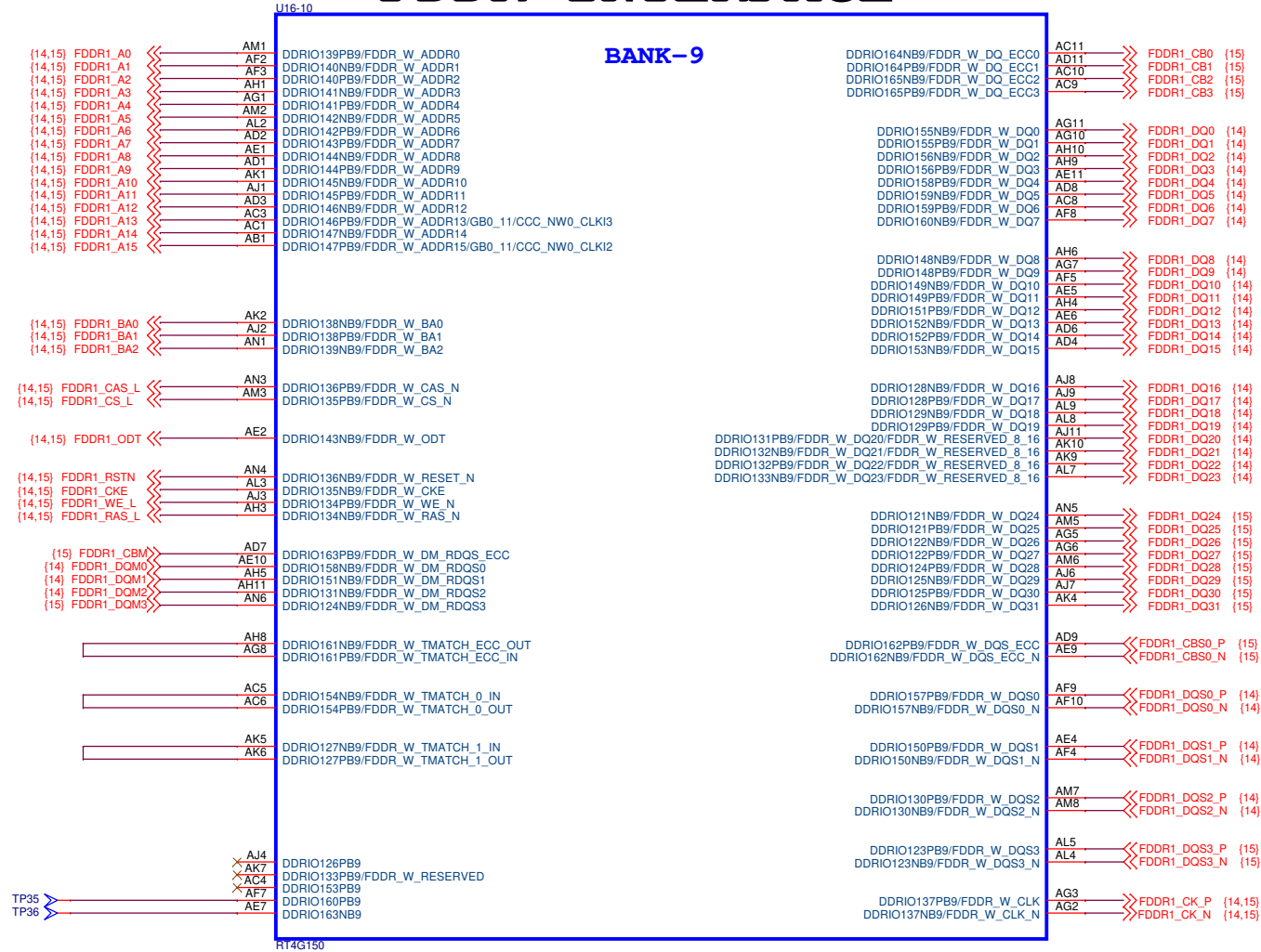
# BANK-7



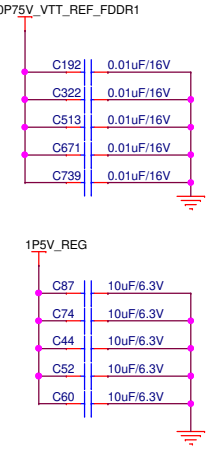
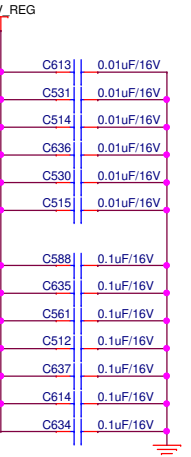
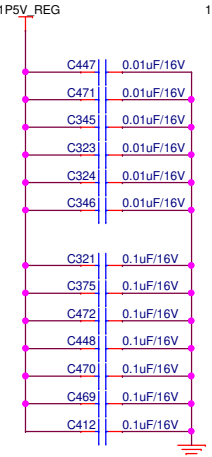
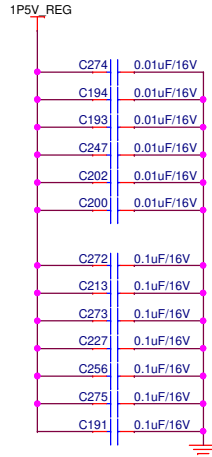
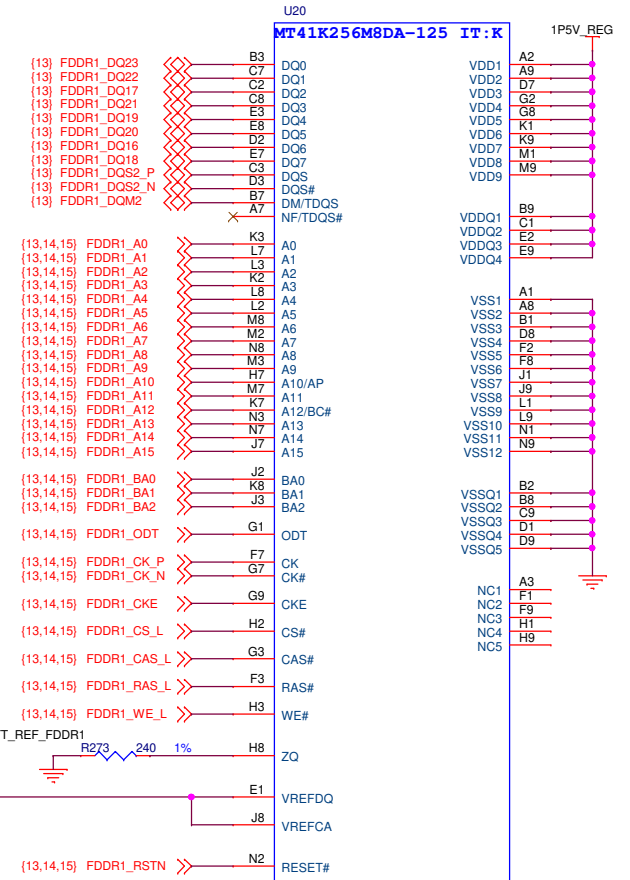
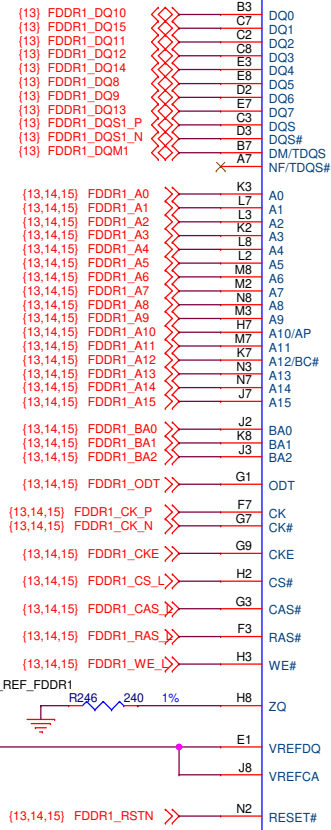
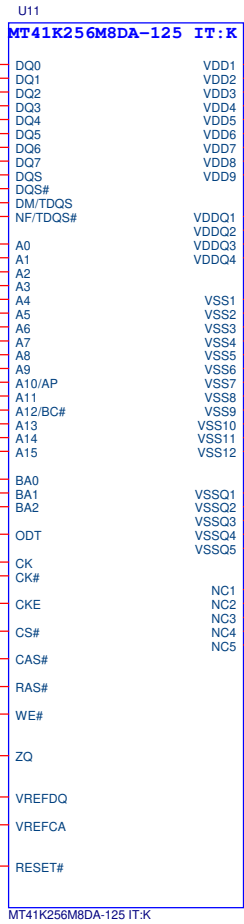
# BANK-8



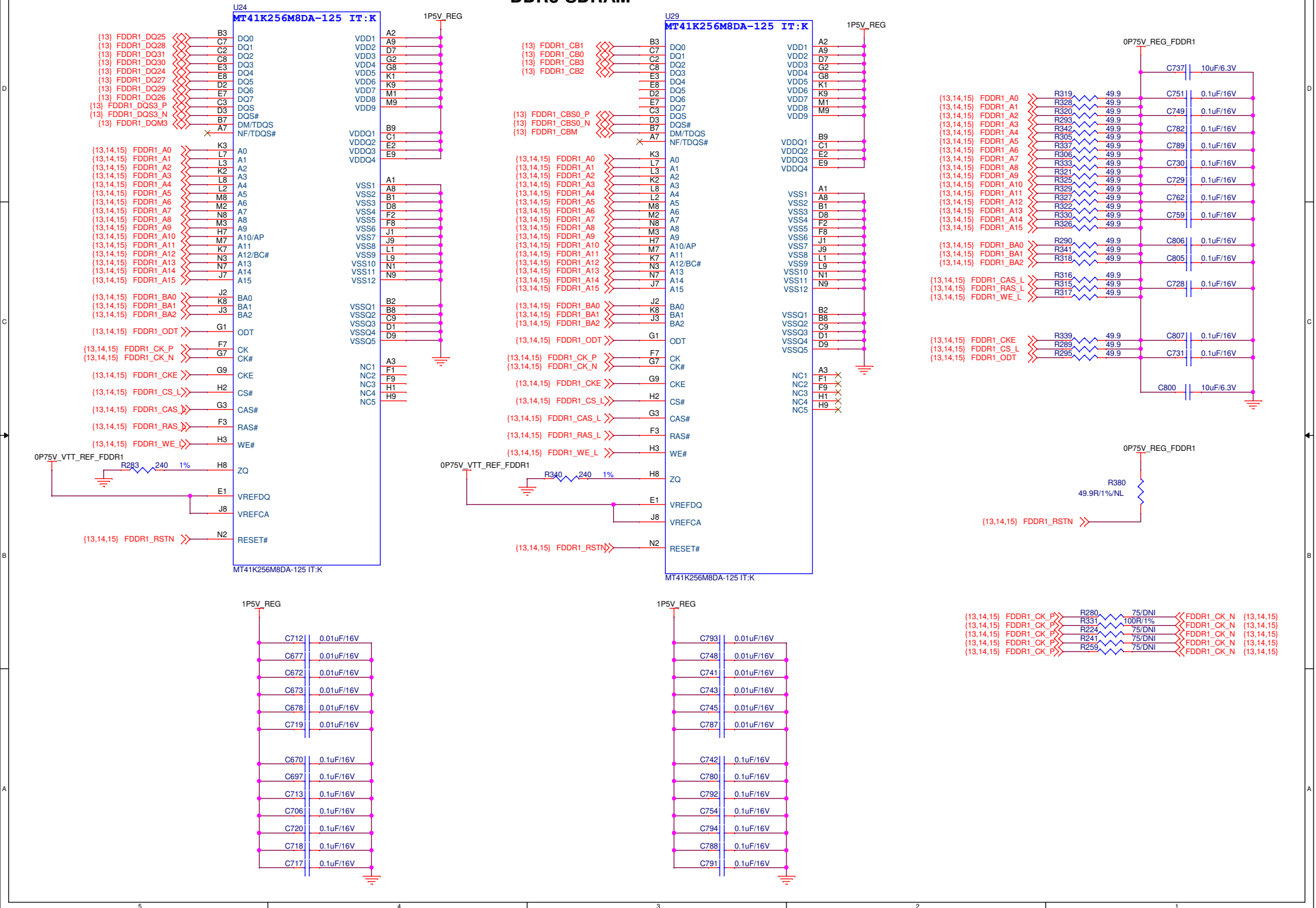
# FDDR INTERFACE



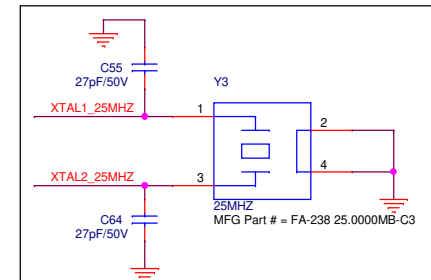
# DDR3-SDRAM



## DDR3-SDRAM

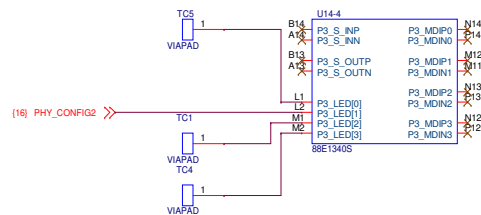
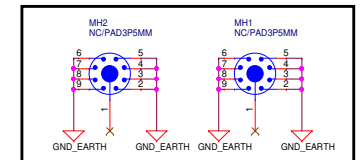


**TBT**

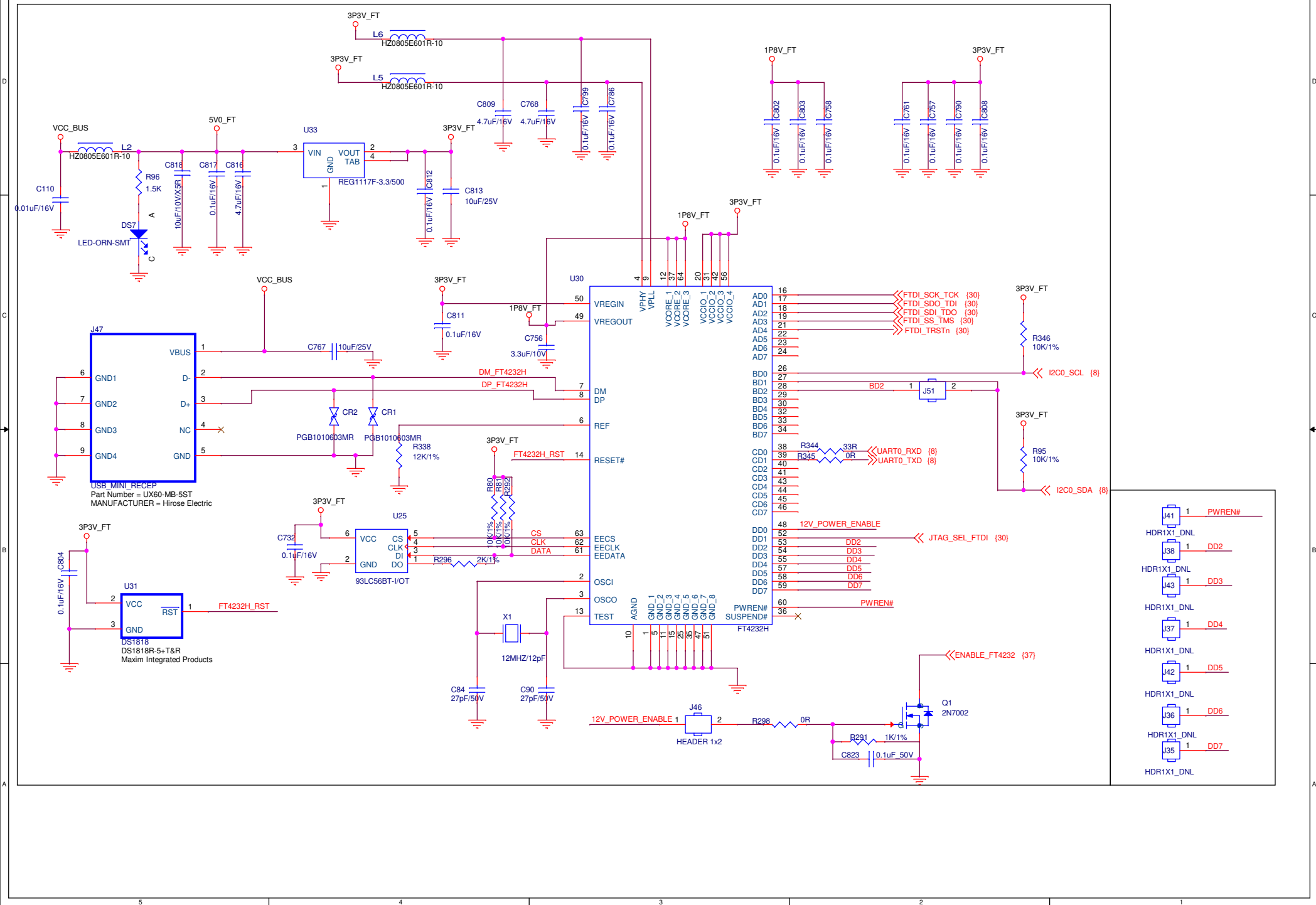




**TBT**

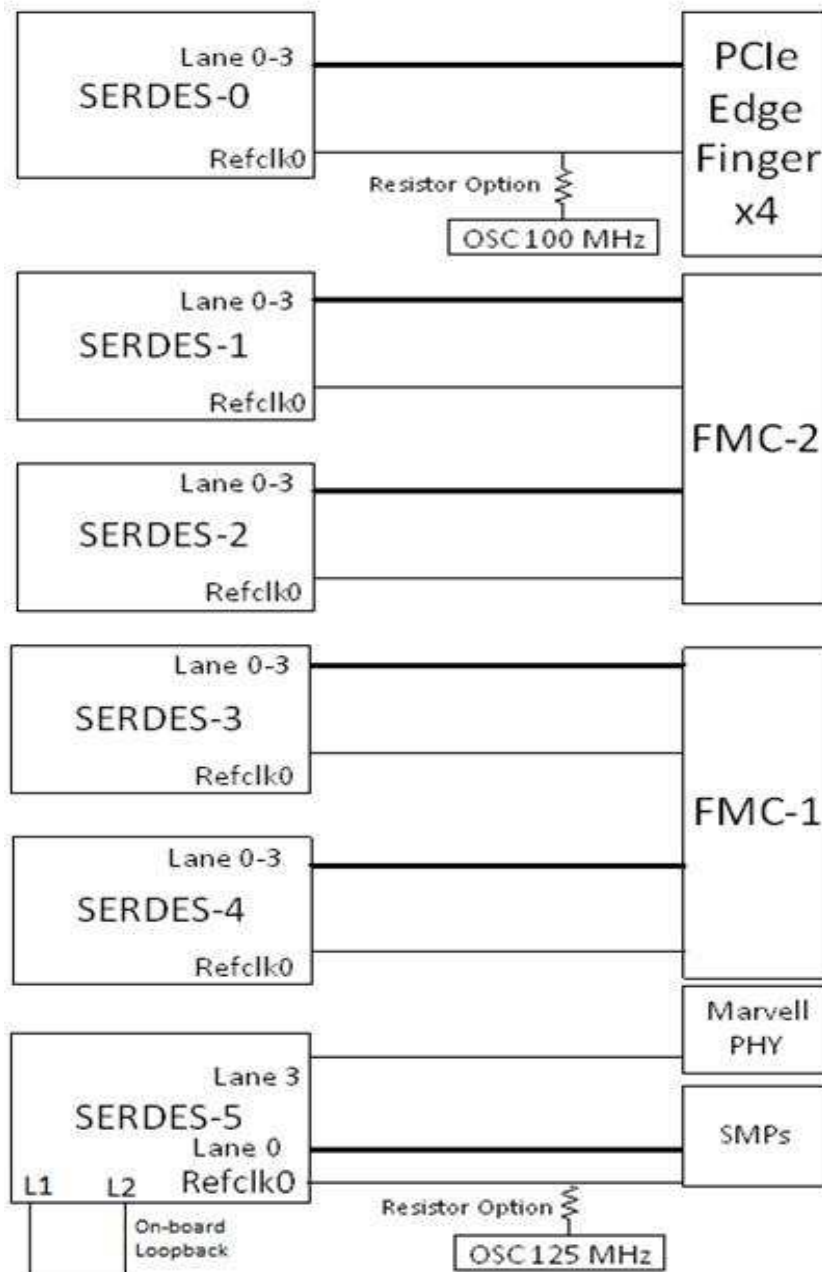


## FT4232H CIRCUITRY



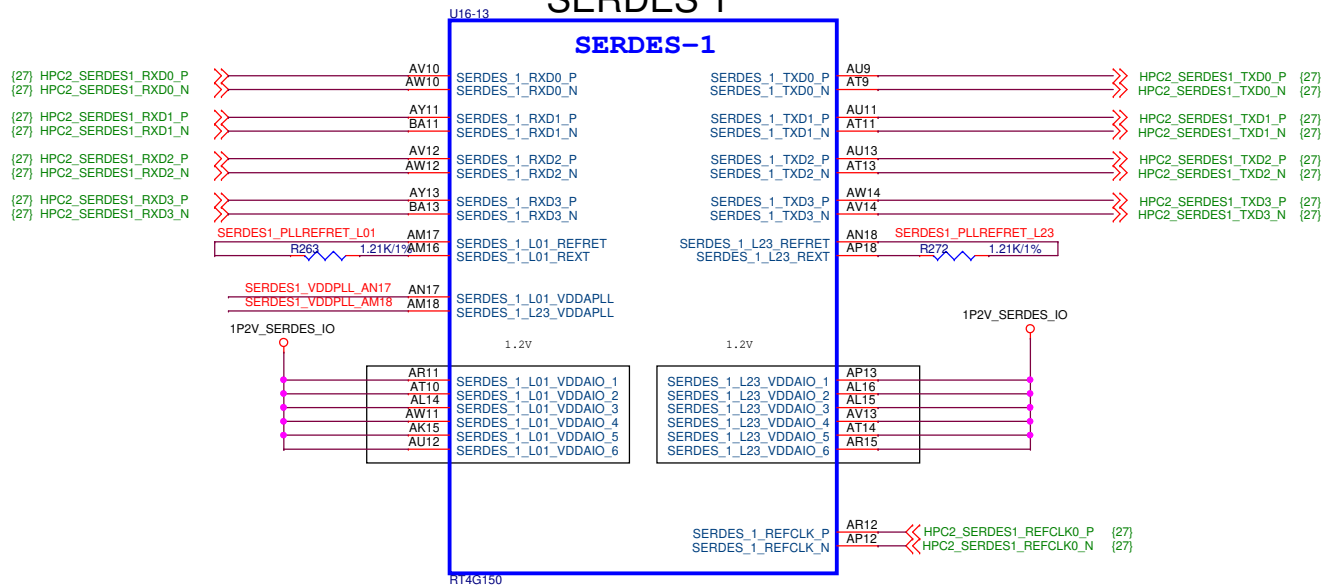
# SERDES BLOCK DIAGRAM

SERDES Block allocation for RTG4 DEV KIT

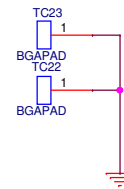
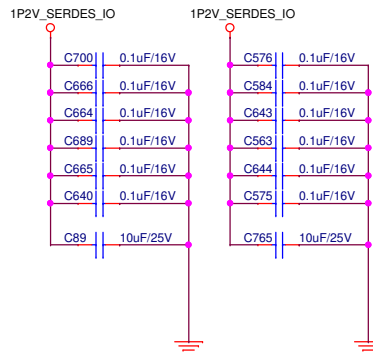




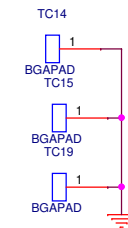
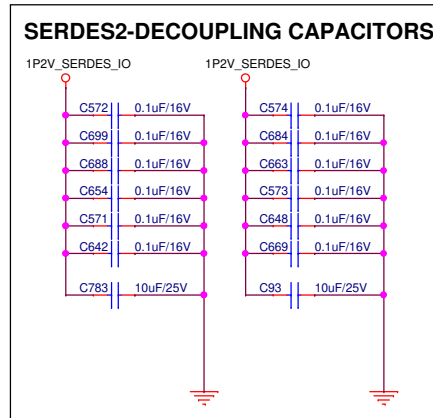
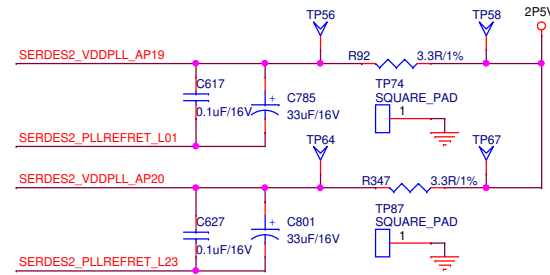
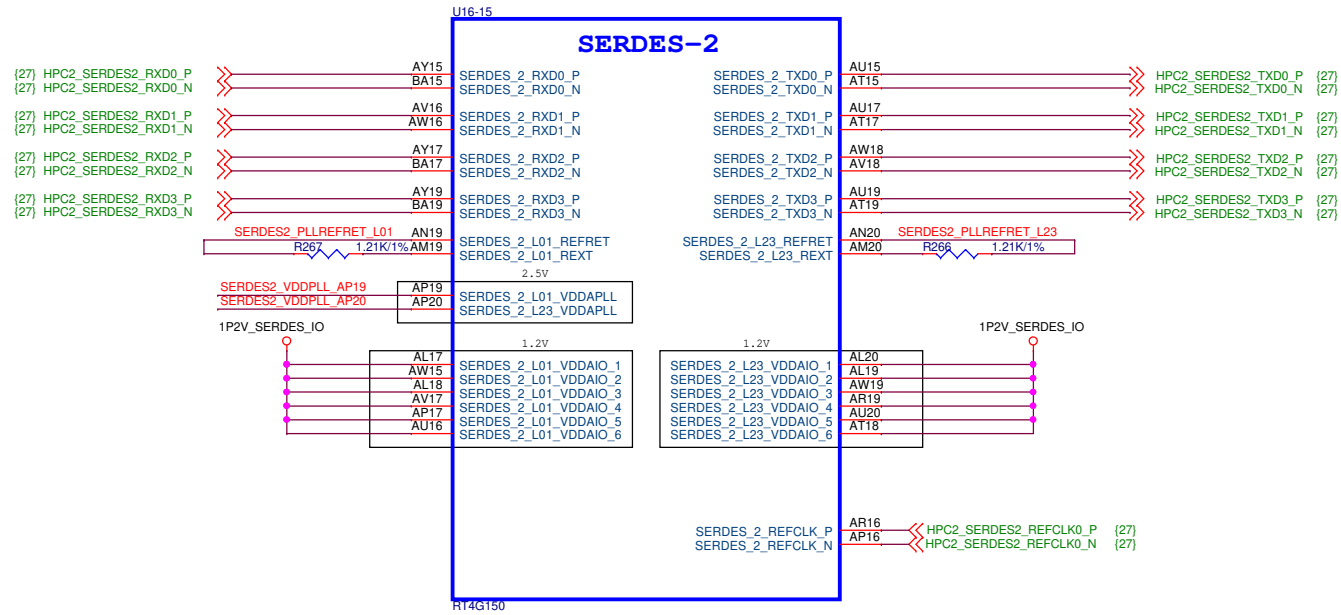
# SERDES 1



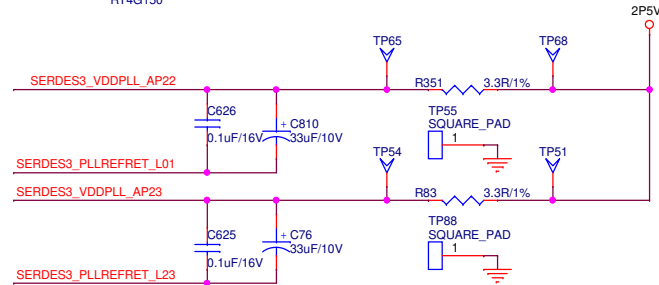
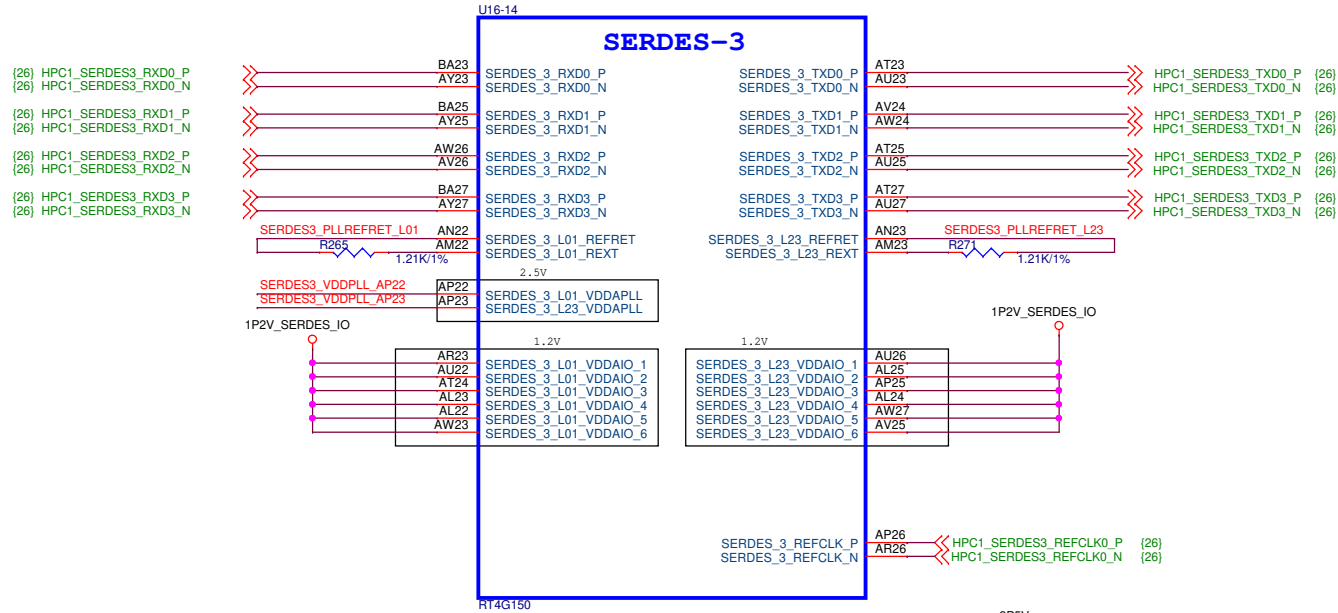
## SERDES1-DECOUPLING CAPACITORS



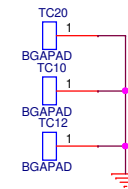
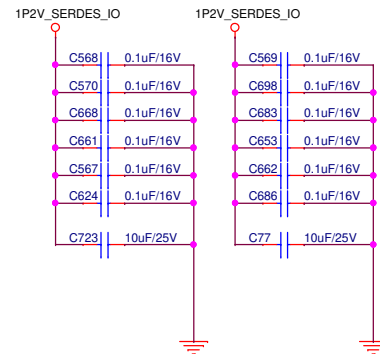
# SERDES 2



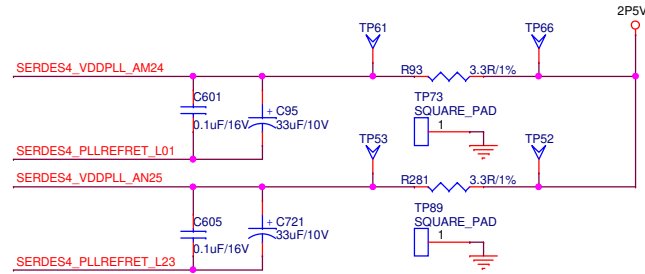
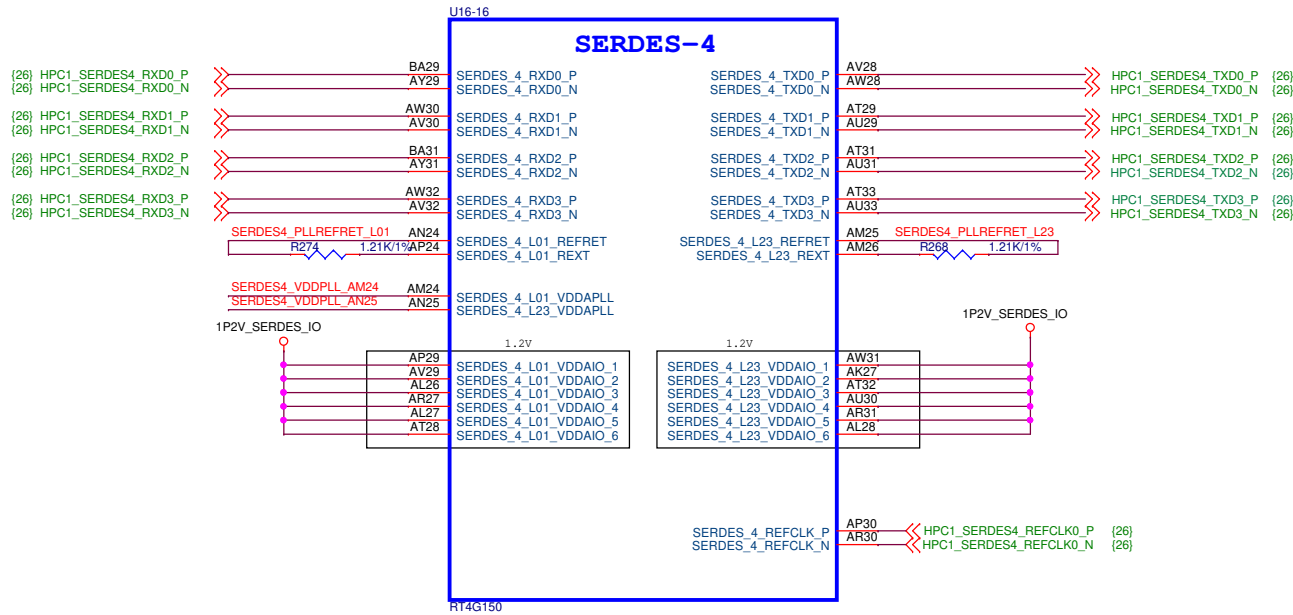
# SERDES 3



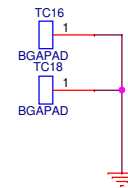
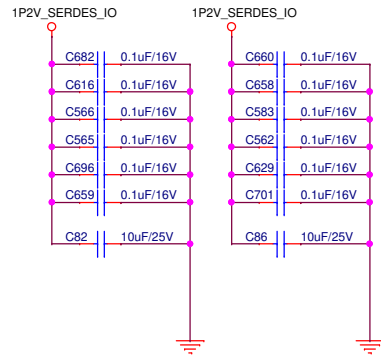
## SERDES3-DECOUPLING CAPACITORS



# SERDES 4



## SERDES4-DECOUPLING CAPACITORS

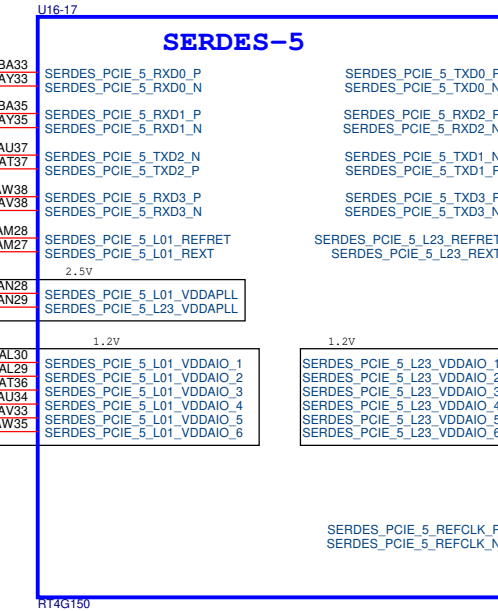




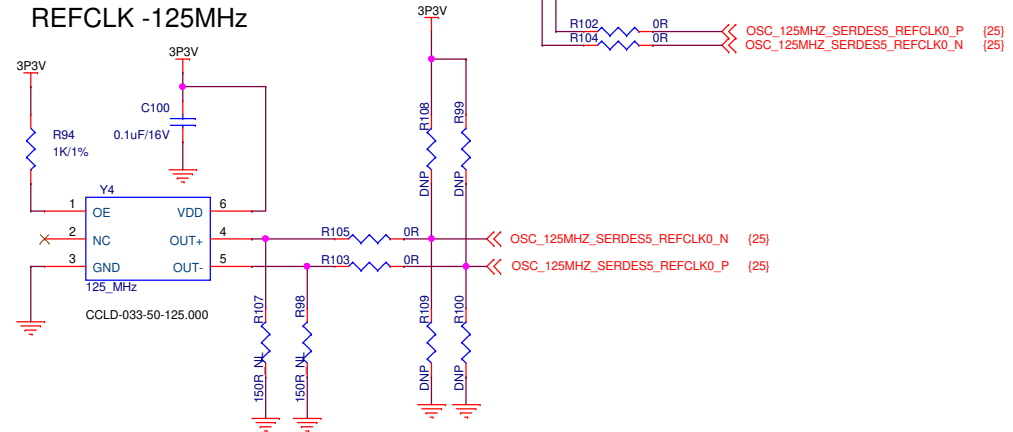
# SERDES 5

TRACE LENGTH SHOULD BE 6 INCHES  
(17) P0\_S\_OUTP  
(17) P0\_S\_OUTN

TRACE LENGTH SHOULD BE 6 INCHES  
(17) P0\_S\_INP  
(17) P0\_S\_INN

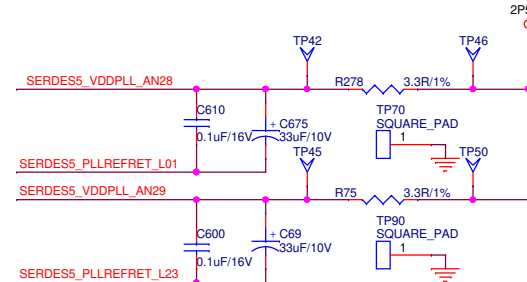
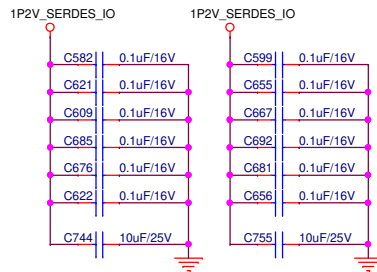


## REFCLK -125MHz

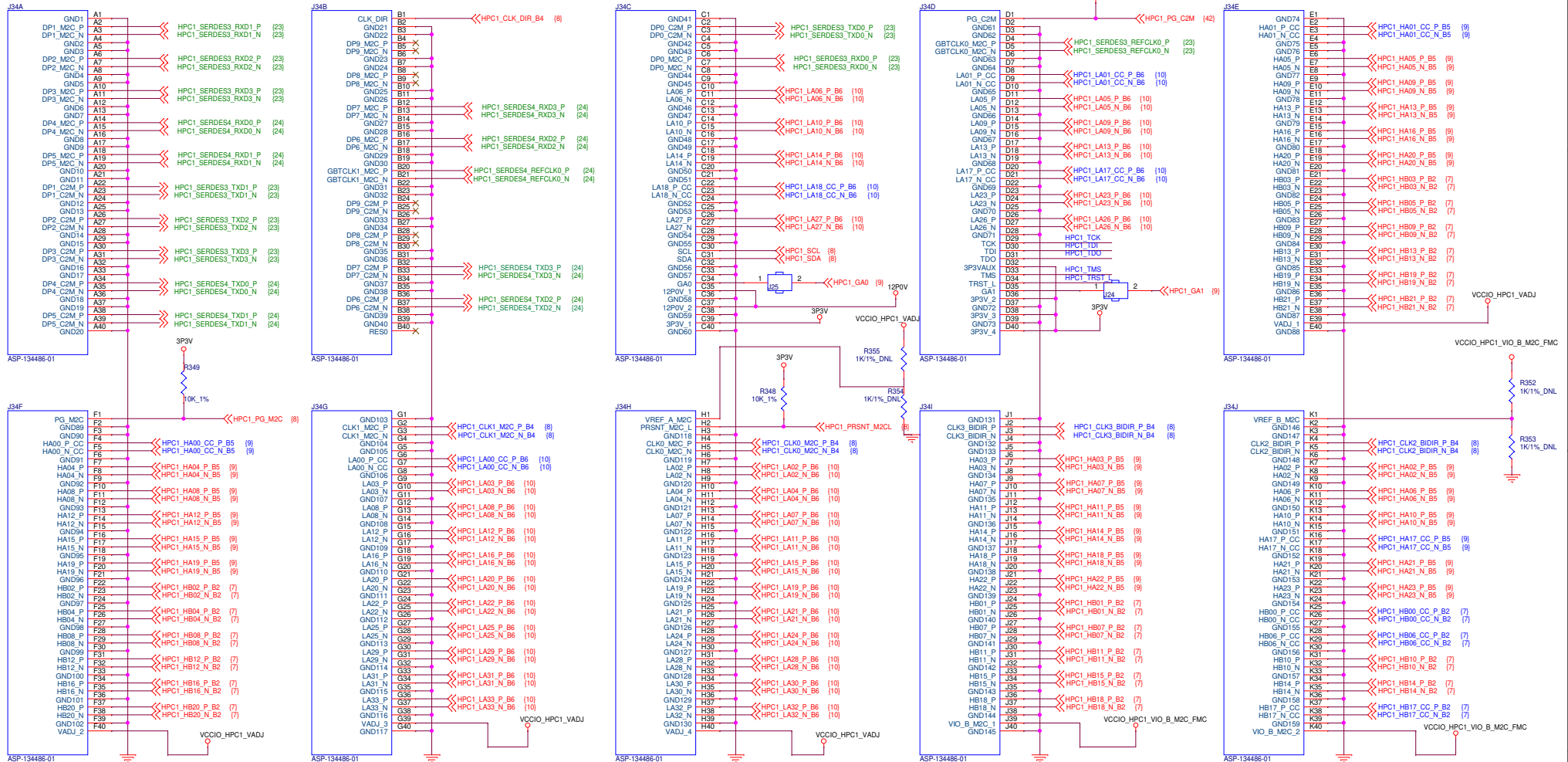


**NOTE:**  
R107, R98, R109, R100, R108, R99 are not populated on board. They were placed for internal debugging purpose

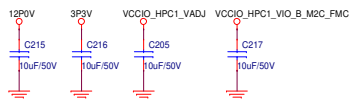
## SERDESS5-DECOUPLING CAPACITORS



# FMC CONNECTOR-HPC1

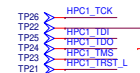


## DECOUPLING CAPACITORS

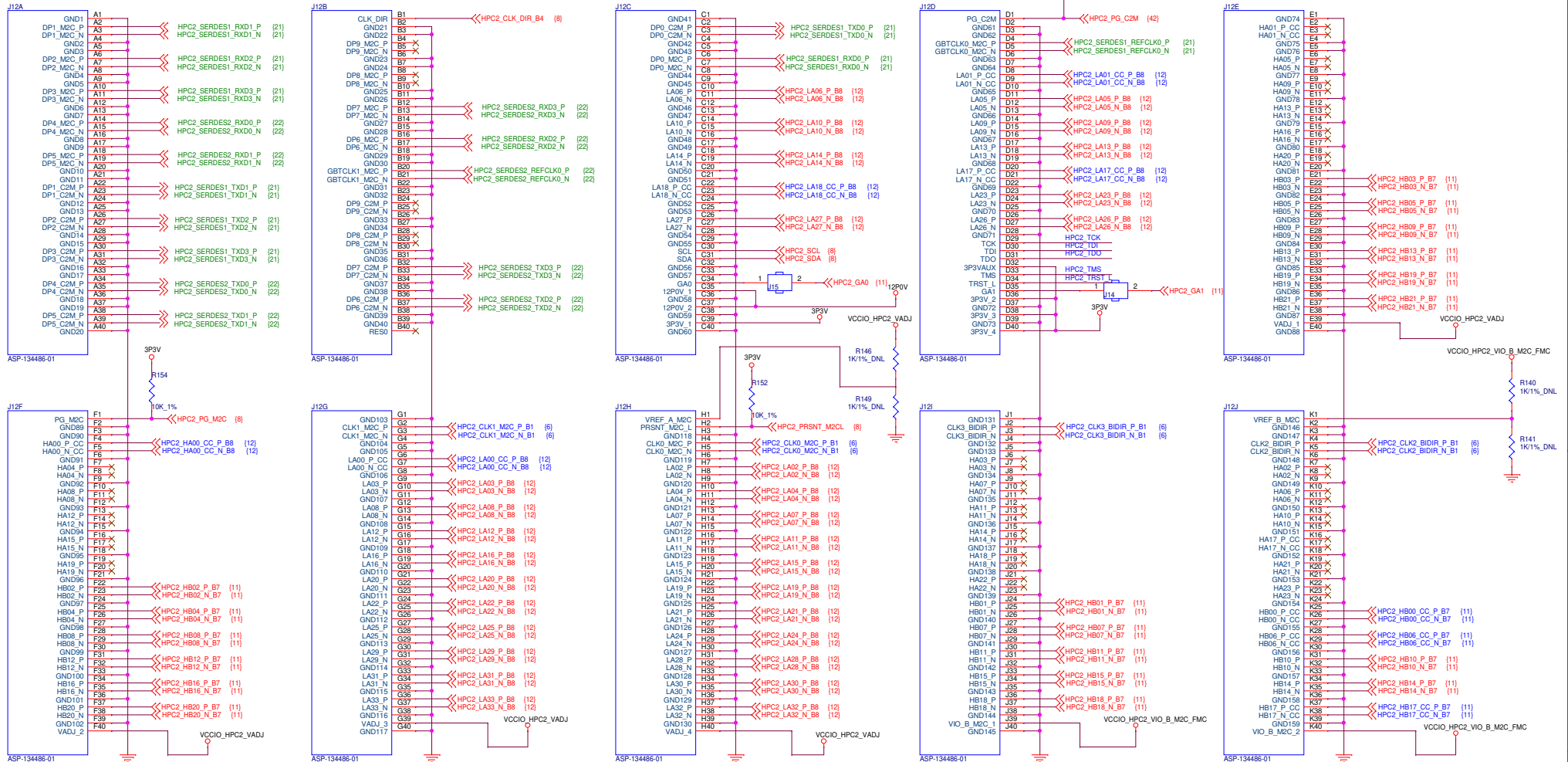


**NOTE:**

- 1.FMC HPC1 LA & HA bank IO's support maximum of 3.3V.
- 2.FMC HPC1 HB bank IO's support maximum of 2.5V.
- 3.The Supporting Voltages of FMC HPC1(VCCIO\_HPC1\_VADJ) are 1.2V,1.5V,1.8V, 2.5V and 3.3V.



# FMC CONNECTOR-HPC2

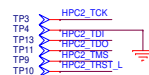


## DECOUPLING CAPACITORS

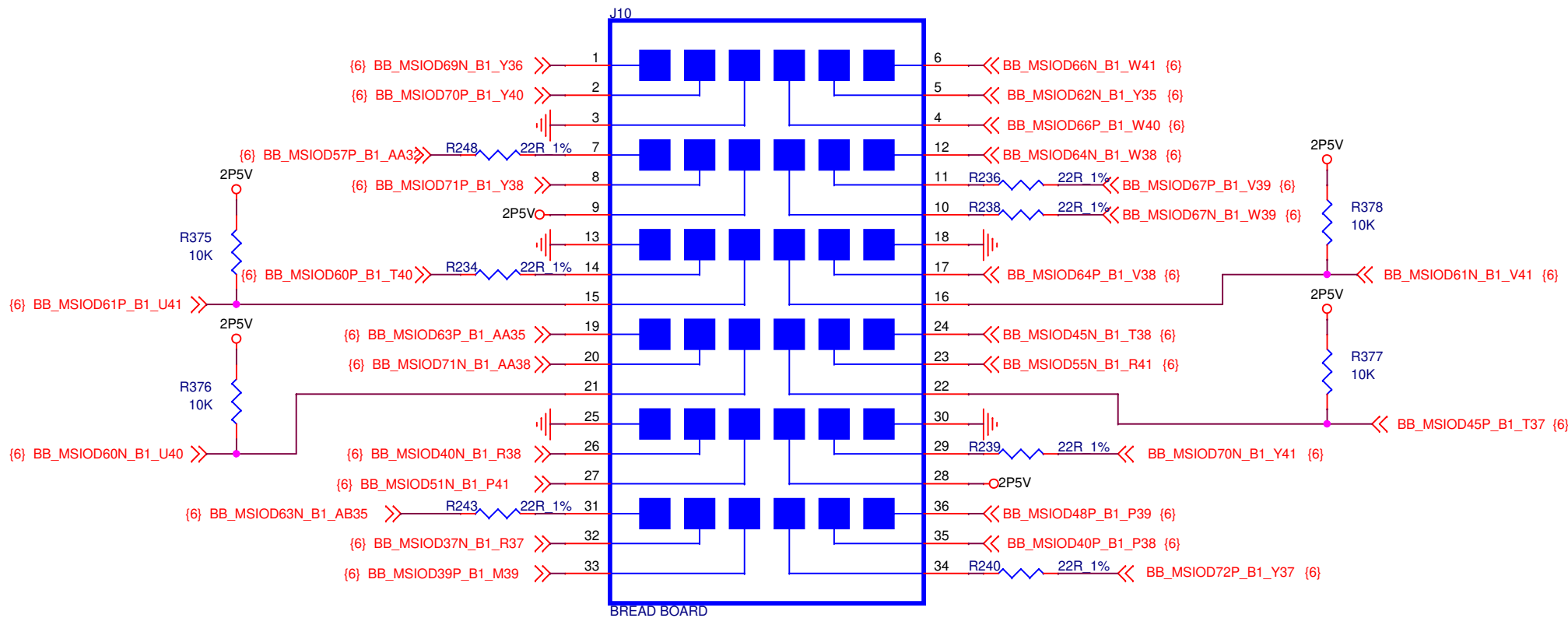


**NOTE:**

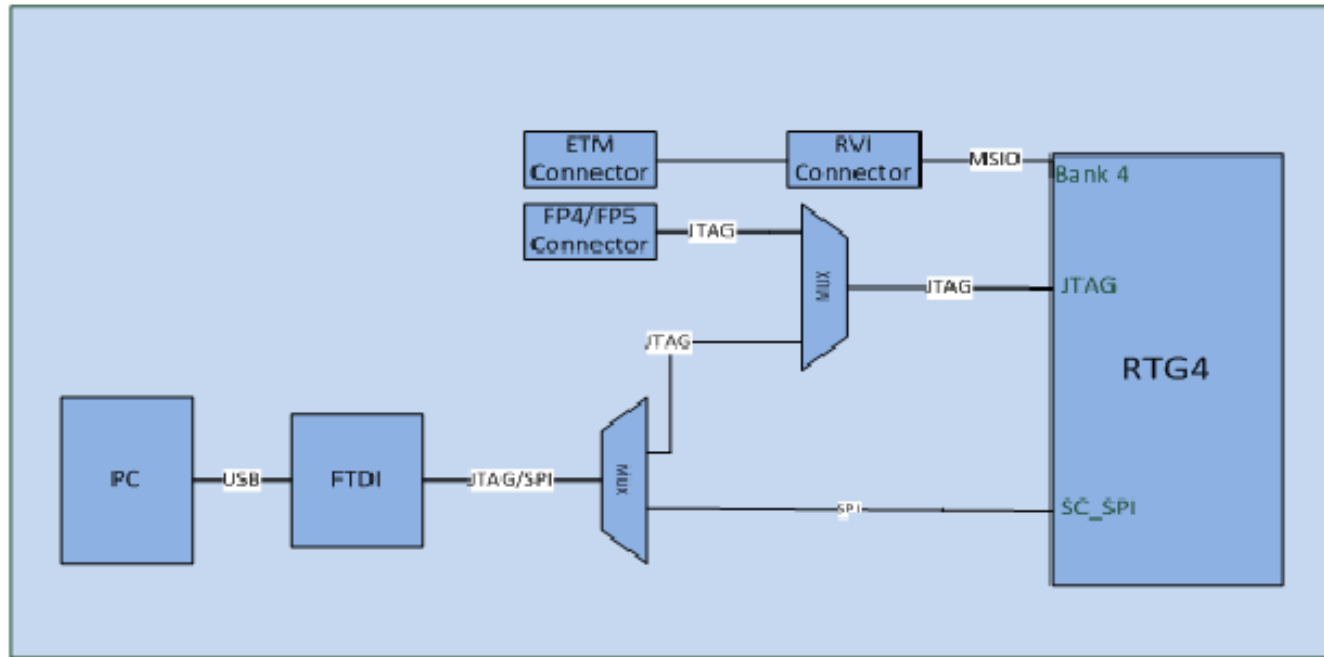
- 2.The Supporting Voltages of FMC HPC2(VCCIO HPC2\_VADJ) are 1.2V,1.5V,1.8V and 2.5V.



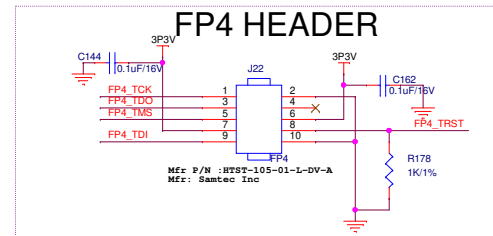
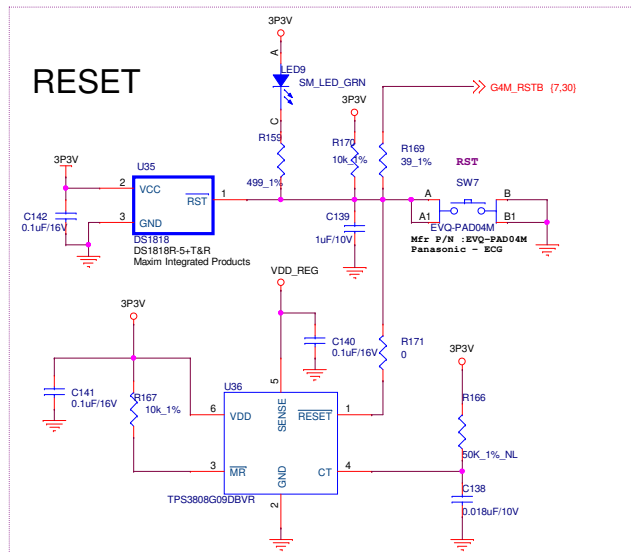
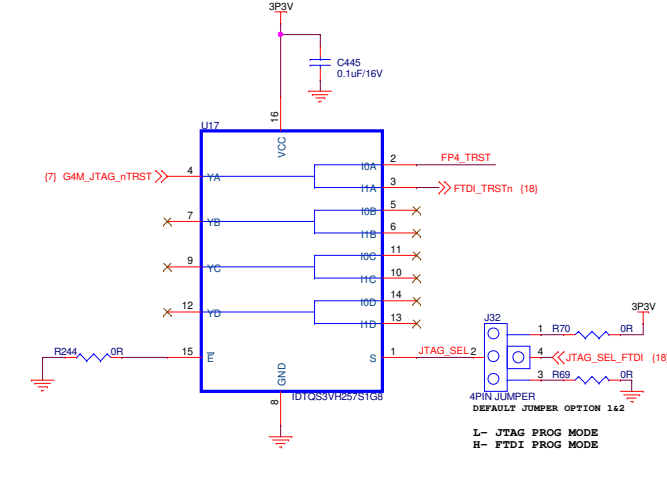
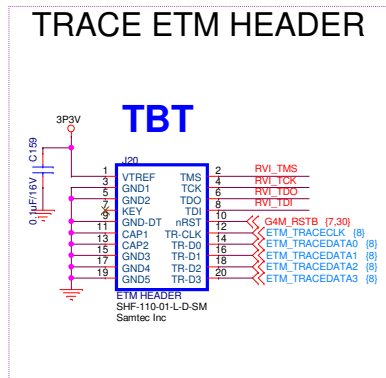
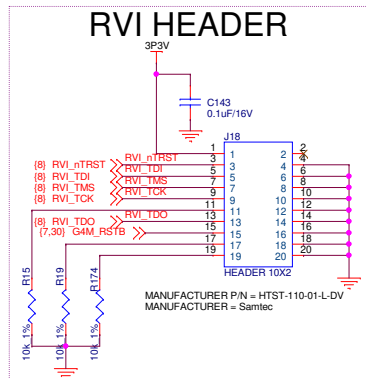
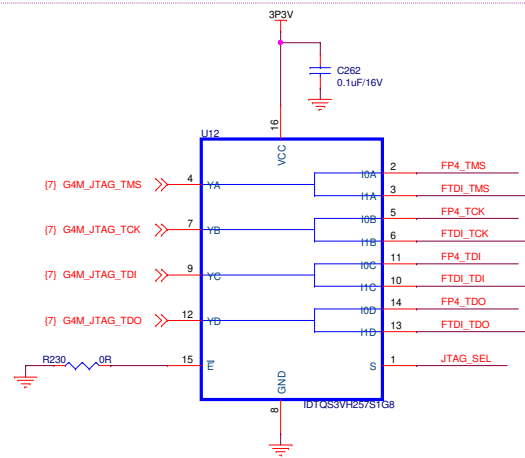
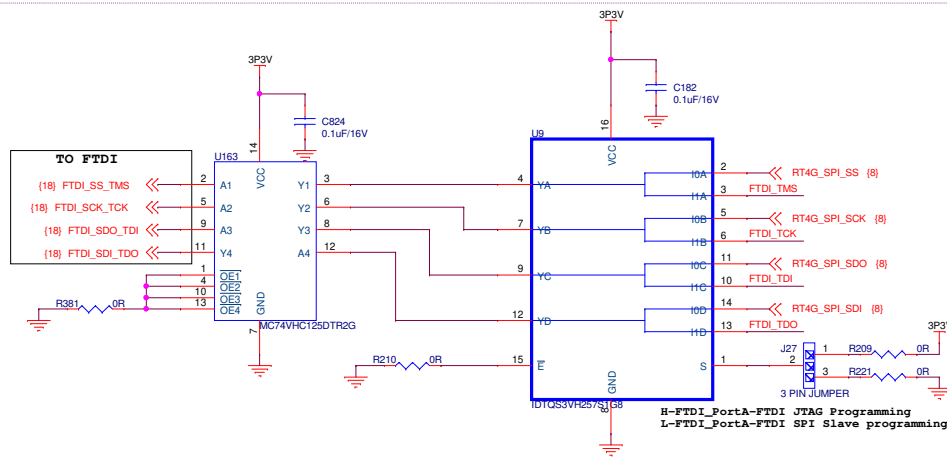
# BREAD BOARD CONNECTOR



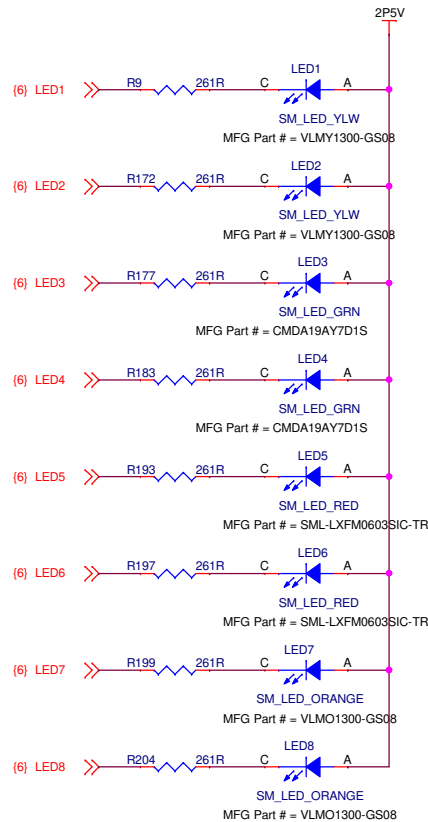
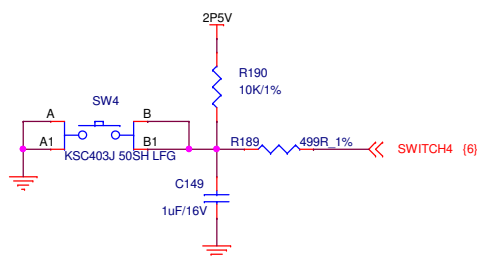
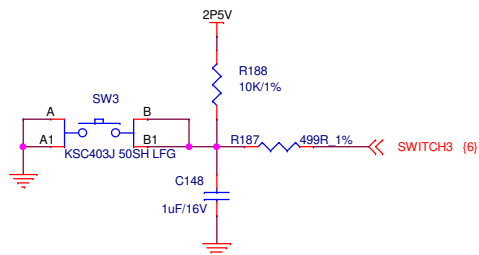
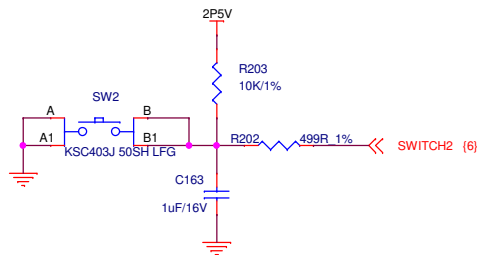
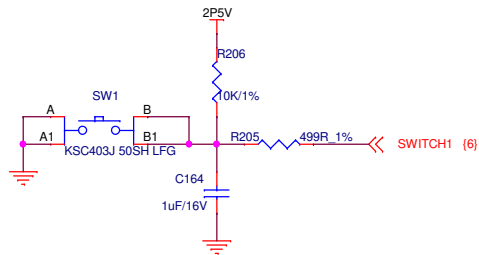
# PROGRAMING SCHEME



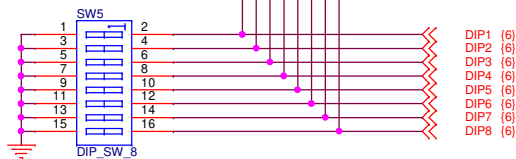
# PROGRAMING CIRCUITRY



# DEBUG CIRCUITRY



SWITCH POSITION	LOGIC LEVEL
ON	GND
OFF	LOGIC1



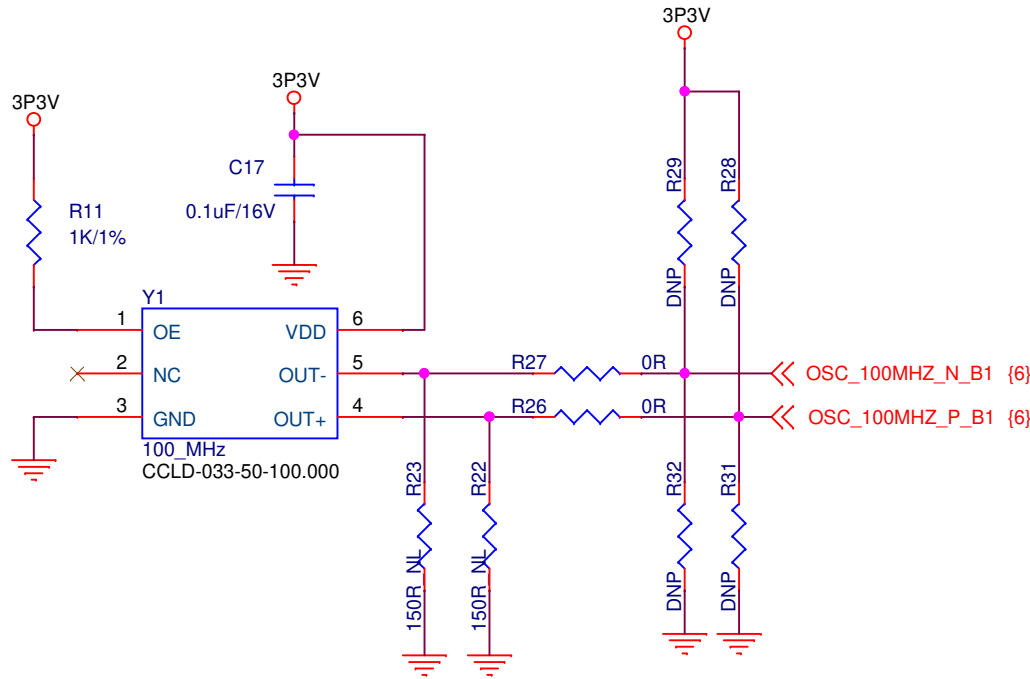
NET NAME	FPGA PIN NAME	FPGA PIN NO
SWITCH1	MSIOD68NB1	AA30
SWITCH2	MSIOD65PB1	AB31
SWITCH3	MSIOD68PB1	AB30
SWITCH4	MSIOD65NB1	AB32

NET NAME	FPGA PIN NAME	FPGA PIN NO
LED1	MSIOD62PB1	W35
LED2	MSIOD46PB1	W34
LED3	MSIOD47PB1	V30
LED4	MSIOD46NB1	W33
LED5	MSIOD38PB1	T33
LED6	MSIOD41NB1	U35
LED7	MSIOD37PB1	R36
LED8	MSIOD38NB1	T34

NET NAME	FPGA PIN NAME	FPGA PIN NO
DIP1	MSIOD57NB1	AA33
DIP2	MSIOD56PB1	Y31
DIP3	MSIOD56NB1	W31
DIP4	MSIOD47NB1	W30
DIP5	MSIOD42NB1	V33
DIP6	MSIOD42PB1	V34
DIP7	MSIOD41PB1	U34
DIP8	MSIOD69PB1	W36

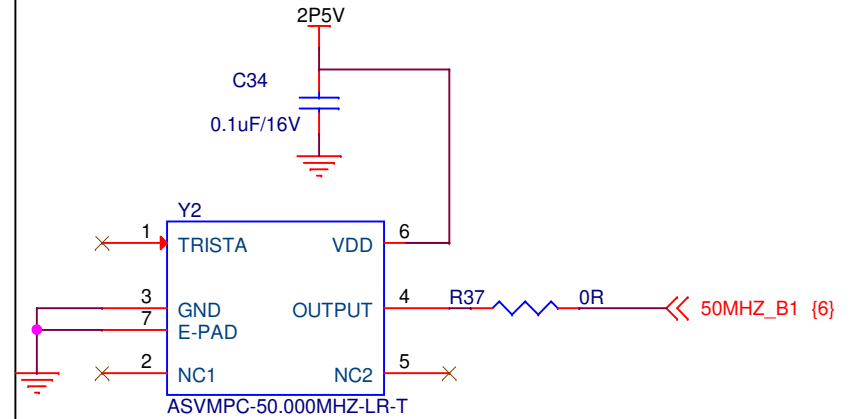
# CLOCK CIRCUITRY

## CLK -100MHz



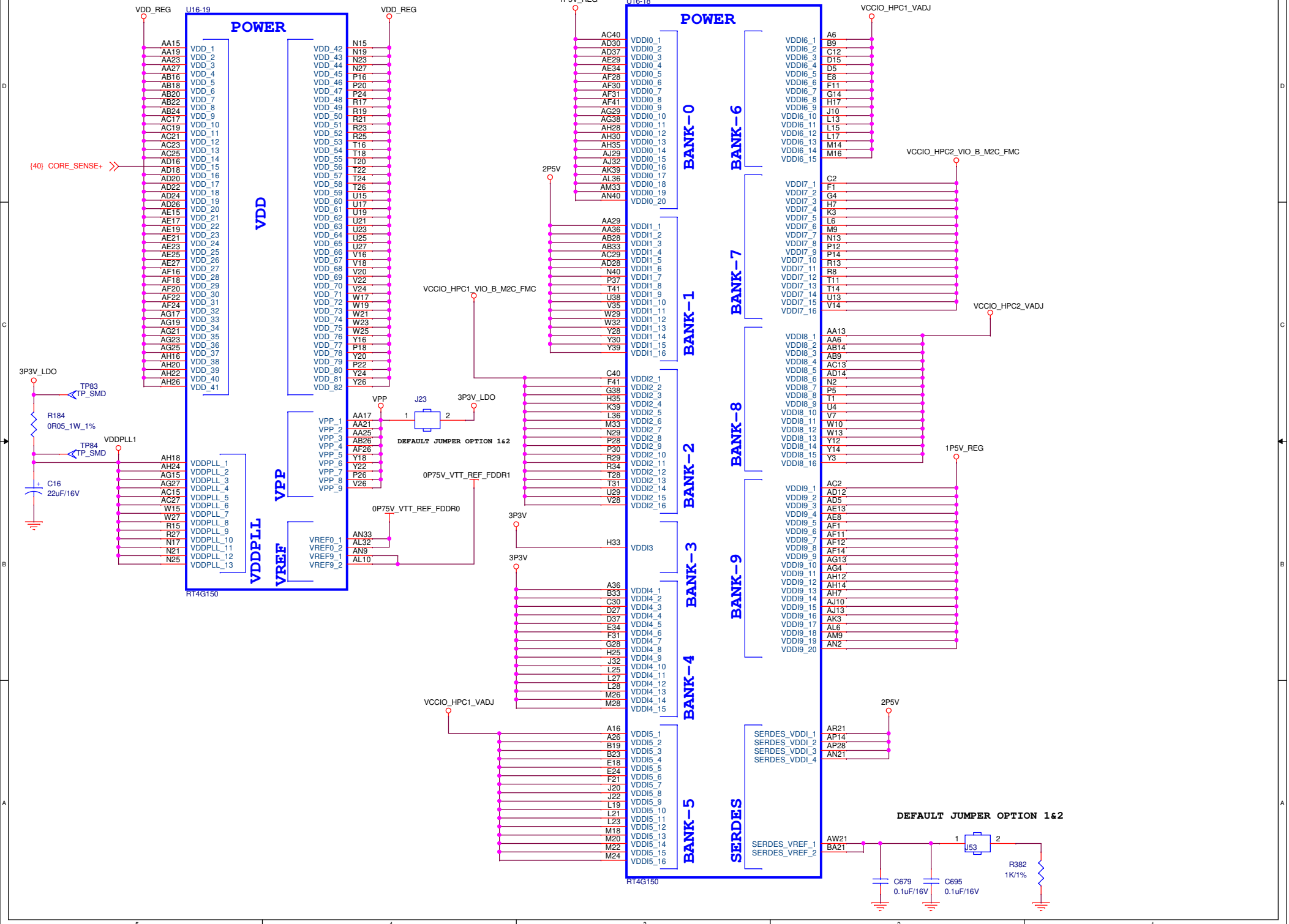
**NOTE:**  
R23, R22, R29, R28, R32, R31 are not populated on board. They were placed for internal debugging purpose

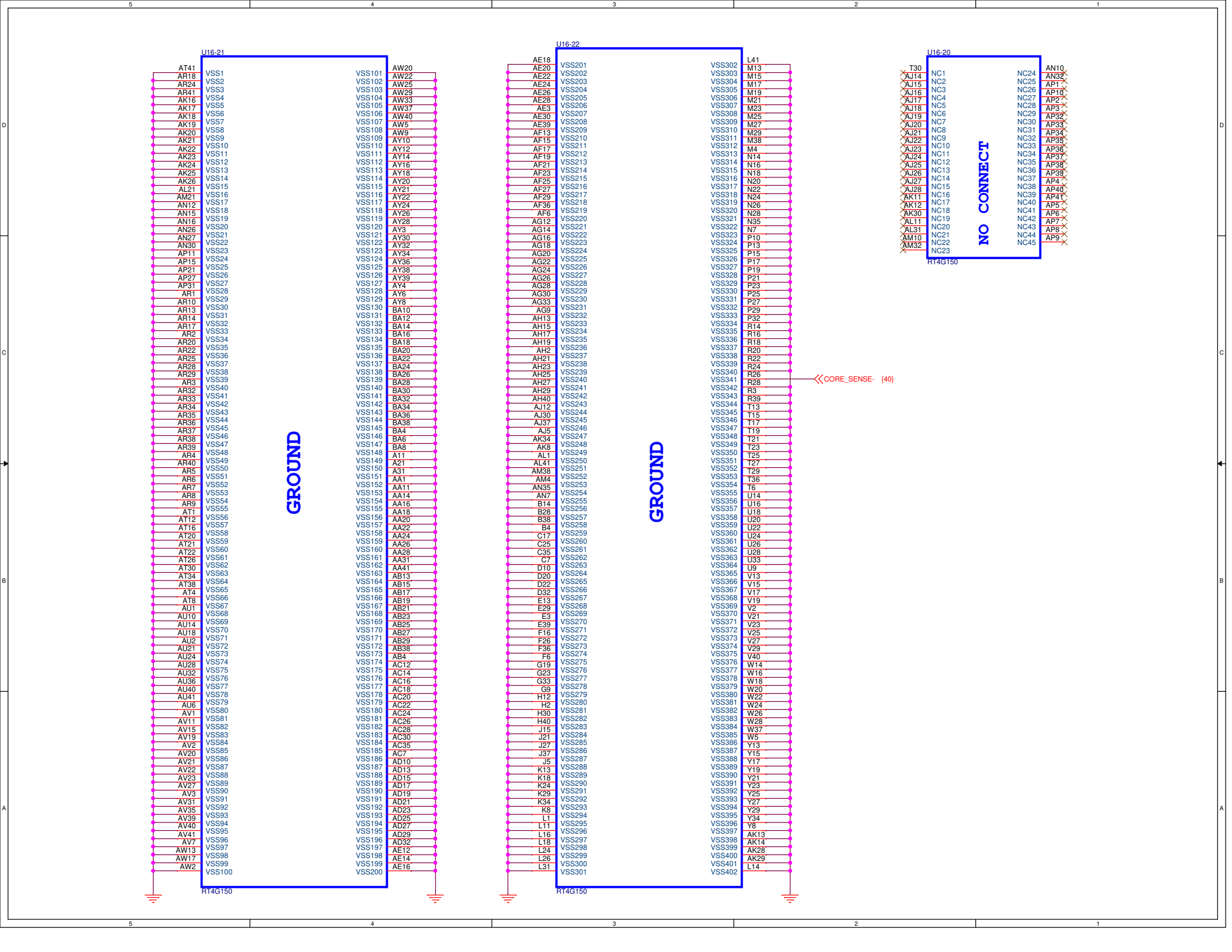
## CLK -50MHz



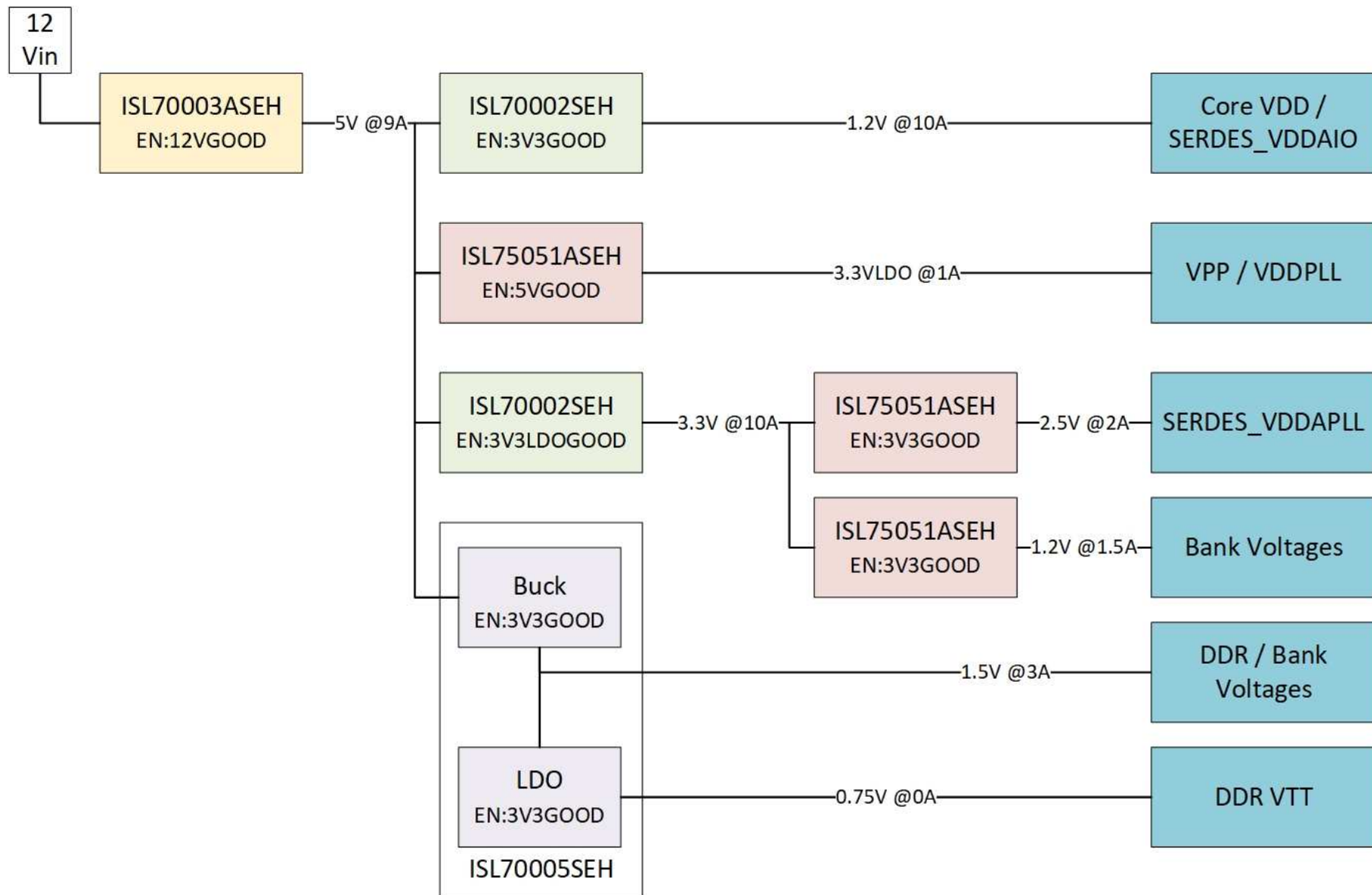


# POWER

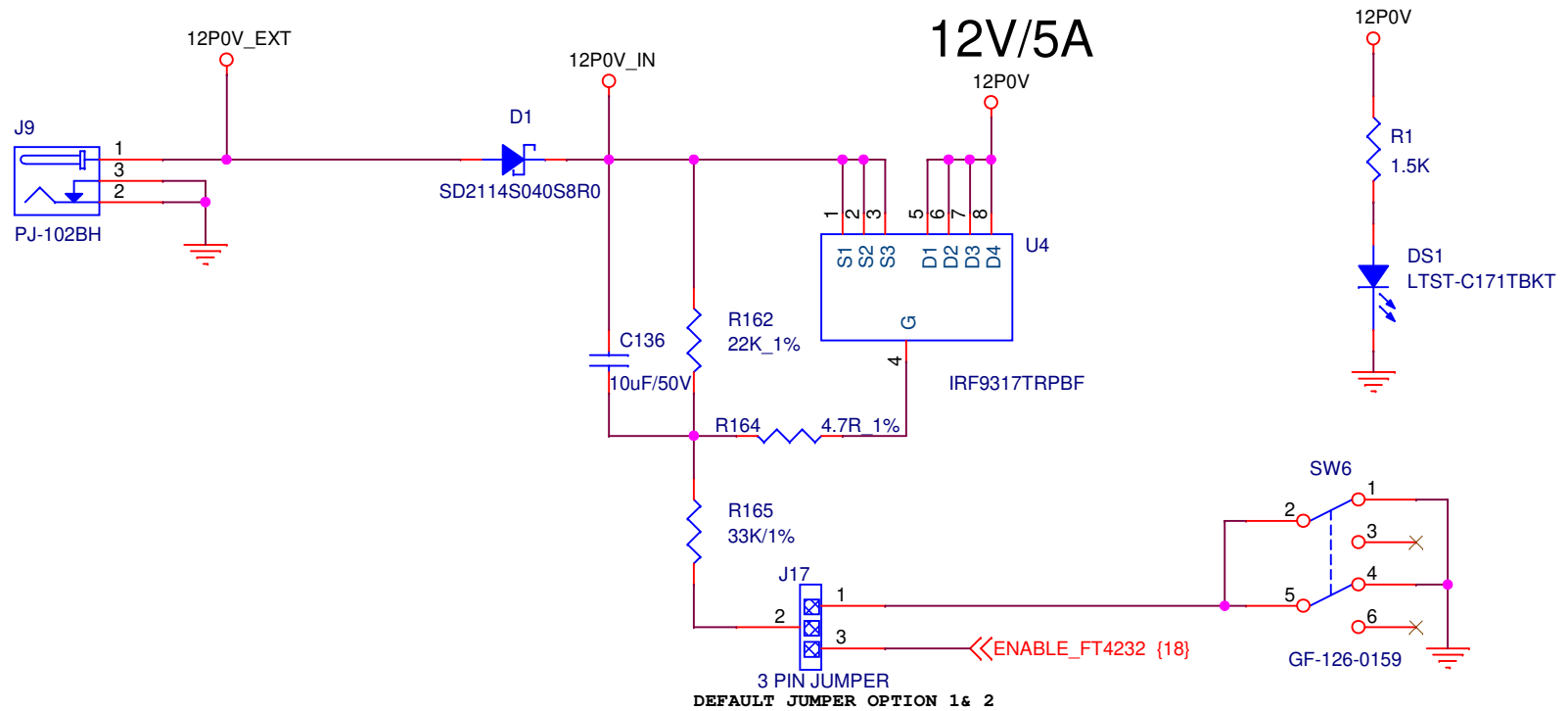


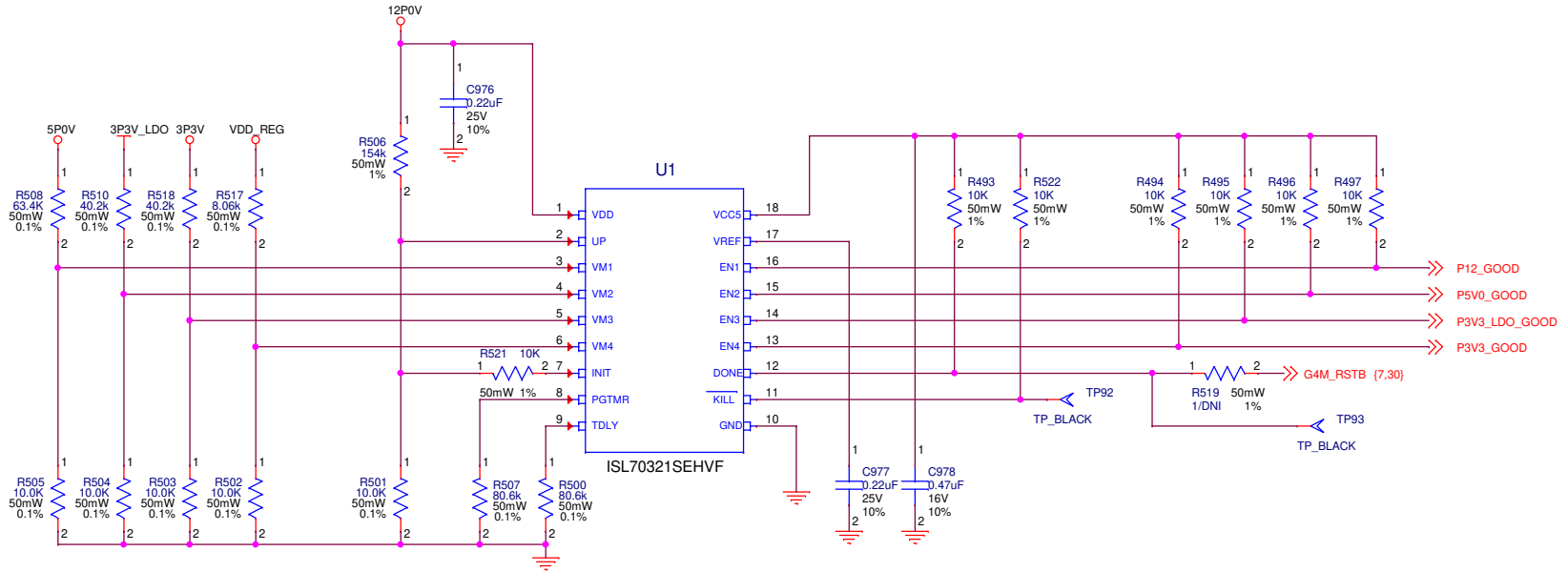
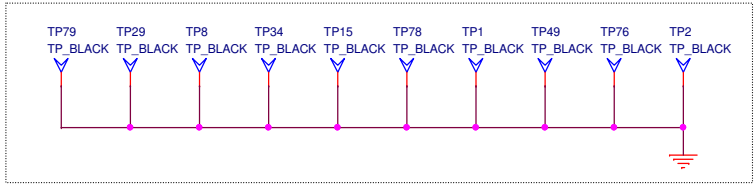
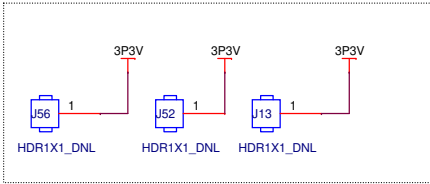
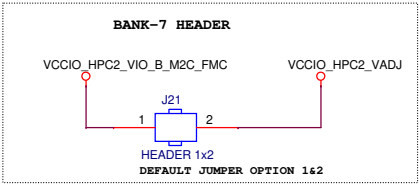
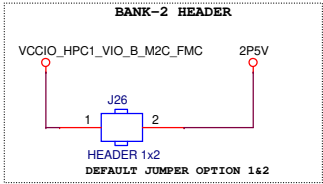






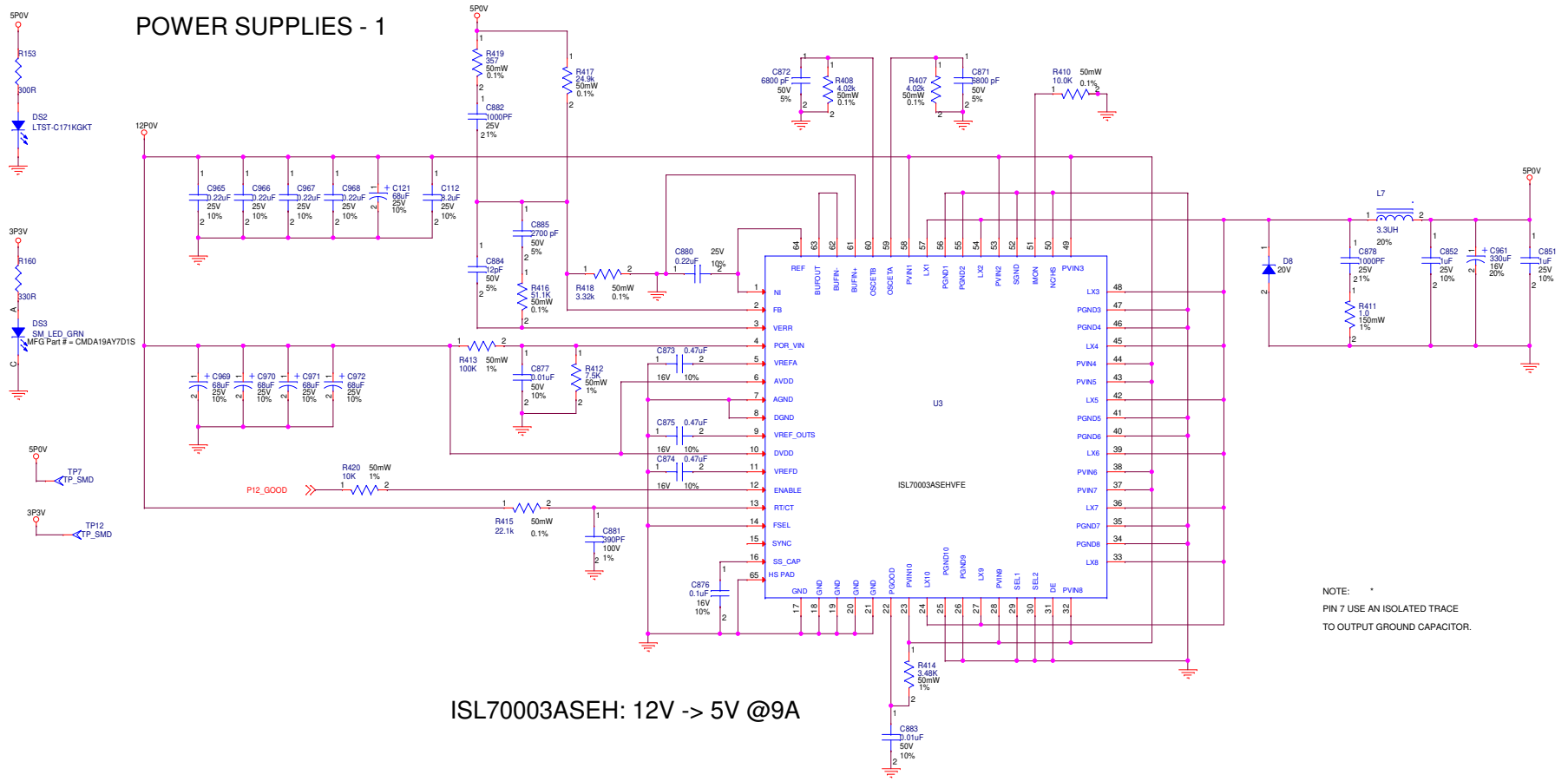
# 12V EXTERNAL SUPPLY



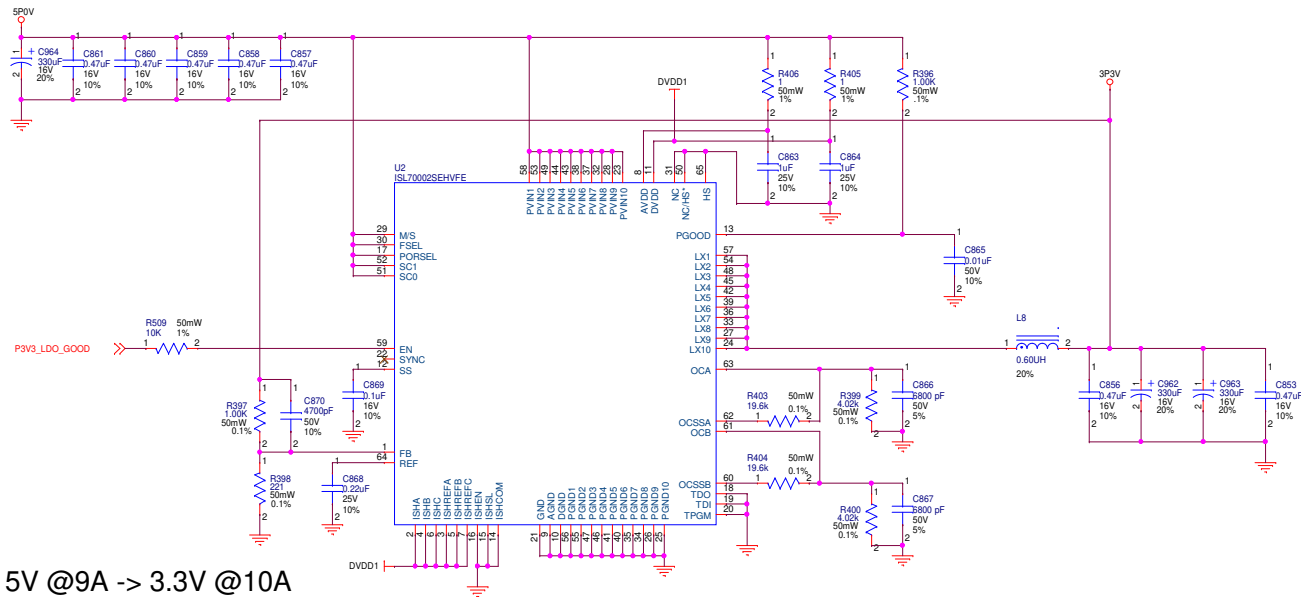


Sequencer

# POWER SUPPLIES - 1



ISL70003ASEH: 12V -> 5V @9A



ISL70002SEH: 5V @9A -> 3.3V @10A

# POWER SUPPLIES - 2

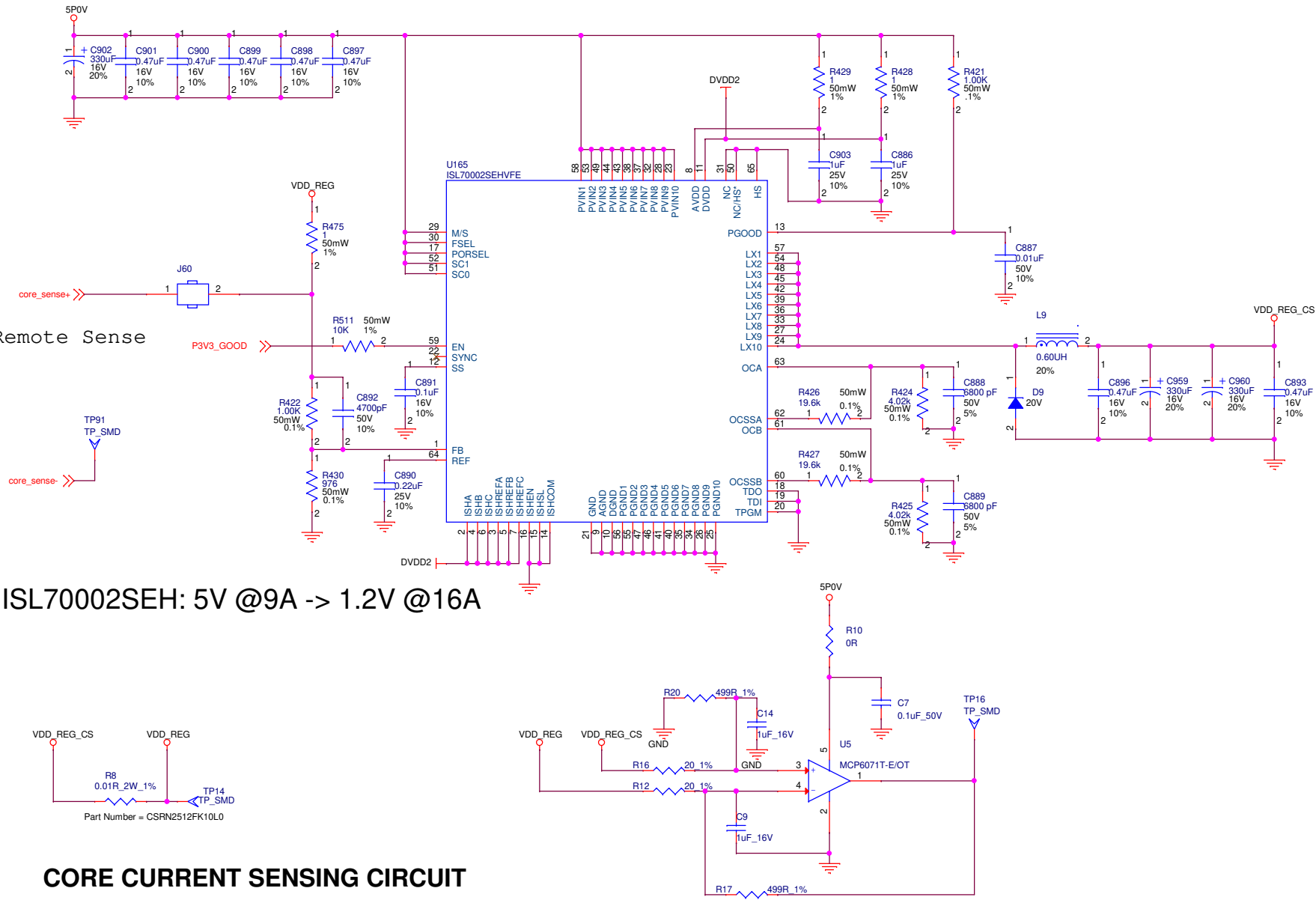
Remote Sense

ISL70002SEH: 5V @9A -> 1.2V @16A

## CORE CURRENT SENSING CIRCUIT

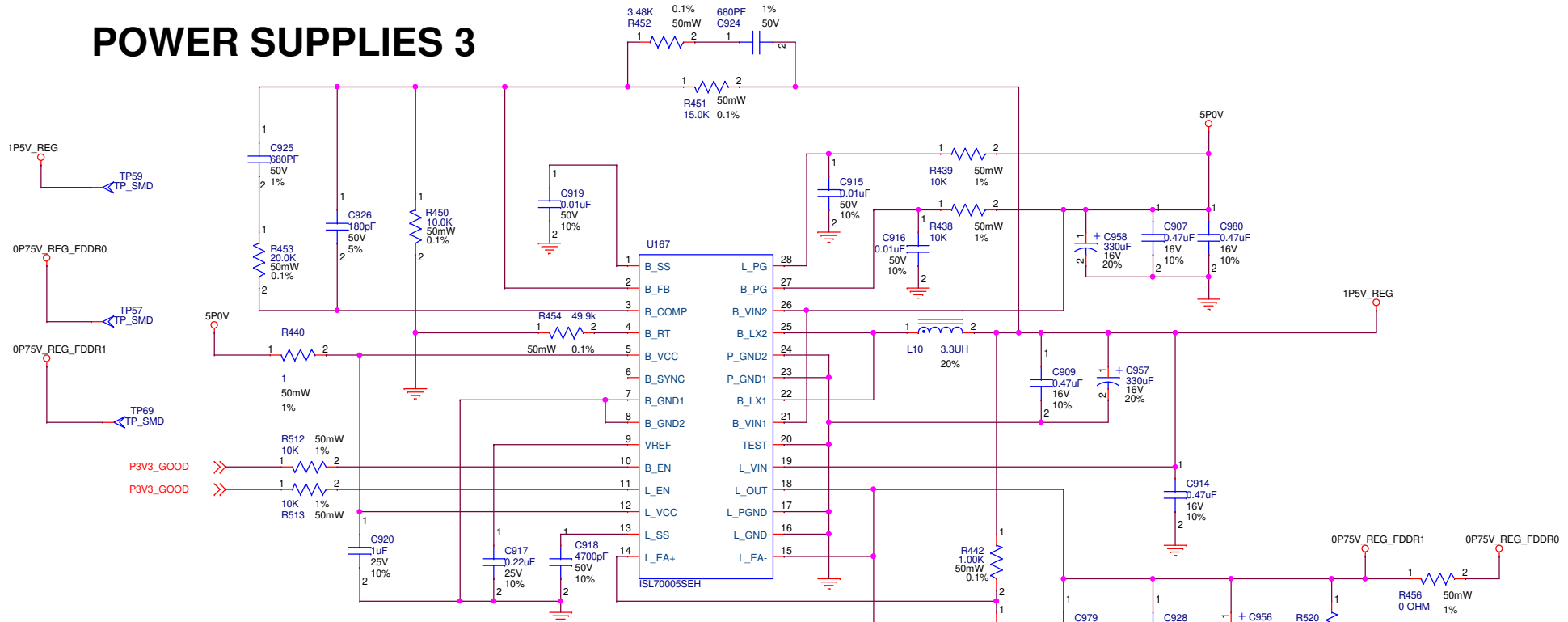
50 mohm changed to 10 mohm

100 ohm changed to 20

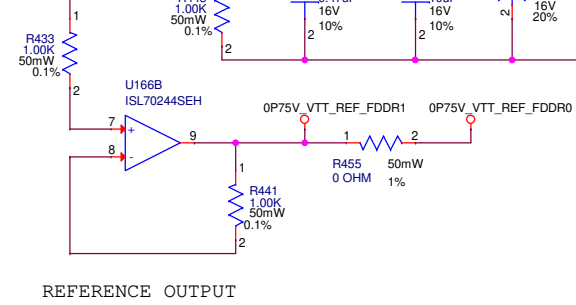
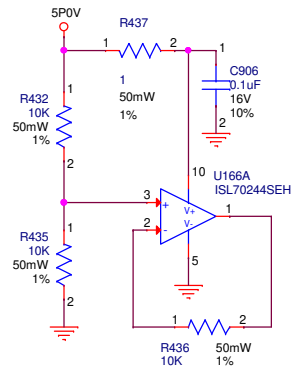




## POWER SUPPLIES 3

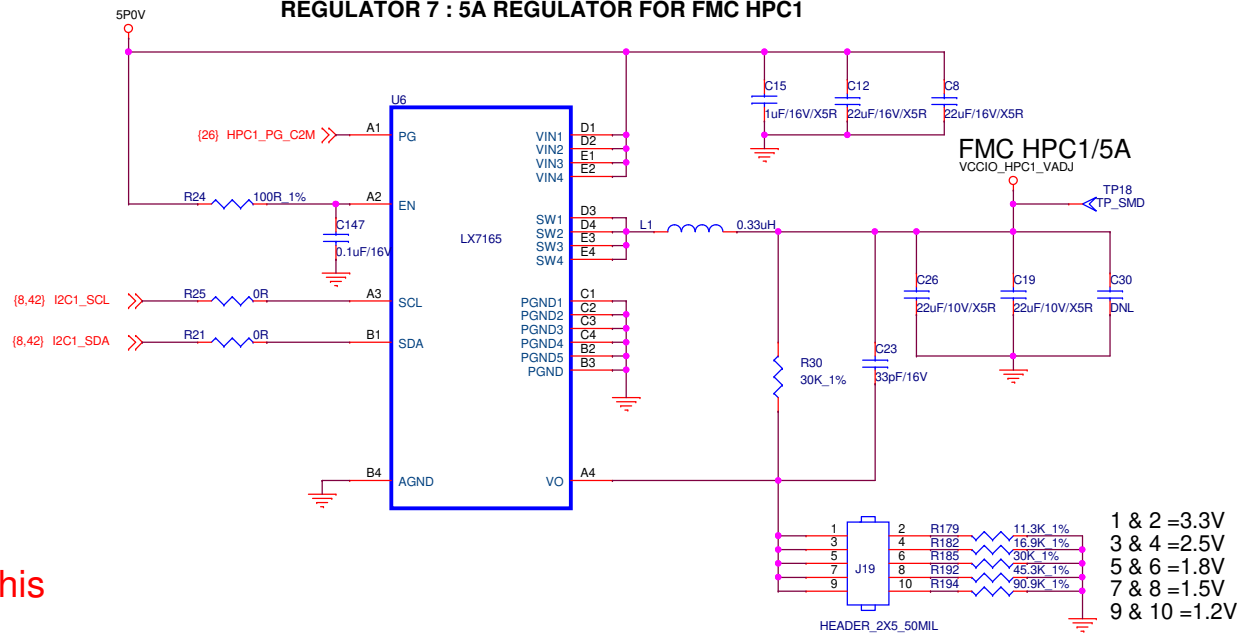


**ISL70005: 5V @9A -> 1.5V @3A, and 0.75V @0A**



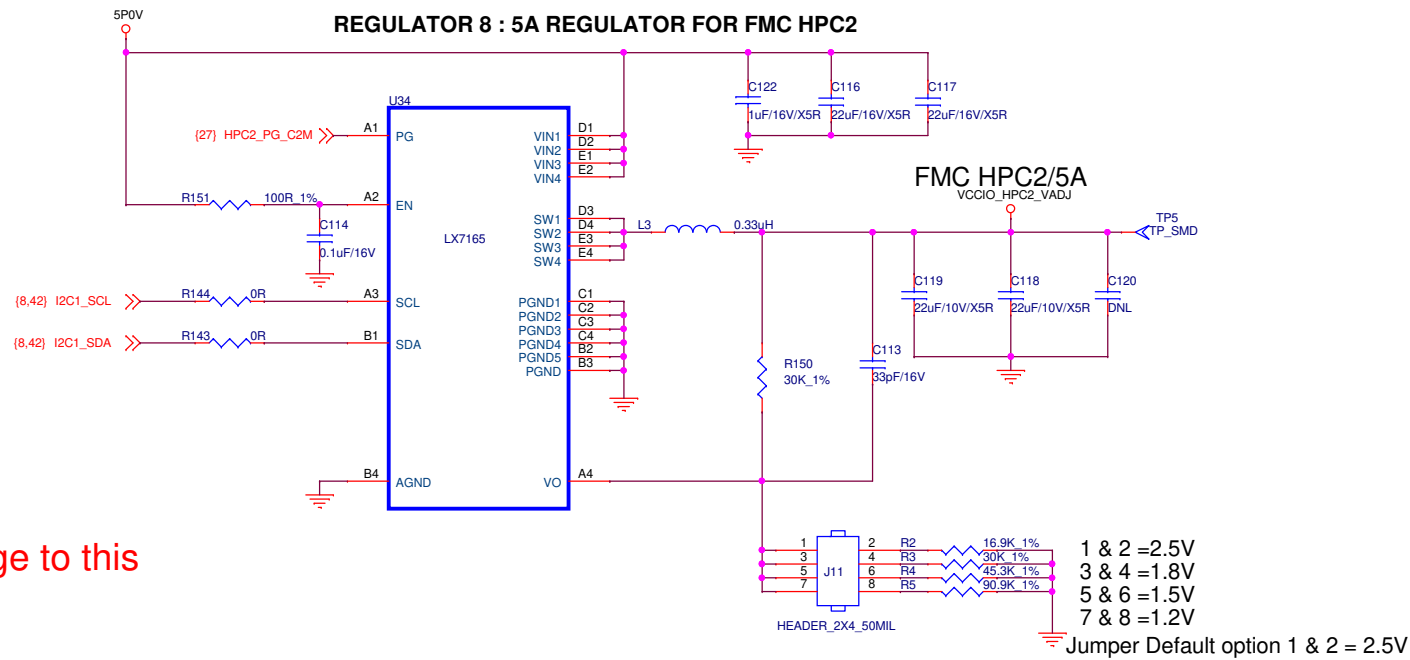
# POWER SUPPLIES - 4

## REGULATOR 7 : 5A REGULATOR FOR FMC HPC1



No change to this

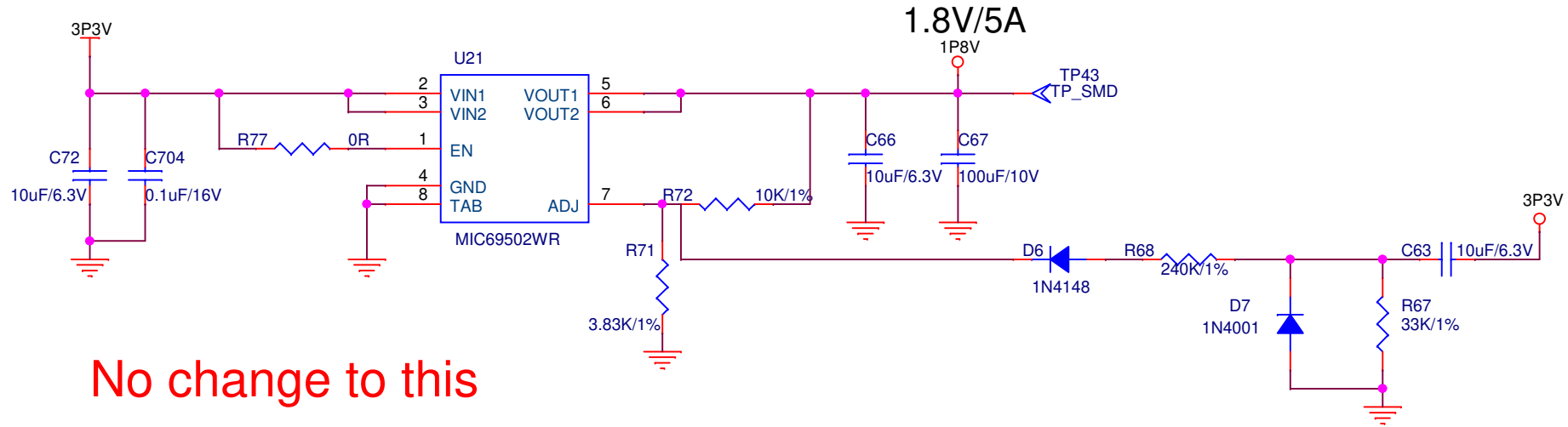
## REGULATOR 8 : 5A REGULATOR FOR FMC HPC2



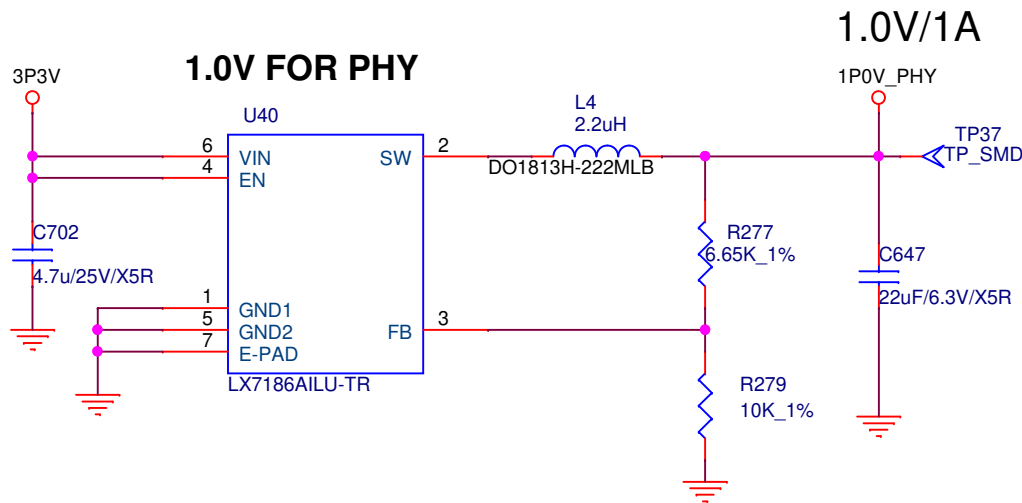
No change to this

# POWER SUPPLIES - 5

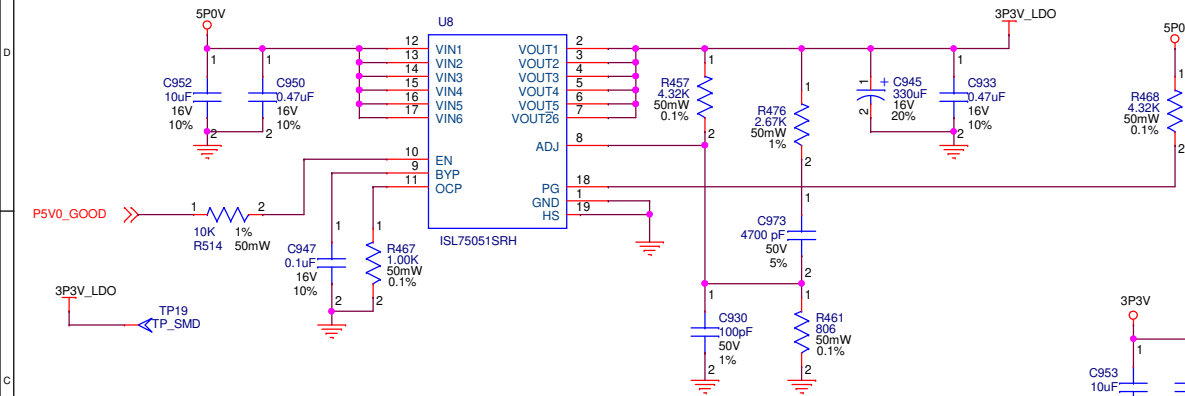
## REGULATOR 9: 1.8V/5A FOR 88E1340 ANALOG CORE/USB



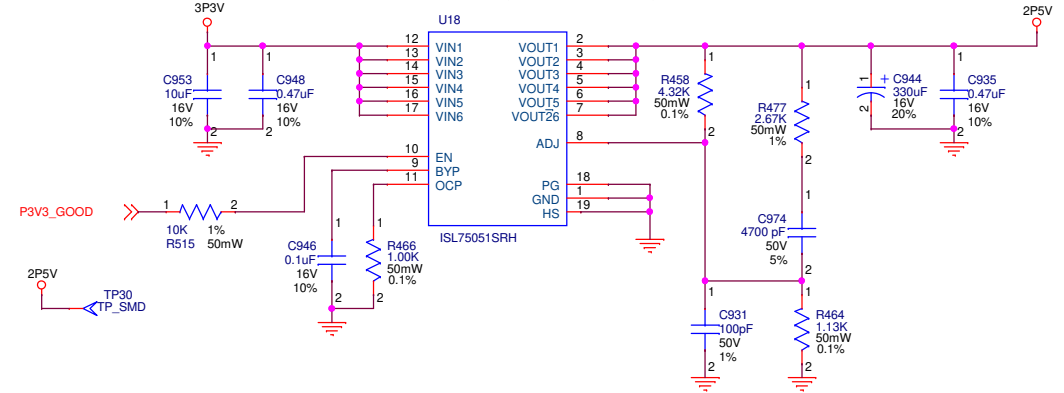
## REGULATOR 10: 1V/1A\_FOR PHY 88E1340



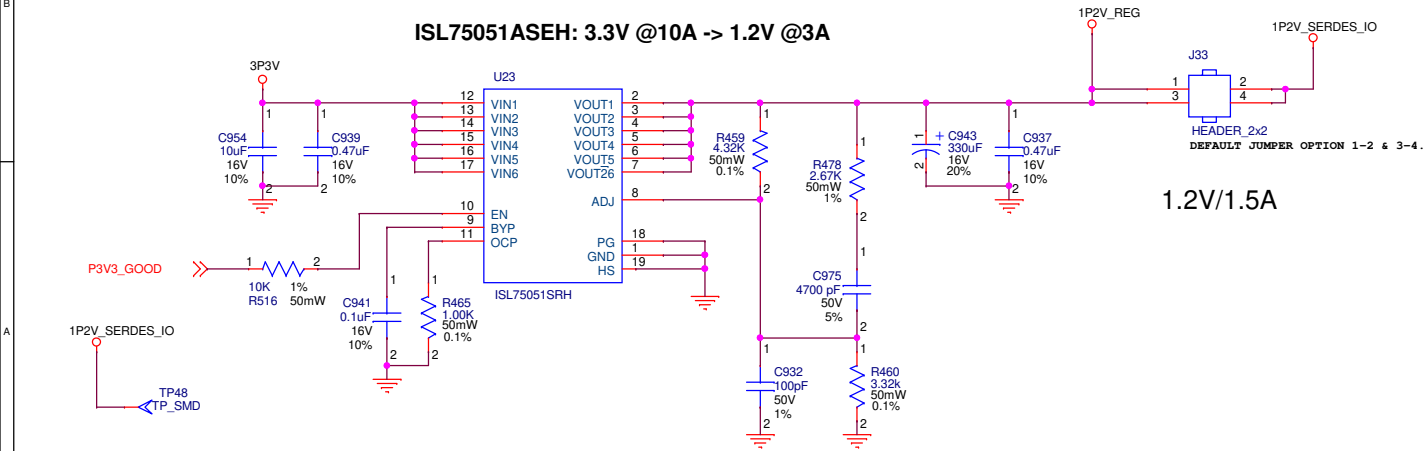
**ISL75051ASEH: 5V @9A -> 3.3V @1A**



**ISL75051ASEH: 3.3V @10A -> 2.5V @2A**



**ISL75051ASEH: 3.3V @10A -> 1.2V @3A**



# POWER LEDs

The image displays three circuit diagrams for power LEDs, each featuring a different MMPO2222A LED (U42, U43, and U41). The diagrams show the connection of 3P3V inputs to the LEDs through resistors (R118, R117, R116, R115, R114, R113, R112, R111, R121, R120, R119) and the resulting output voltages (VDD\_REG, 1P5V\_REG, 0P75V\_REG\_FDDR0, VCCIO\_HPC2\_VADJ, VCCIO\_HPC1\_VADJ, 1P0V\_PHY, 1P2V\_SERDES\_IO, 2P5V, 3P3V\_LDO). The LEDs are labeled DS15, DS14, DS13, DS12, DS11, DS10, DS9, DS8, DS18, DS17, and DS16. The output voltages are labeled 1P5V\_REG, 0P75V\_REG\_FDDR0, VCCIO\_HPC2\_VADJ, VCCIO\_HPC1\_VADJ, 1P0V\_PHY, 1P2V\_SERDES\_IO, 2P5V, and 3P3V\_LDO. The diagrams are labeled U42, U43, and U41, indicating the specific LED used in each circuit.