

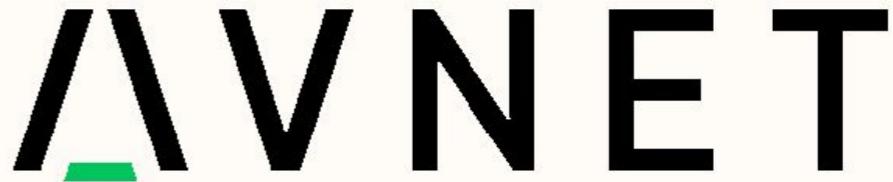
**ZUBoard 1CG**

Avnet Engineering Services

[www.avnet.me/ZUBoard-1CG](http://www.avnet.me/ZUBoard-1CG)**Sheet Name**

- 01 - Avnet Lead Sheet
- 02 - Block Diagram
- 03 - Bank 500, 501, 502, 503
- 04 - Bank 504, Bank 505
- 05 - uSD, QSPI, Voltage Translation
- 06 - USB 2.0, JTAG/UART MicroUSB
- 07 - Gigabit Ethernet PHY
- 08 - Bank 0, Bank 44, Bank 65, Bank 66
- 09 - Switches, LEDs, Push Buttons
- 10 - Bank Power and Decoupling
- 11 - LPDDR4 Device #1
- 12 - JTAG, UART Redacted
- 13 - High Speed IO, Click Expansion
- 14 - I2C & SPI Sensor, Power On Enable
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REVISION	INITIALS	DATE	NOTES
1	JF	07/27/22	Initial Production Release Rev 1
2	DS	04/10/2023	Production Release Rev 2 - HSIO / CKE Resistor / U28 VDD Update



Reach Further

# ZUBoard 1CG

## AES-ZUB-1CG-DK-G

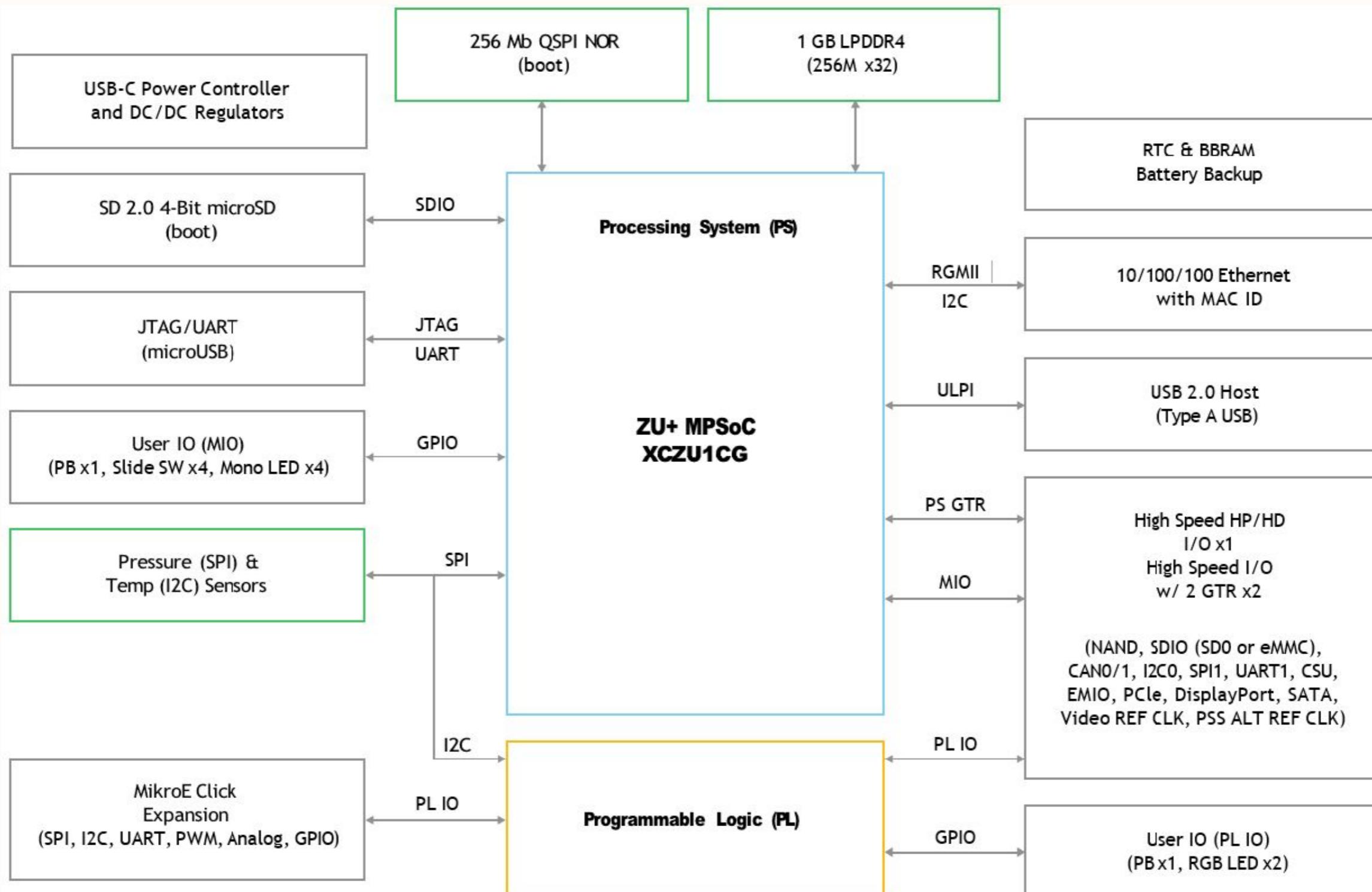
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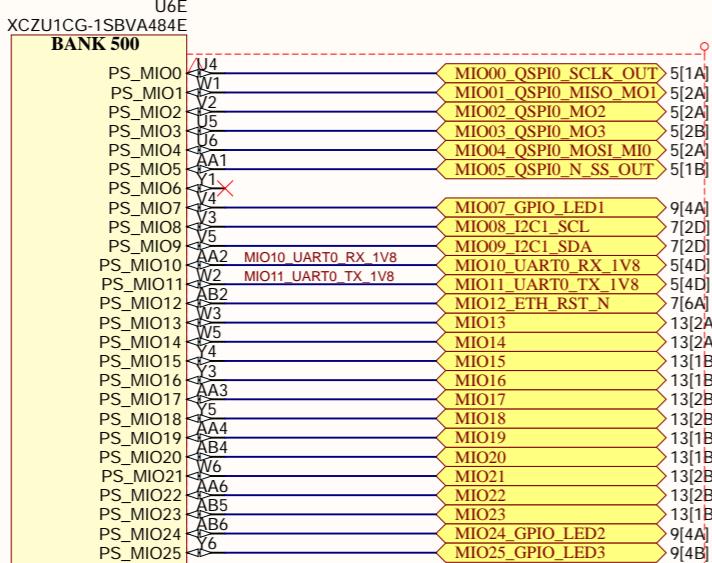
AVNET Avnet Engineering Services		
Project Name: <b>ZUBoard 1CG</b>	PCB Rev: BOM: Variant:	2 01 01
Doc Num: <b>SCH-ZUB-1CG</b>	Date: 6/9/2023	Time: 11:47:33 AM
Sheet Title: 01 - Avnet Lead Sheet.SchDoc	Size: C	Sheet: 1 of 17

## Block Diagram

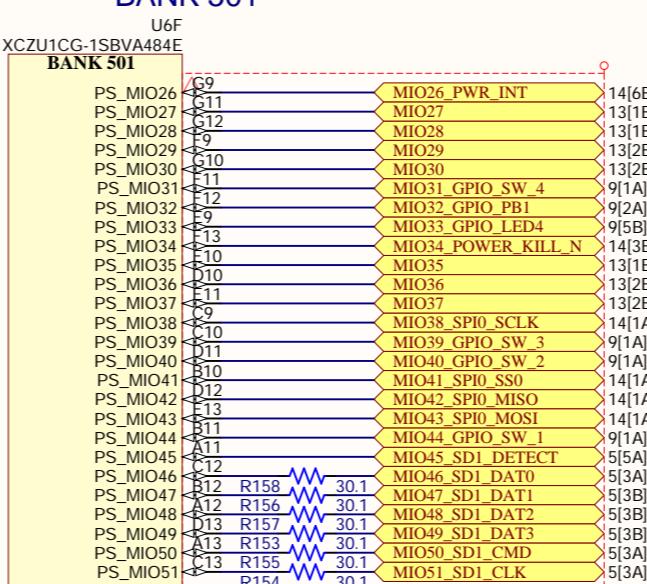


# BANK 500, BANK 501, BANK 502, BANK 503

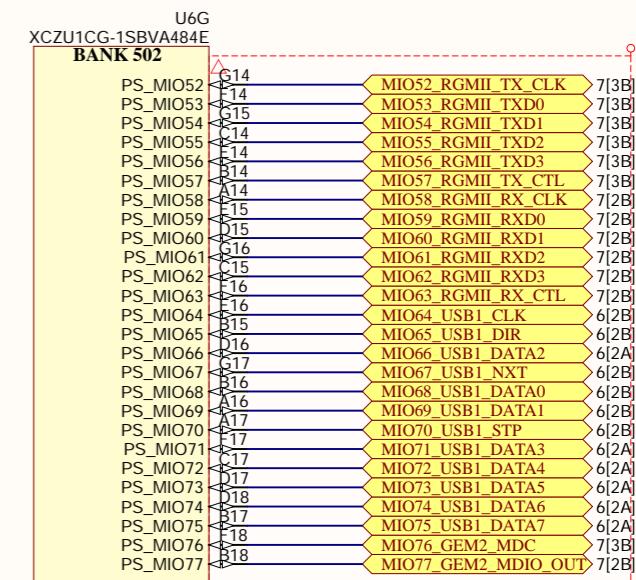
**BANK 500**



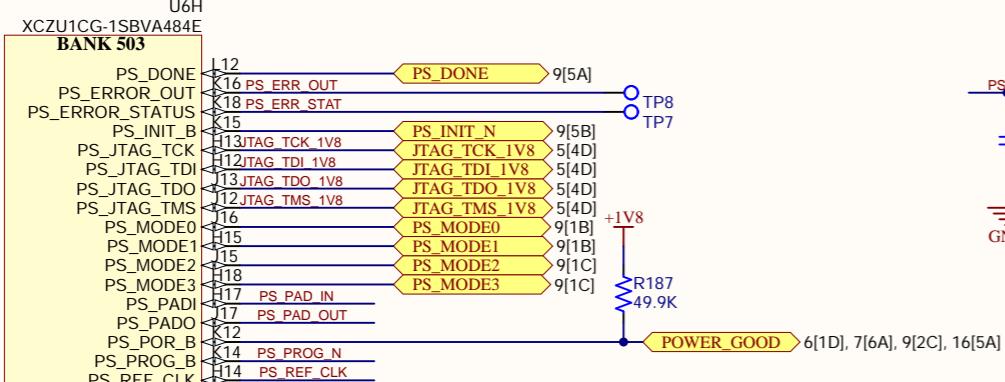
**BANK 501**



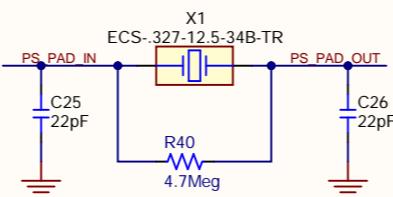
**BANK 502**



**BANK 503**



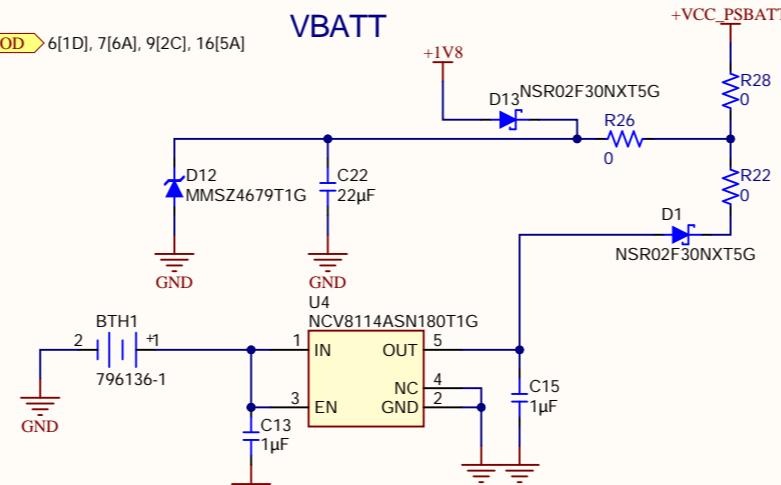
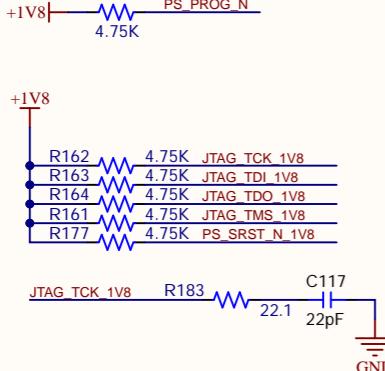
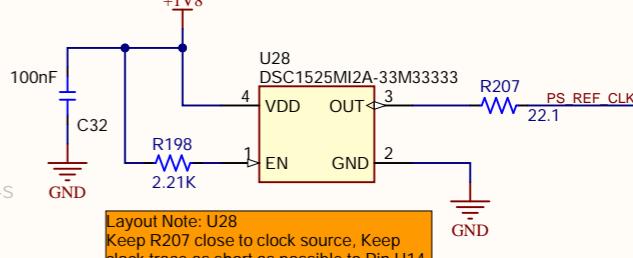
**32KHz RTC XTAL**



**JTAG/UART Connector**



**PS\_REF\_CLK**

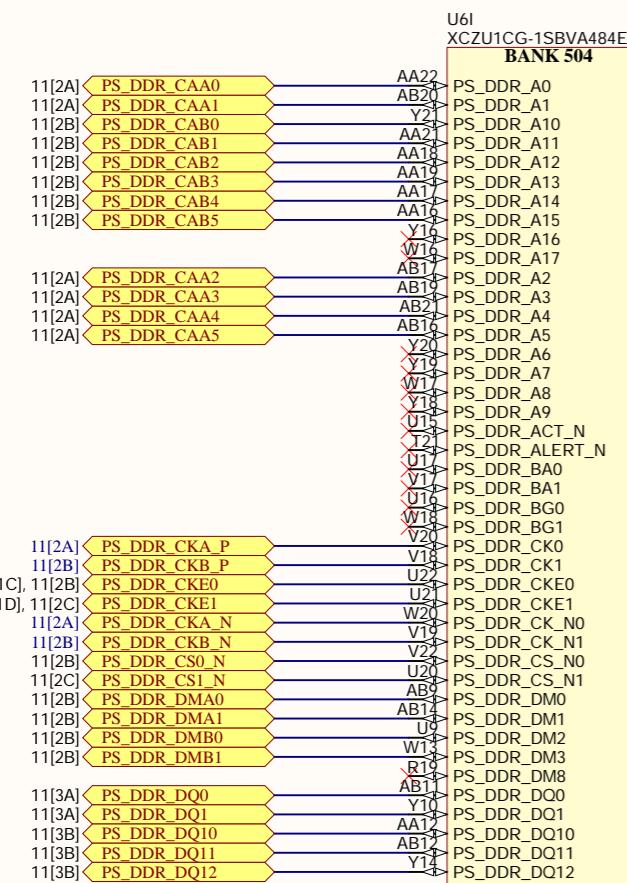


**AVNET Avnet Engineering Services**

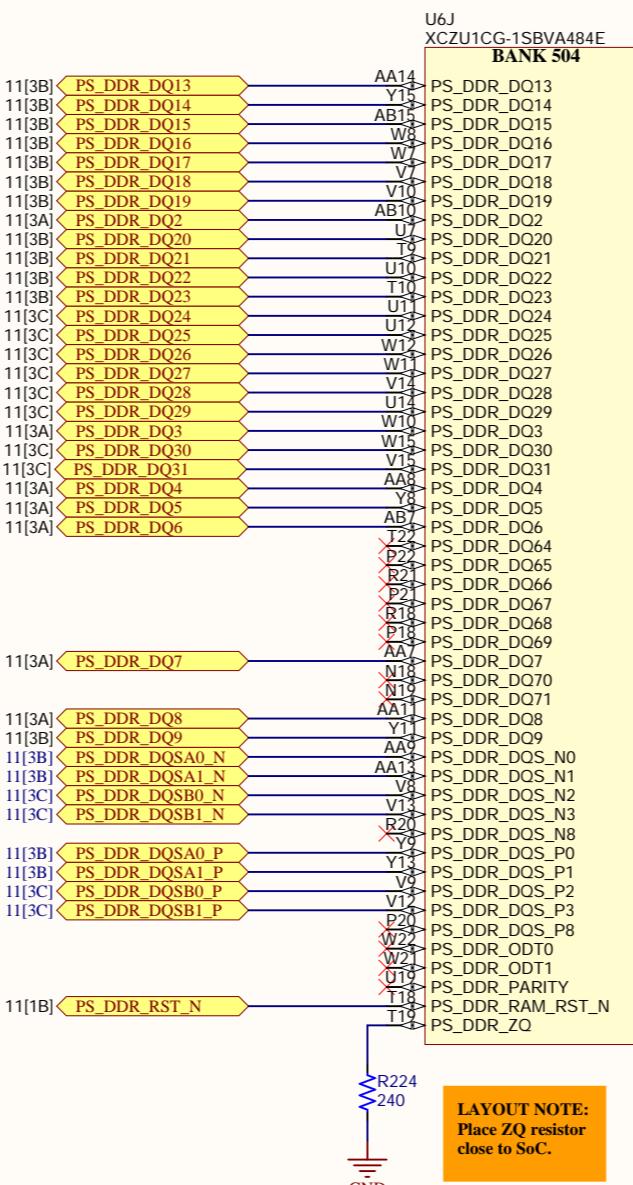
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Doc Num:	SCH-ZUB-1CG	Date:	6/9/2023	Time:	11:47:33 AM		
Sheet Title:	03 - Bank 500, 501, 502, 503.SchDoc	Size:	C	Sheet:	3	of	17

# BANK 504, BANK 505

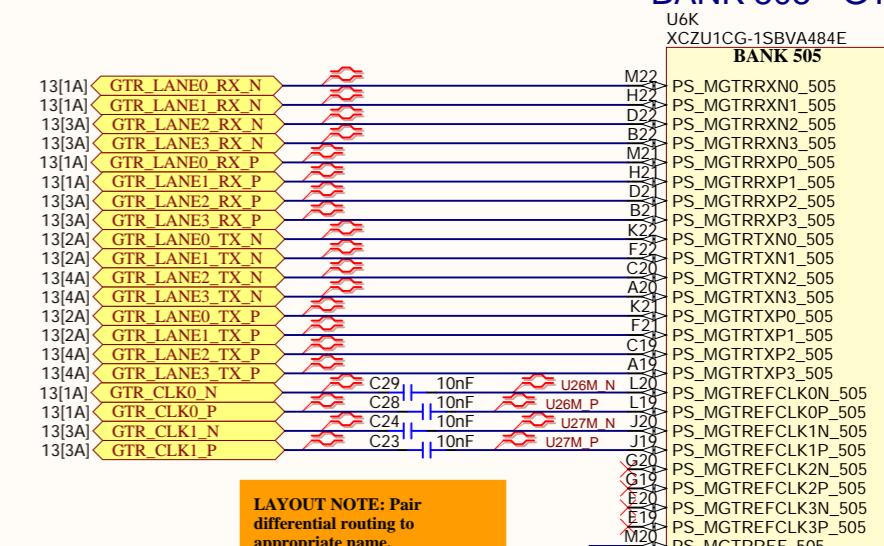
## BANK 504 - DDR



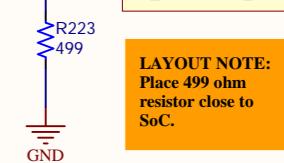
## BANK 504 - DDR



## BANK 505 - GTR

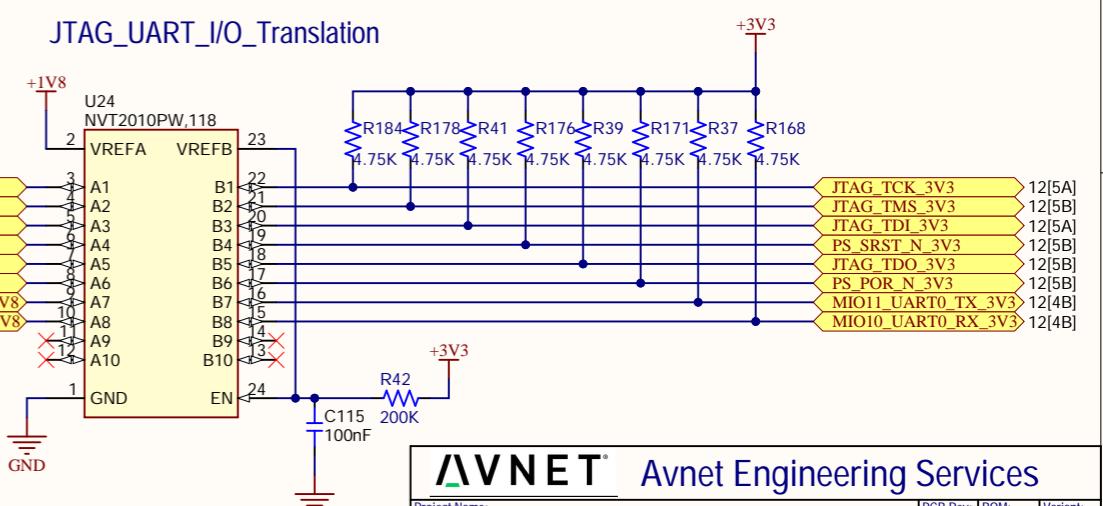
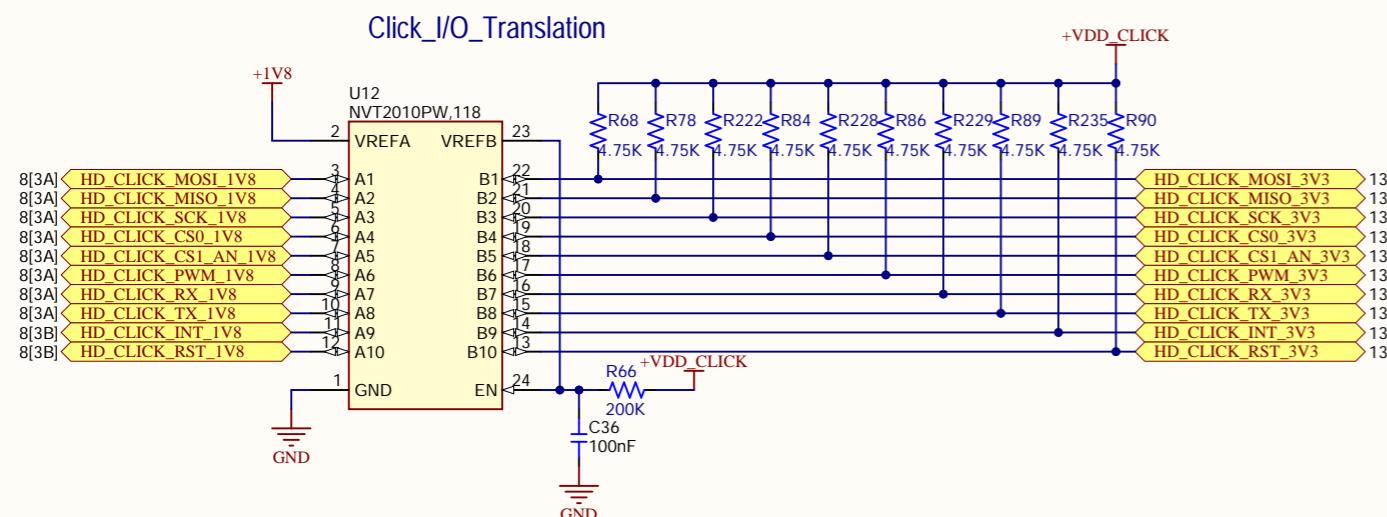
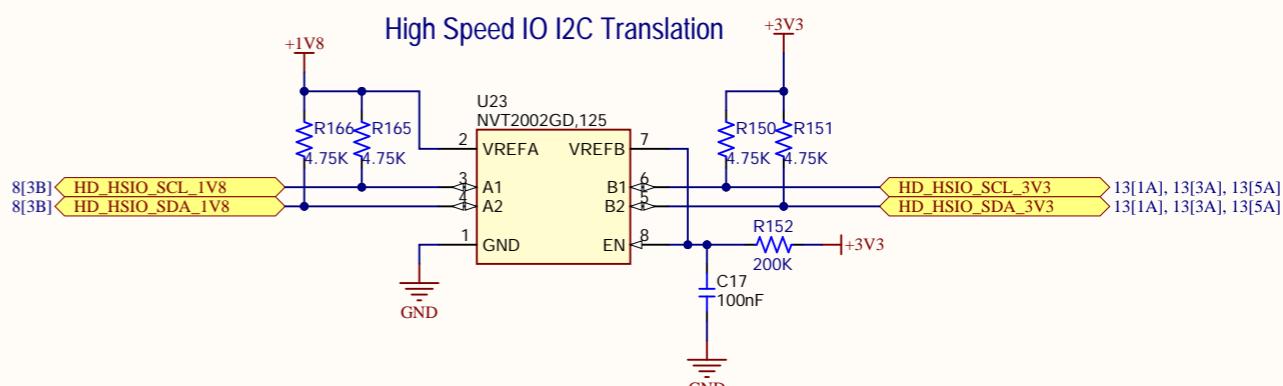
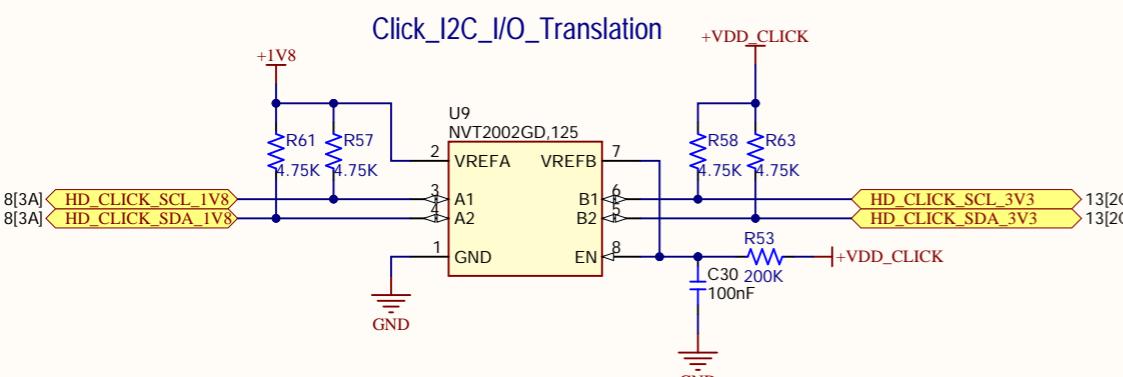
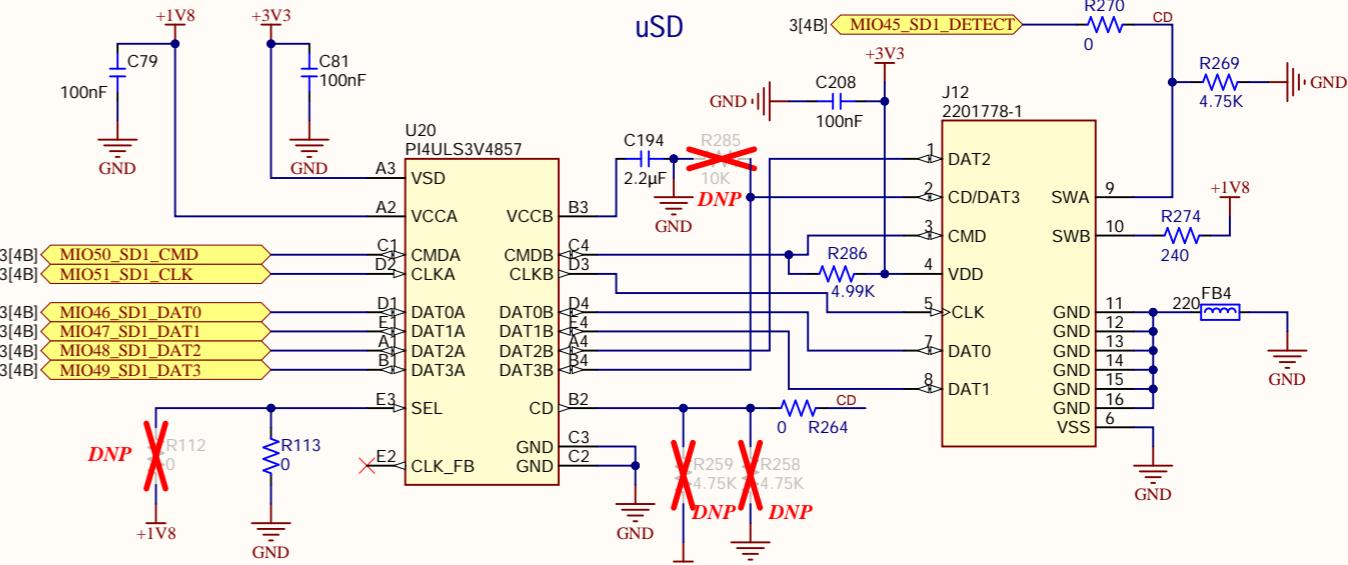
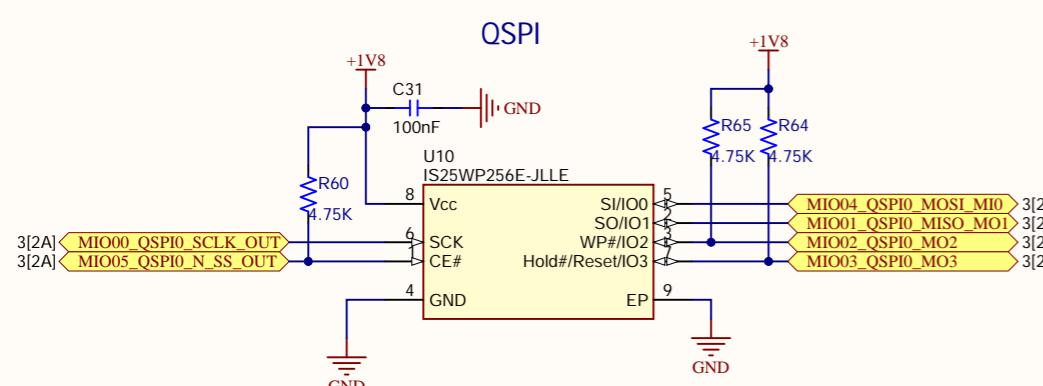


LAYOUT NOTE: Pair differential routing to appropriate name.

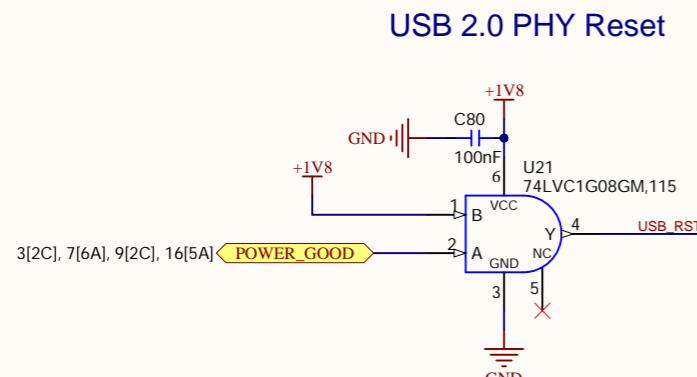
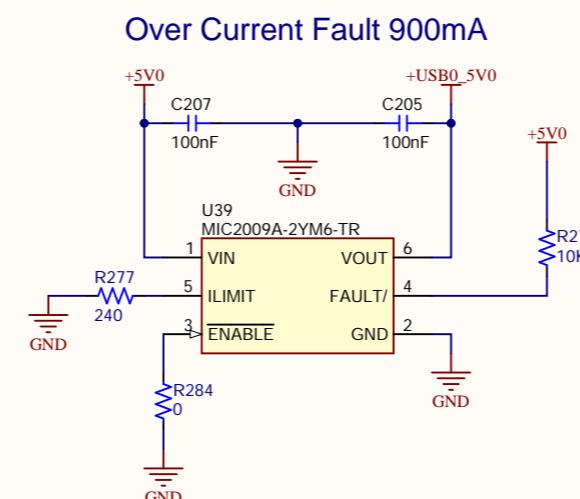
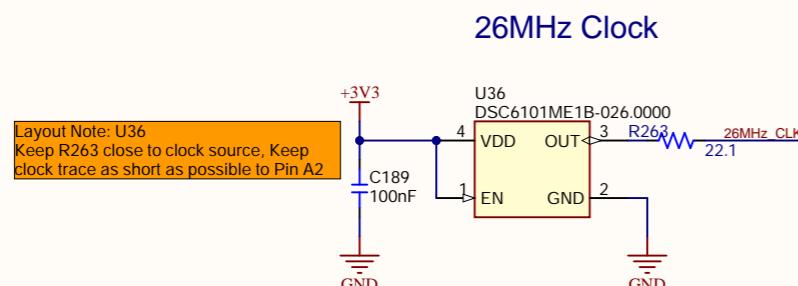
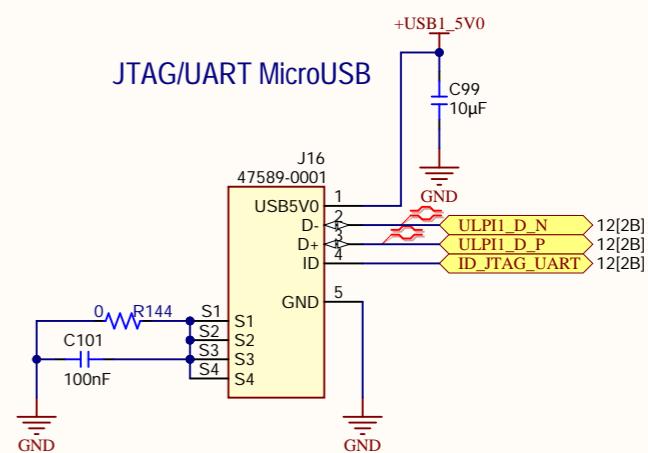
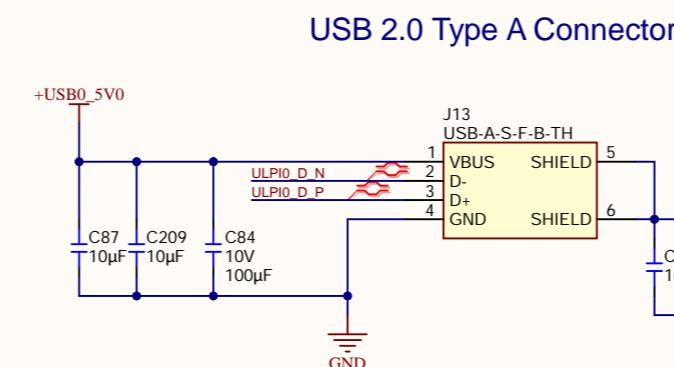
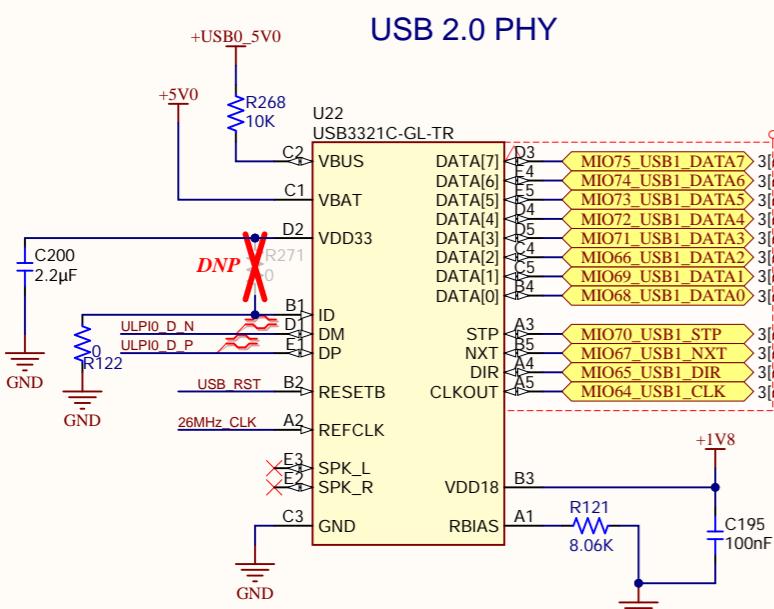


LAYOUT NOTE: Place 499 ohm resistor close to SoC.

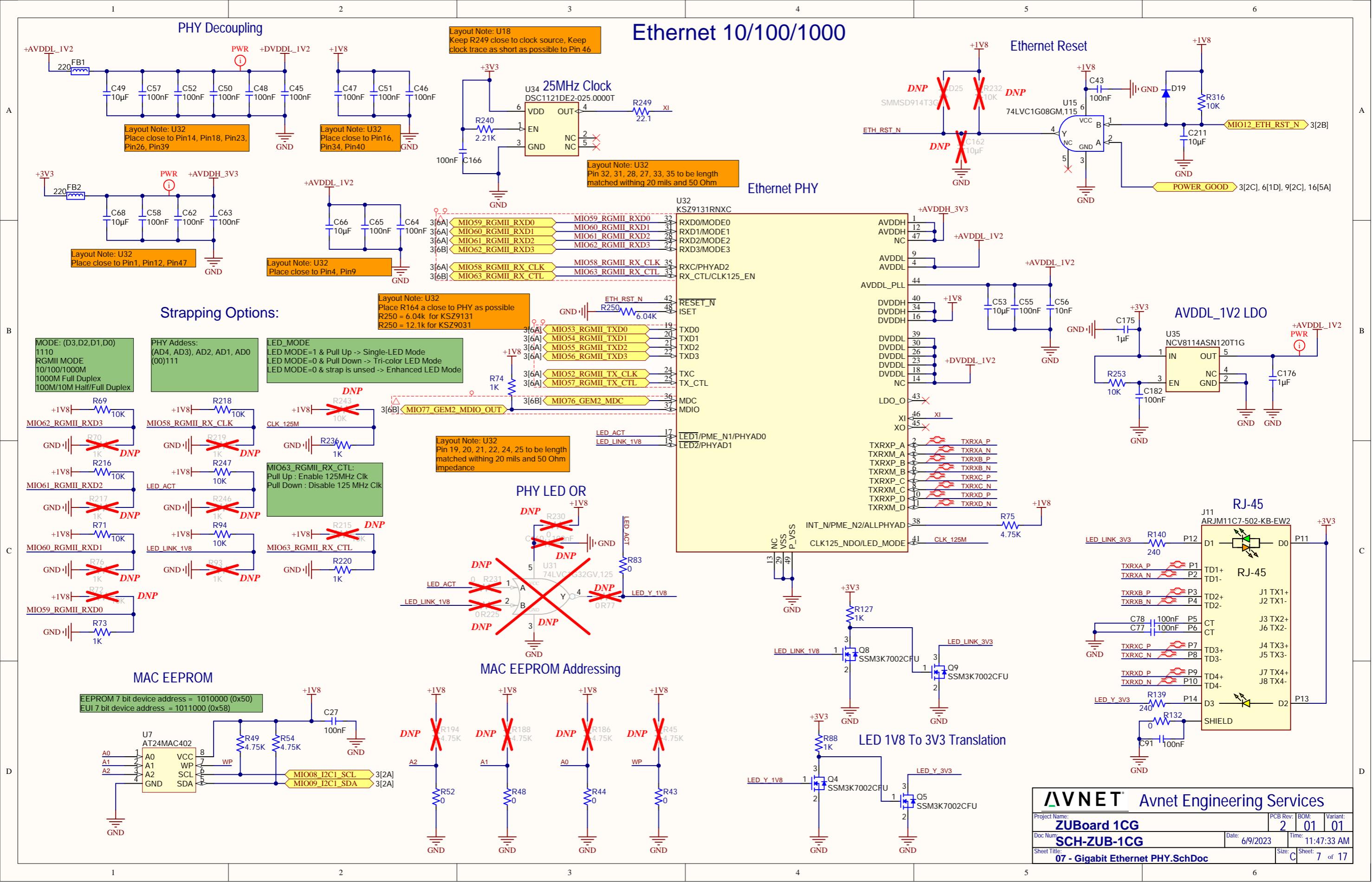
# QSPI, uSD, and Voltage Translation



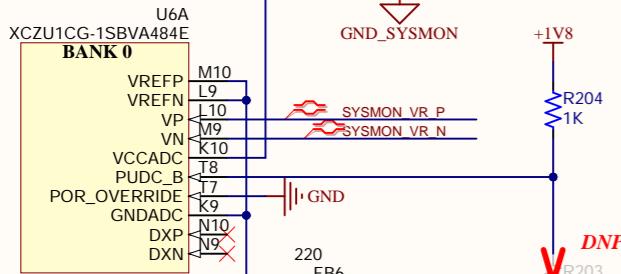
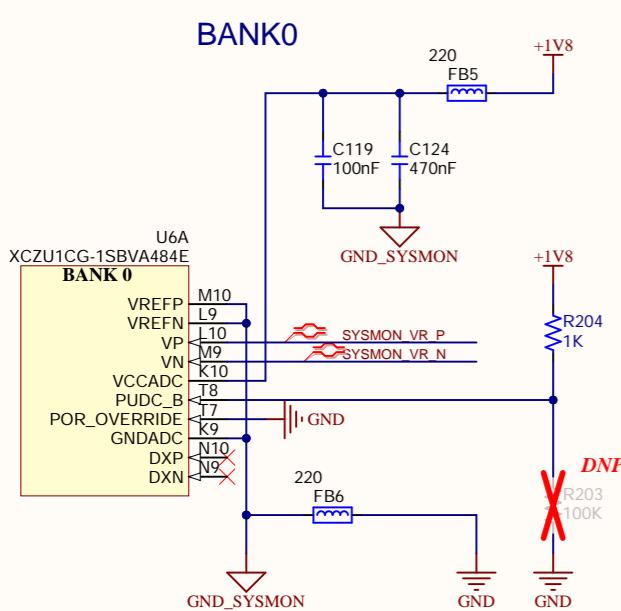
# USB 2.0, JTAG/UART MicroUSB



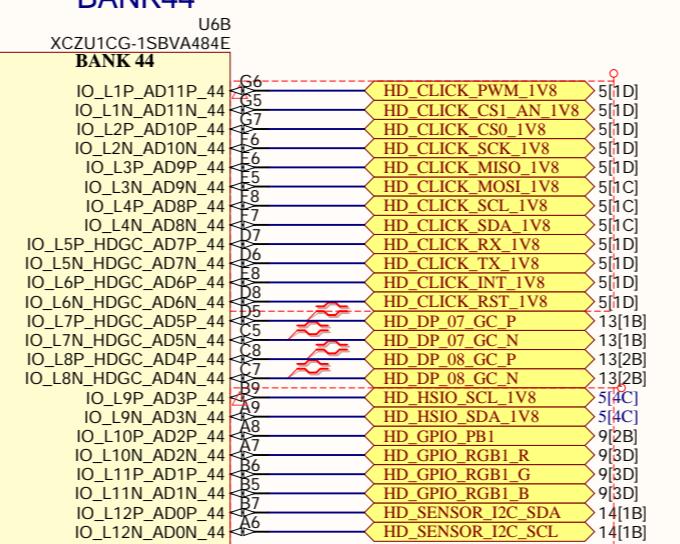
# Ethernet 10/100/1000



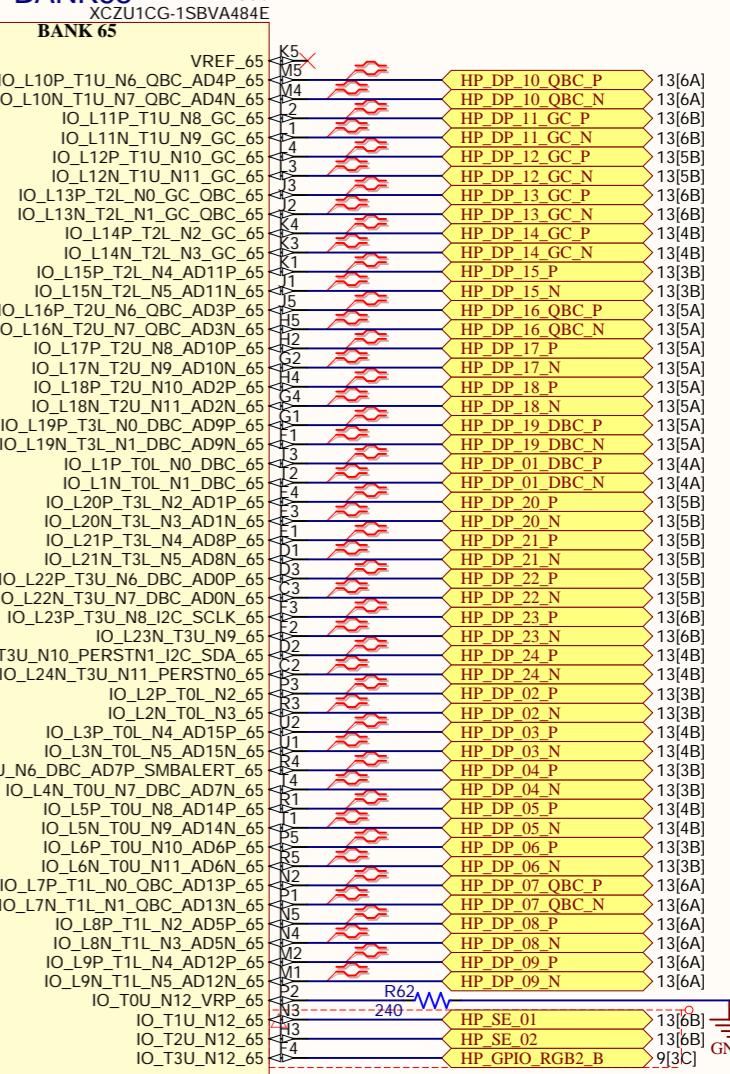
# BANK0, BANK44, BANK65, BANK66



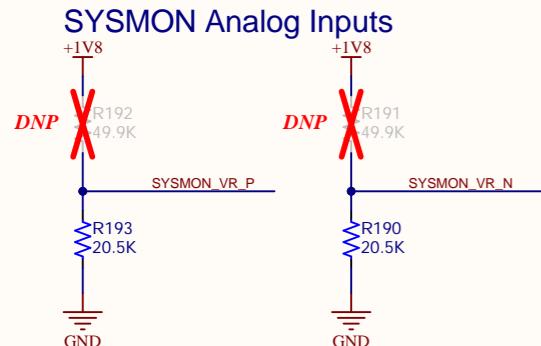
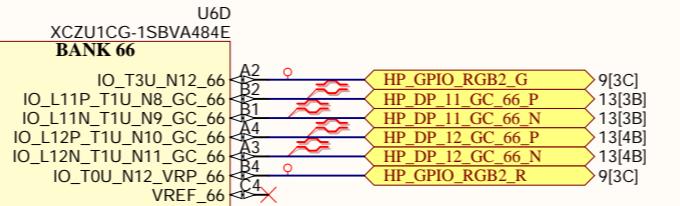
## BANK44



## BANK65

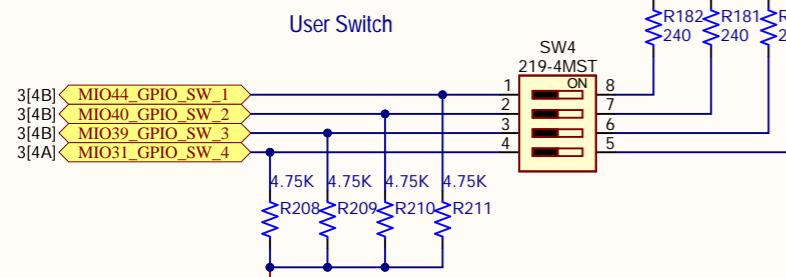


## BANK66



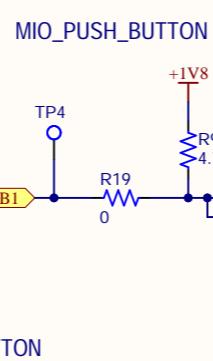
# SWITCHES, LEDs, Push Buttons

## Switches

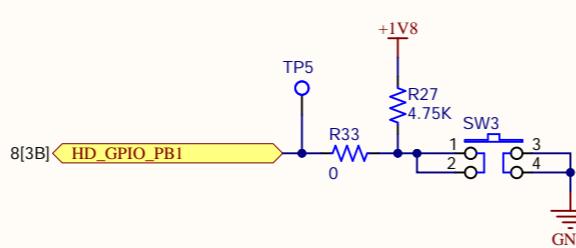


## Push Buttons

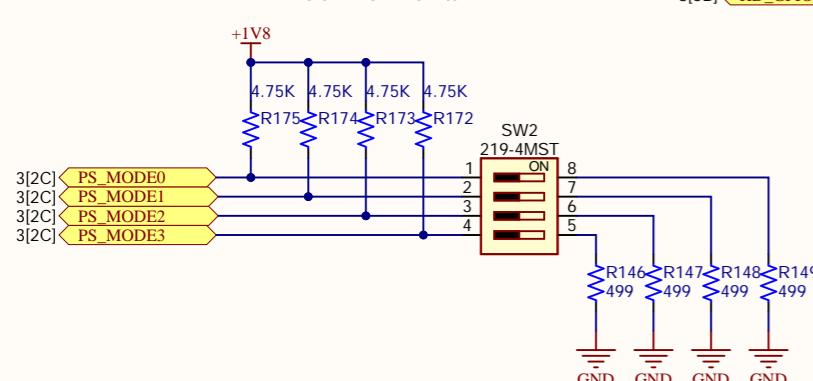
### MIO\_PUSH\_BUTTON



### PL\_PUSH\_BUTTON



### BOOT MODE Switch

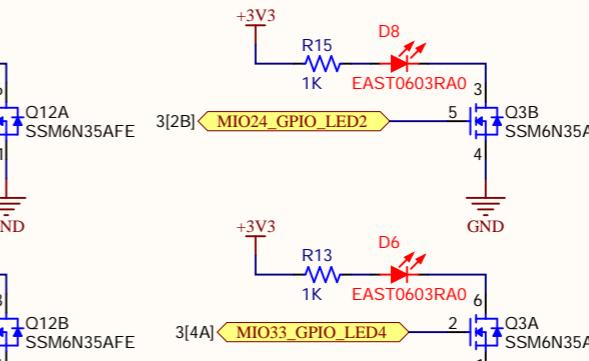


BOOT MODE	MODE PIN [3:0]	SW2 [1-4]
JTAG	0x0	ON-ON-ON-ON
QSPI32	0x2	ON-OFF-ON-ON
SD1 (2.0)	0x5	OFF-ON-OFF-ON
eMMC (1.8V)	0x6	ON-OFF-OFF-ON

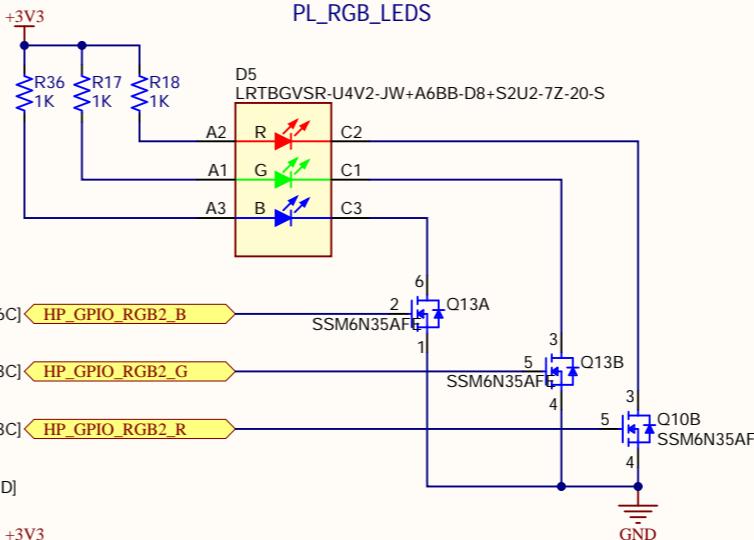
NOTE:  
eMMC Boot is only supported through High Speed IO Expansion POD

## User LEDs

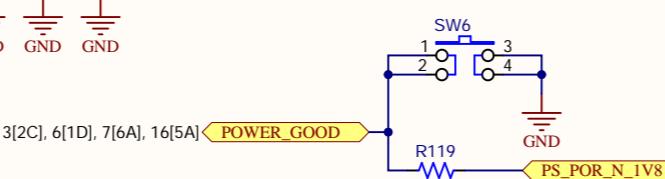
### MIO\_MONO\_LEDs



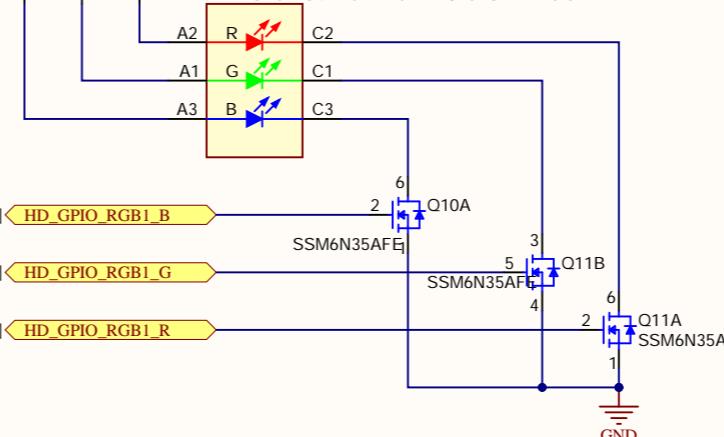
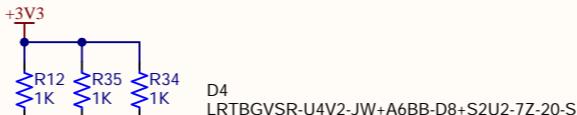
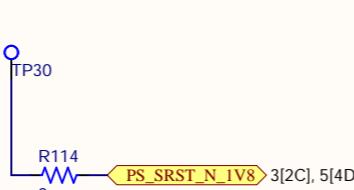
### PL\_RGB\_LEDS



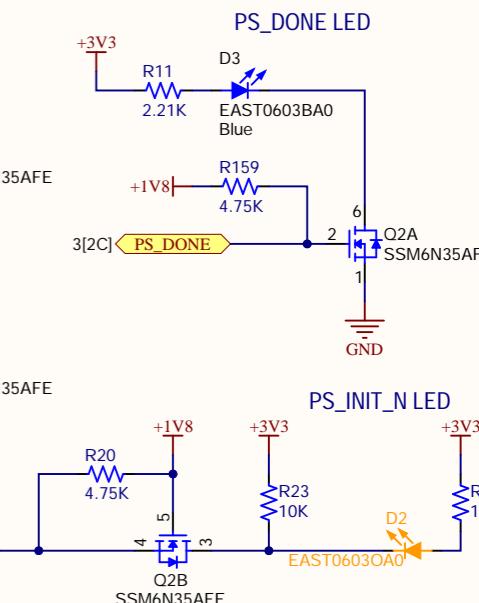
### PS\_POR\_PB



### PS\_SRST\_TP



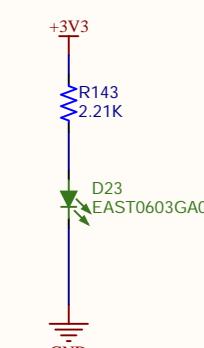
## LED INDICATORS:



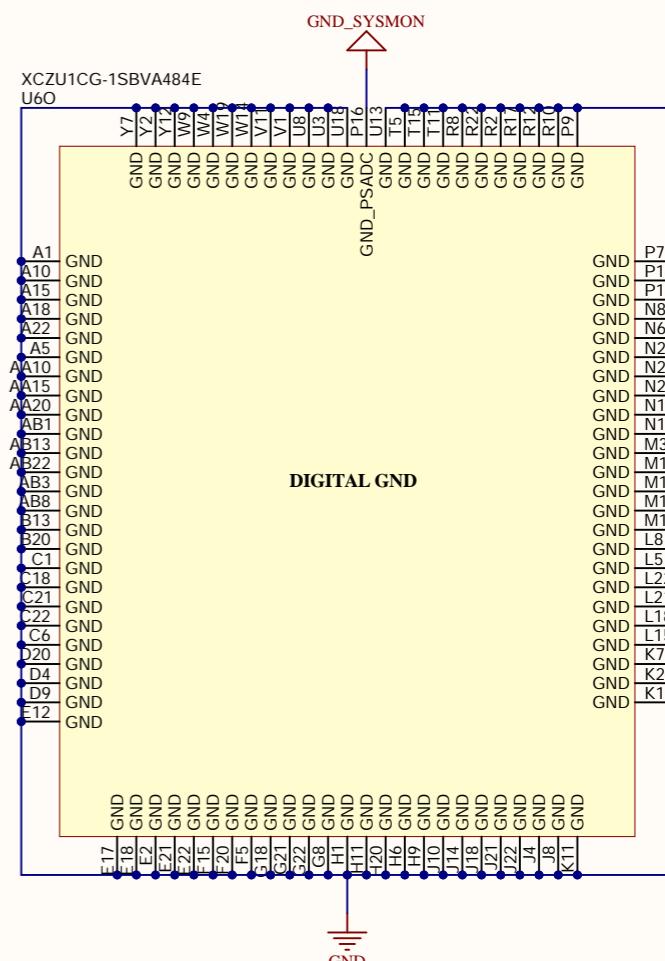
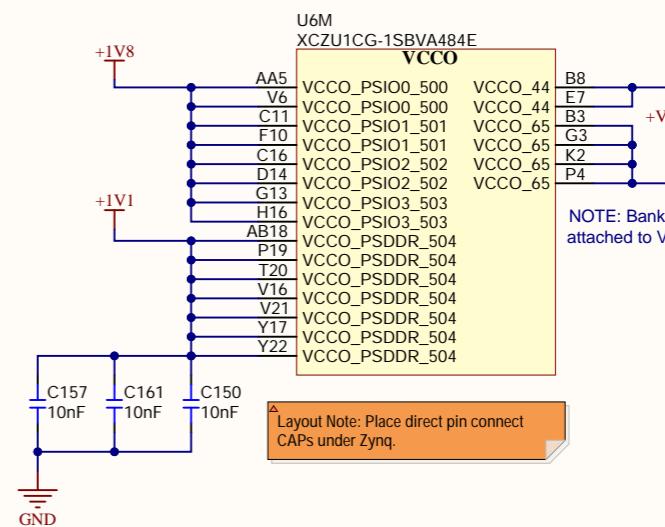
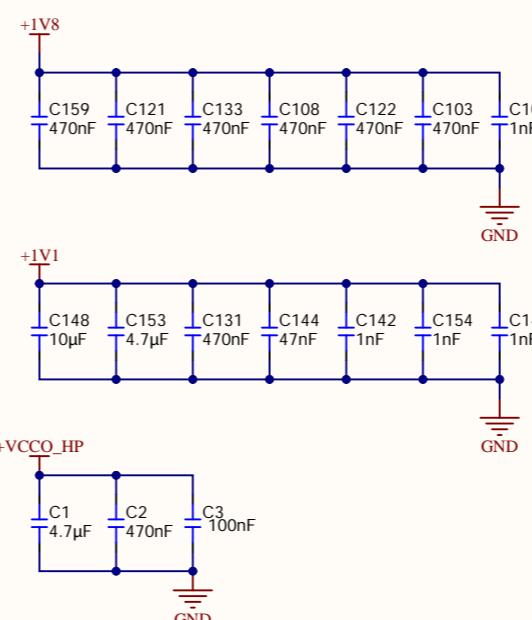
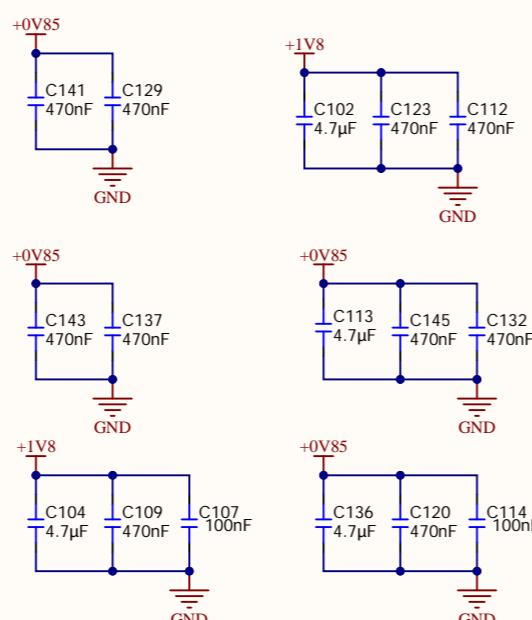
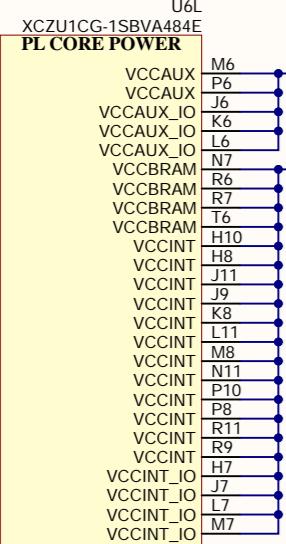
INIT\_N = 0, LED ON  
INIT\_N = 1, LED OFF  
JTAG/UART\_STATUS



### PG\_LED



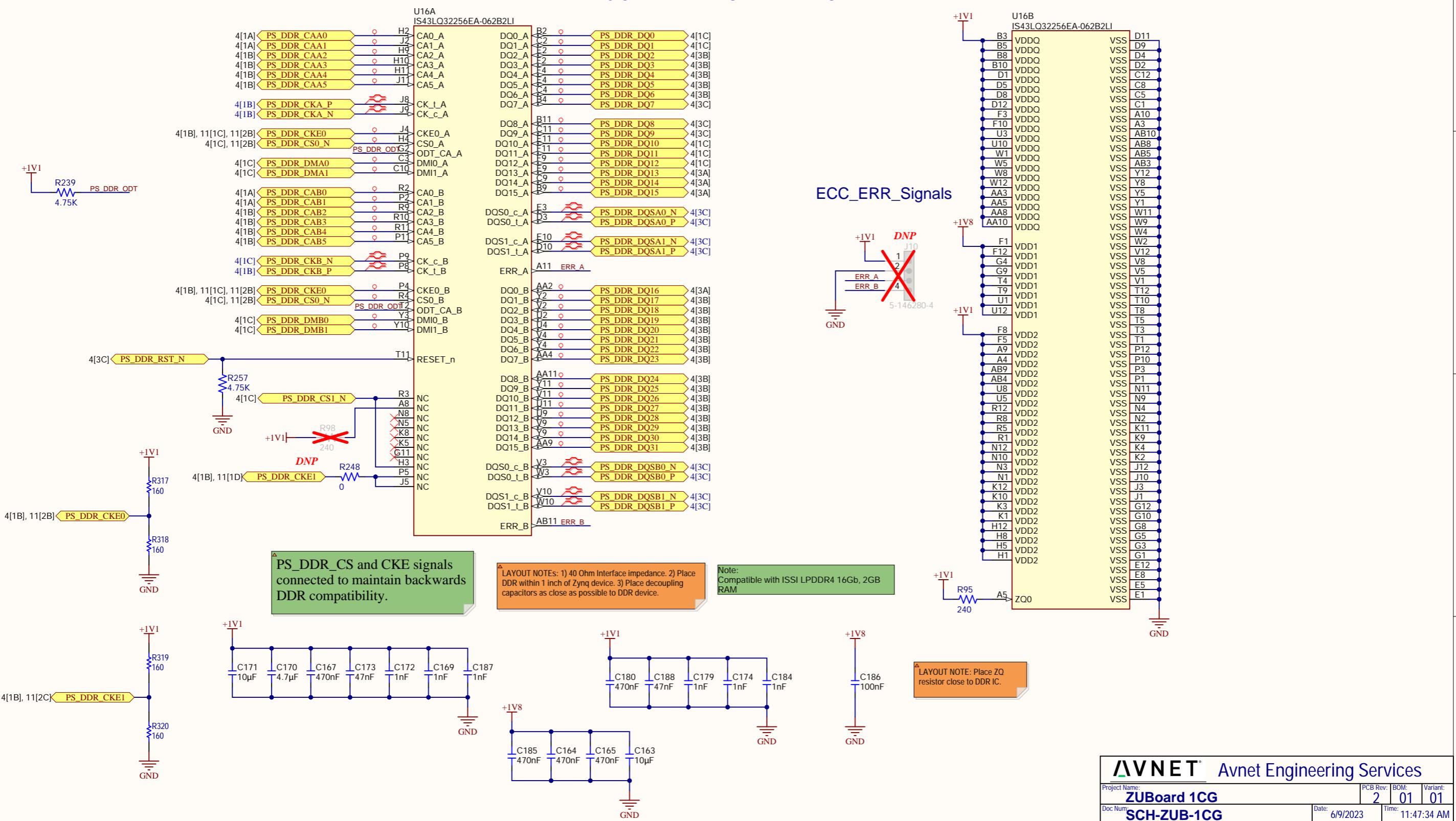
# BANK POWER & DECOUPLING



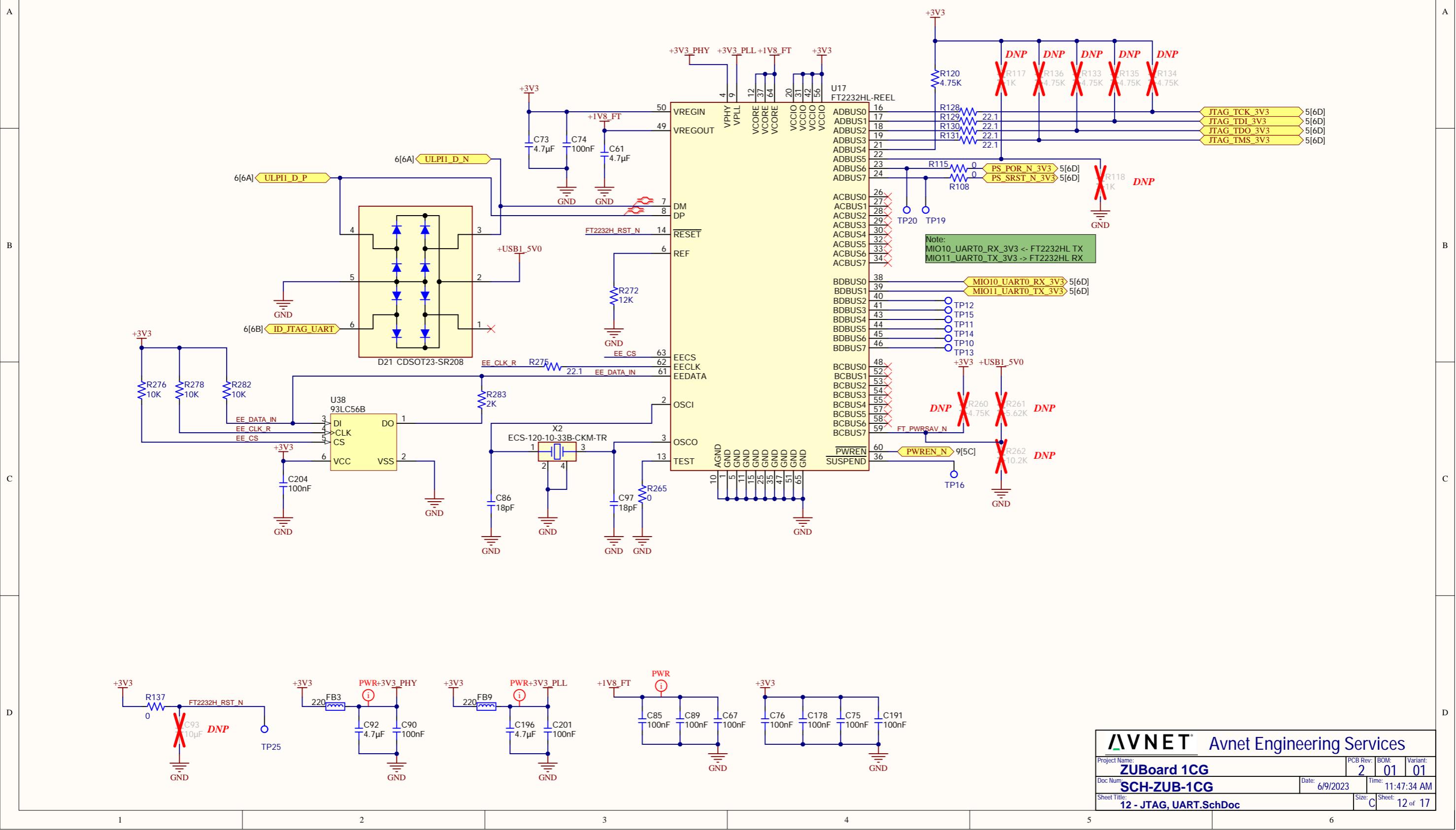
# LPDDR4 8Gb (1GB) RAM

POINT-TO-POINT: NO DDR TERM RESISTORS

40 OHM INTERFACE IMPEDANCE



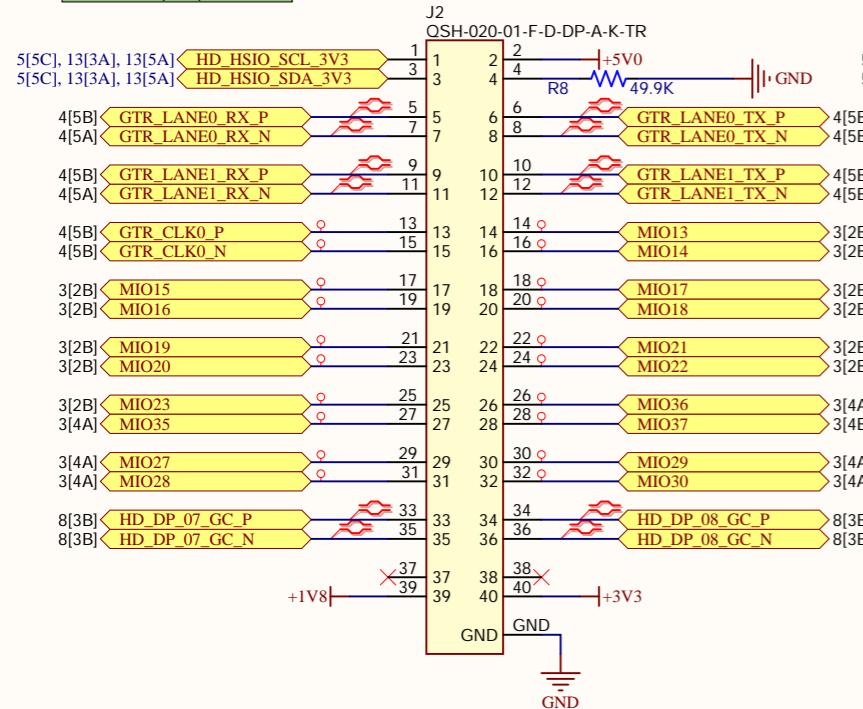
# JTAG & UART



# High Speed IO / Click Expansion

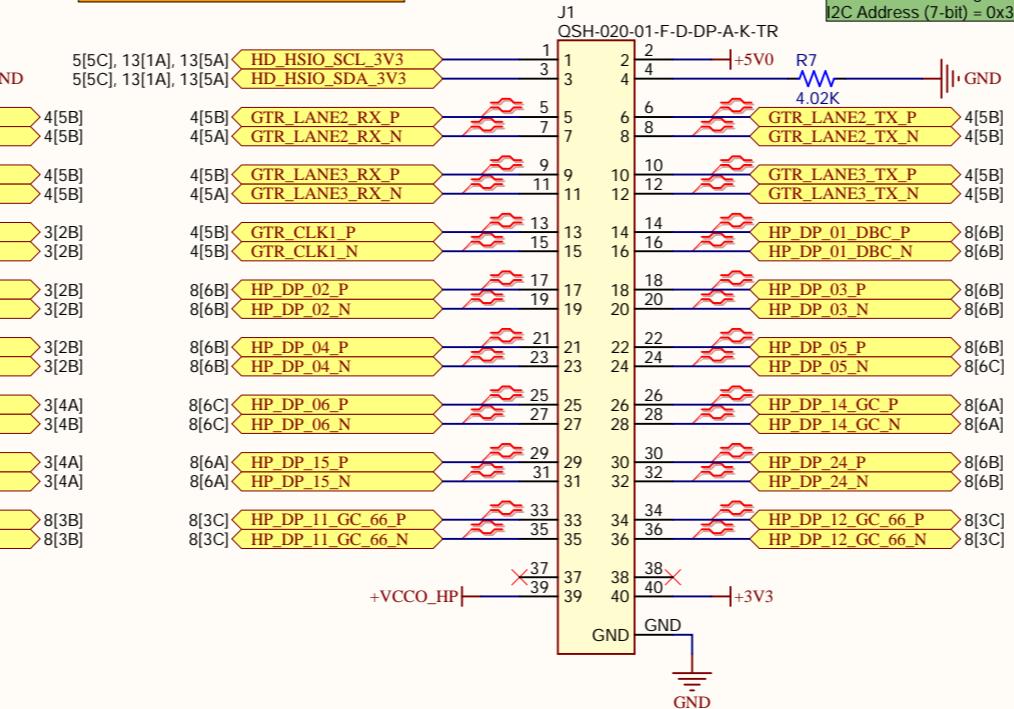
RGA Resistor = 49.9 Ohm  
Nominal RGA Voltage - 2.740V  
I2C Address (7-bit) = 0x32

## HIGH SPEED GTR MIO



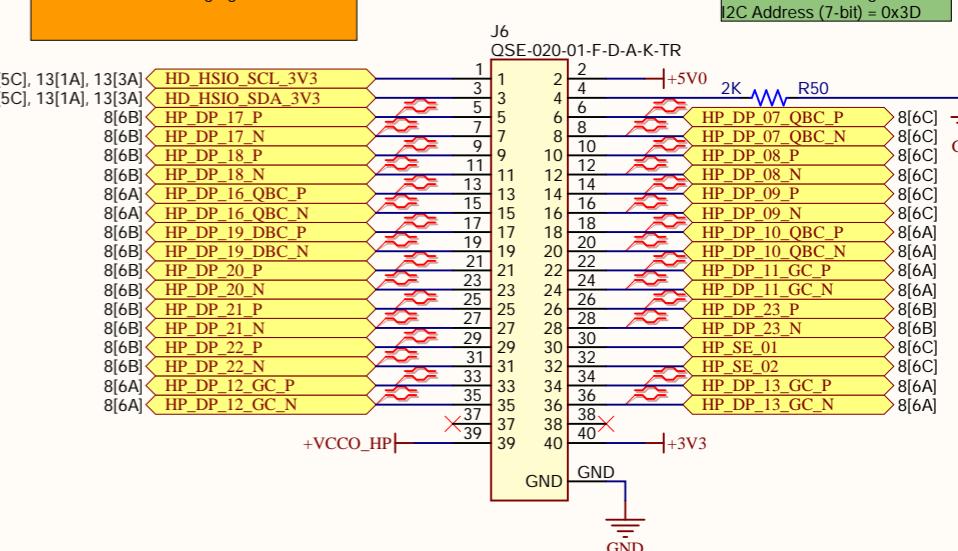
Layout Note: J1 & J2  
Place J1 & J2 into double wide POD layout with POD hanging off PCB

## HIGH SPEED GTR PL IO



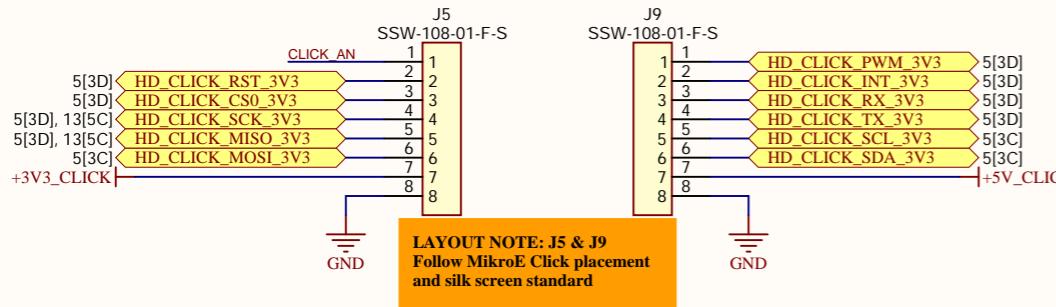
RGA Resistor = 4.02k Ohm  
Nominal RGA Voltage - 0.933V  
I2C Address (7-bit) = 0x3B

## HIGH SPEED HP PL IO

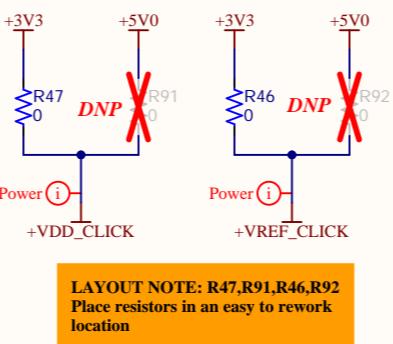


RGA Resistor = 2k Ohm  
Nominal RGA Voltage - 0.541V  
I2C Address (7-bit) = 0x3D

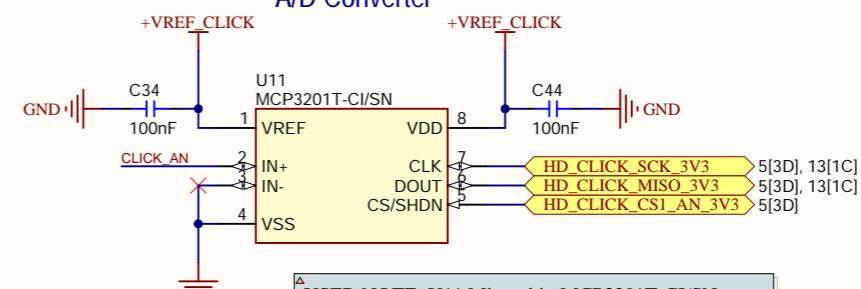
## MikroE Click Site



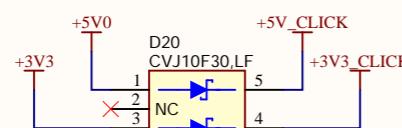
## MikroE Click I/O Level



## A/D Converter

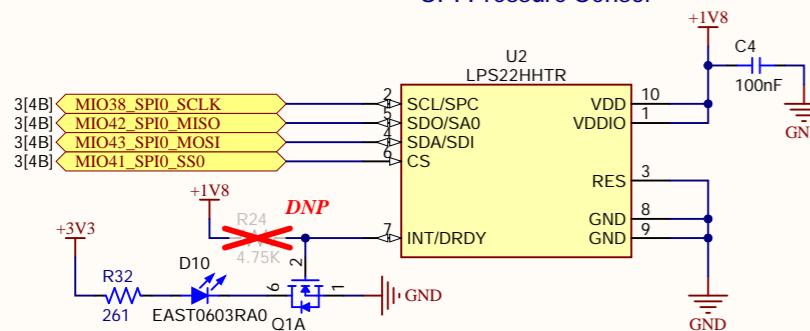


## Click Site Voltage Protection



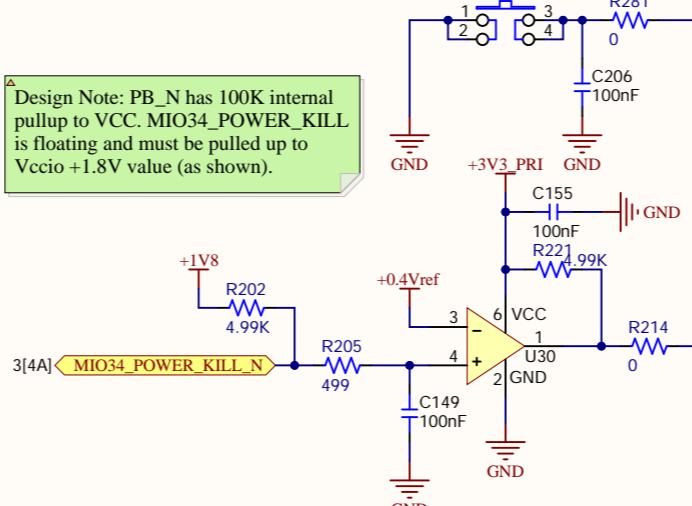
# I2C & SPI Sensor, ON/OFF CONTROLLER

## SPI Pressure Sensor

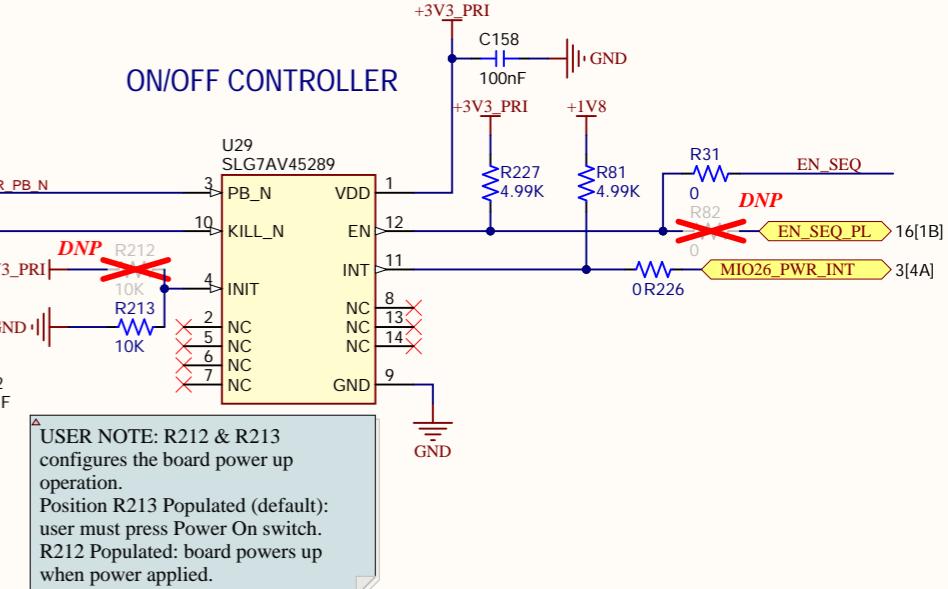


**Design Note:** PB\_N has 100K internal pullup to VCC. MIO34\_POWER\_KILL is floating and must be pulled up to Vccio +1.8V value (as shown).

## POWER BUTTON

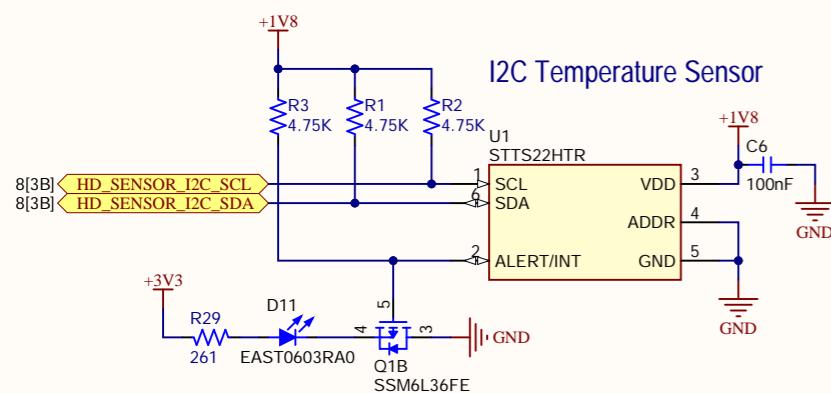


## ON/OFF CONTROLLER

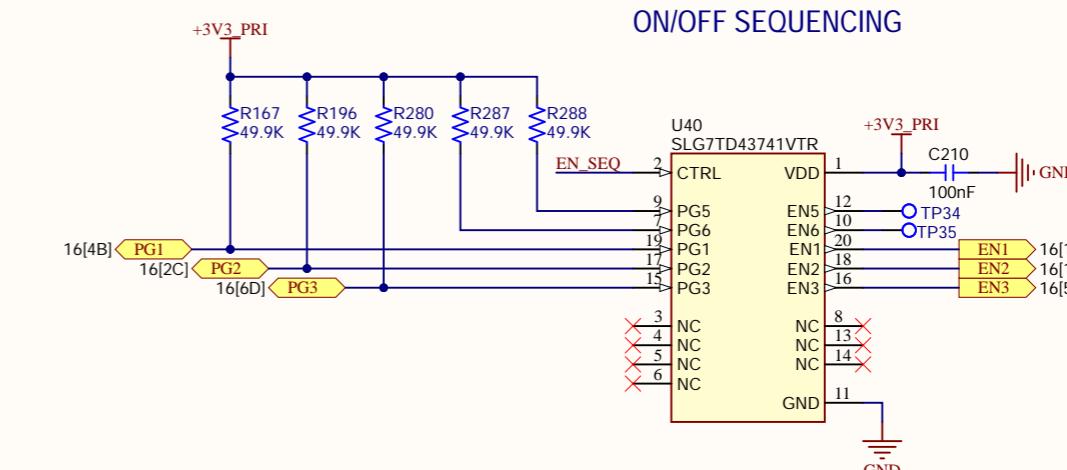
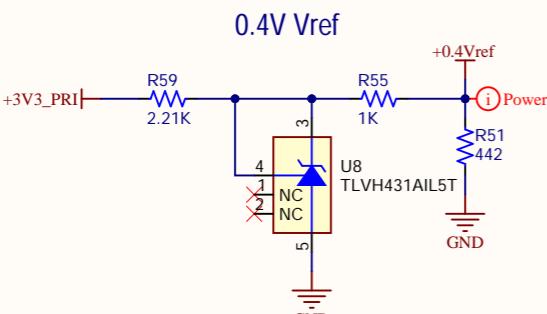


**USER NOTE:** R212 & R213 configures the board power up operation. Position R213 Populated (default): user must press Power On switch. R212 Populated: board powers up when power applied.

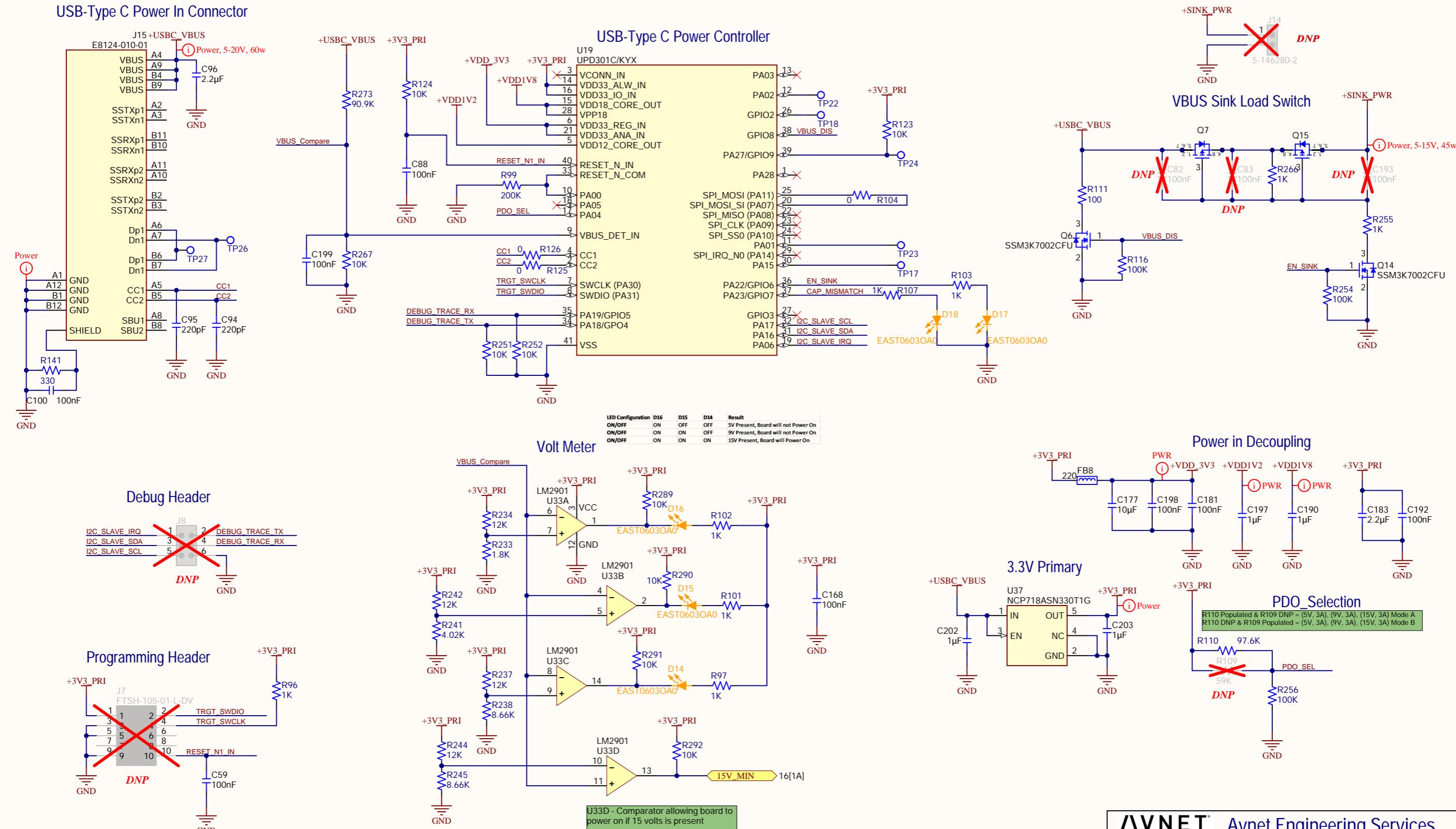
## I2C Temperature Sensor



## 0.4V Vref



USB-C Power In



## Power Supplies

