

A

A

B

B

C

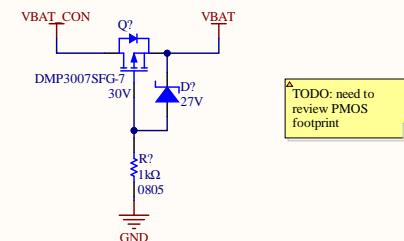
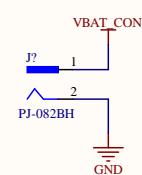
C

D

D

Reverse Polarity Protection

Power Jack



Title: Power Connector	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 1 of 25

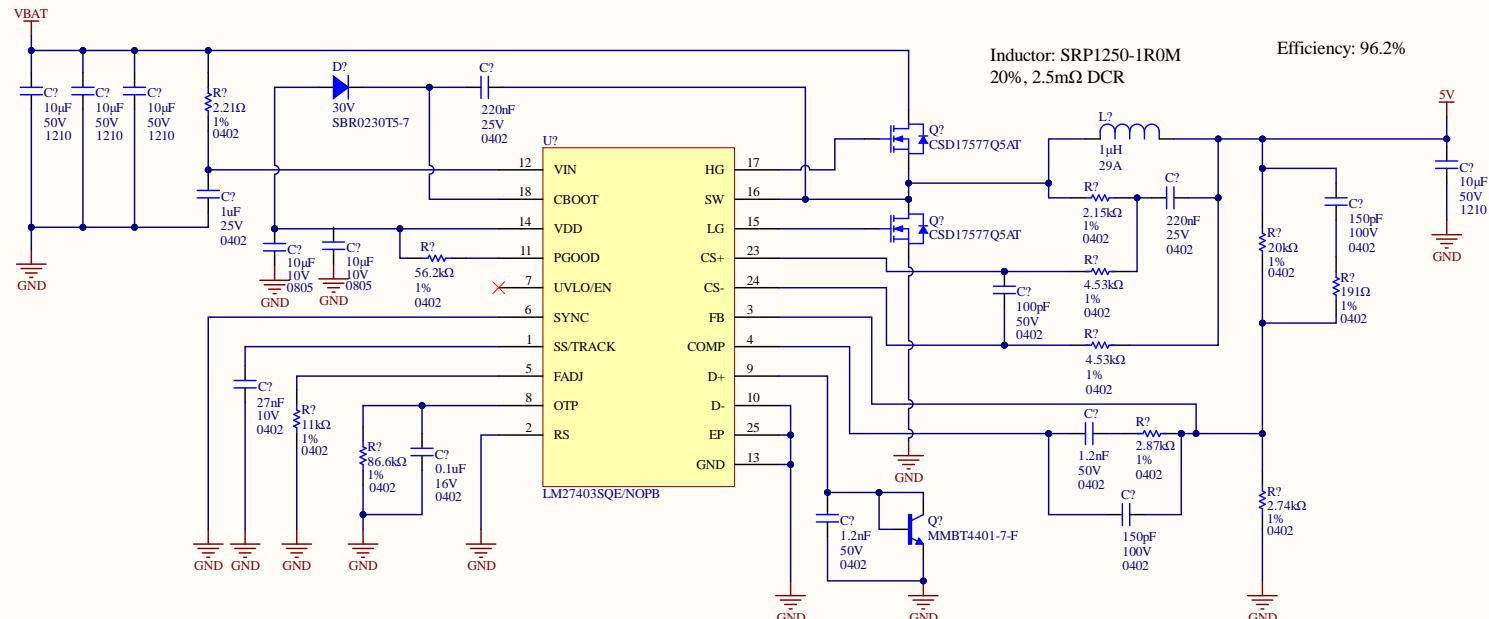


A

A

5V Buck Converter @ 16A

Input voltage range: 9V - 20V



Webench reference design: <https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=E23207869D5F0DD4>

Title: 5V Power	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	Date: 2021-07-13
Sheet: 2	of 25

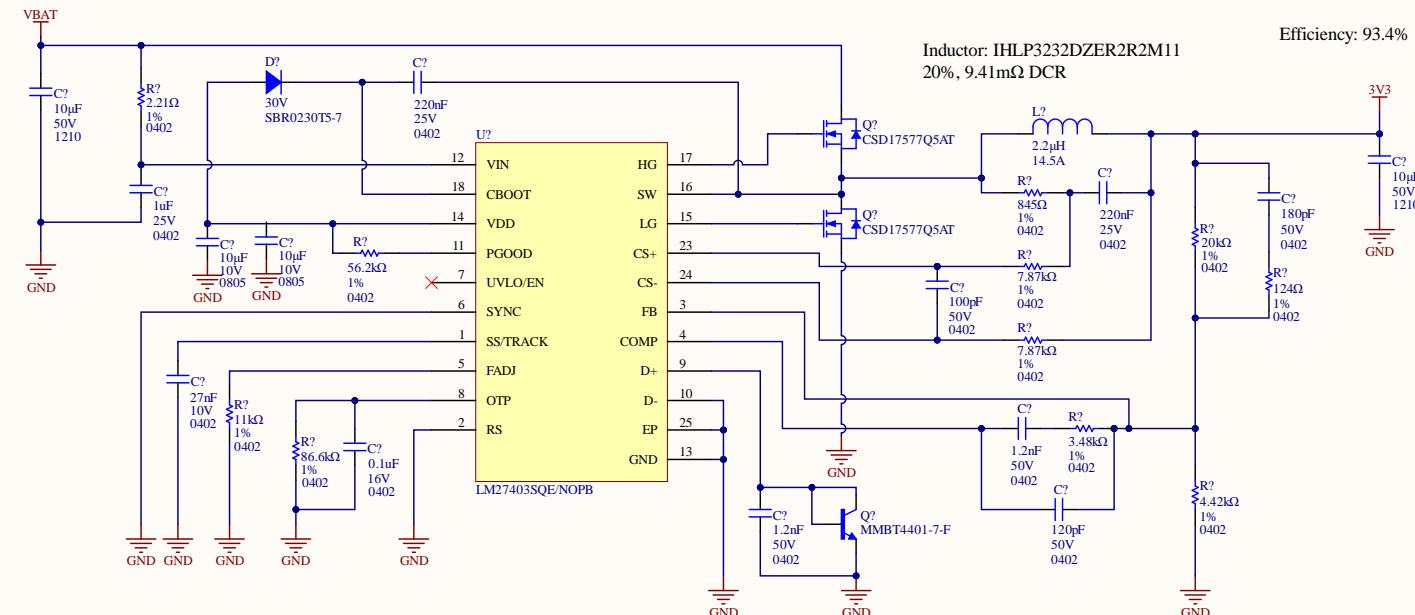


A

A

3.3V Buck Converter @ 6A

Input voltage range: 9V - 20V



Webench reference design: <https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=97FD766931642B43>

Title: 3.3V Power	
Project: Jetson AGX Xavier Carrier Board.PnjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	Date: 2021-07-13
Sheet: 3	of 25



A

A

B

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C

C

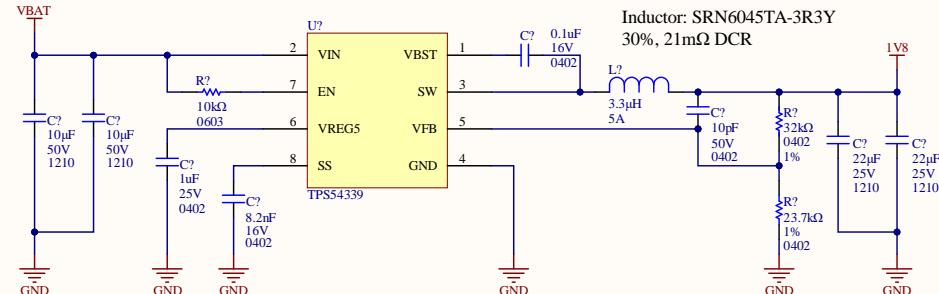
D

D

1.8V Buck Converter @ 2A

Input voltage range: 9V - 20V

Efficiency: 82.5%



Webench reference design: <https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=57C269DE61431294>

Title: 1.8V Power	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	Date: 2021-07-13
Sheet: 4	of 25



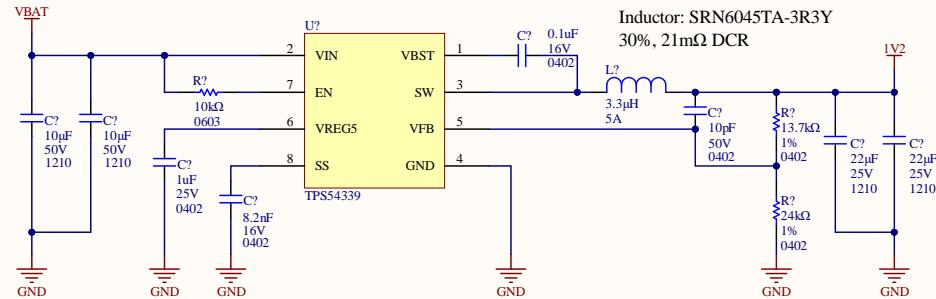
A

A

1.2V Buck Converter @ 2A

Input voltage range: 9V - 20V

Efficiency: 77.5%



Webench reference design: <https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=348A2FAA81A09D71>

Title: 1.2V Power	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 5 of 25

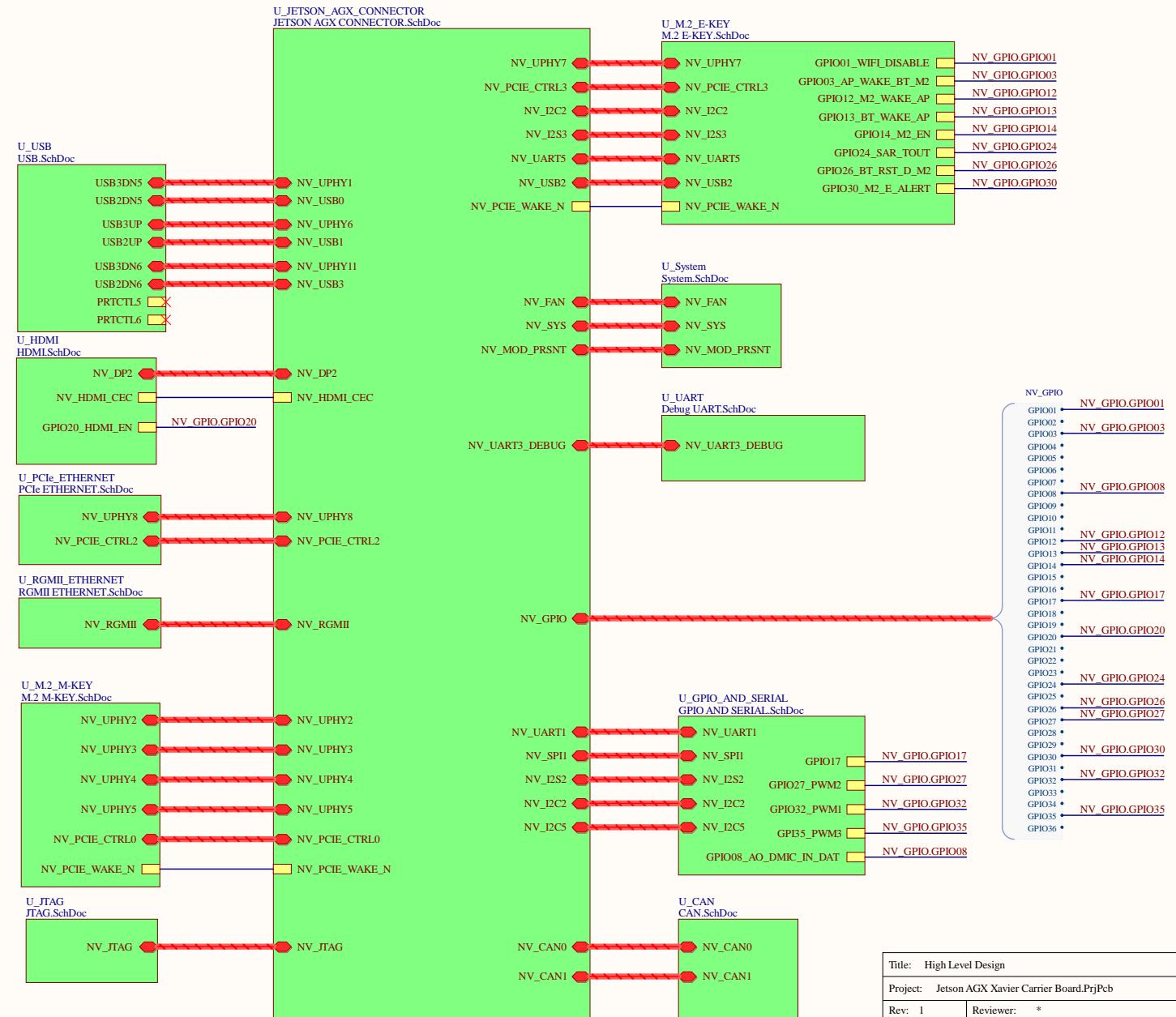


B

B

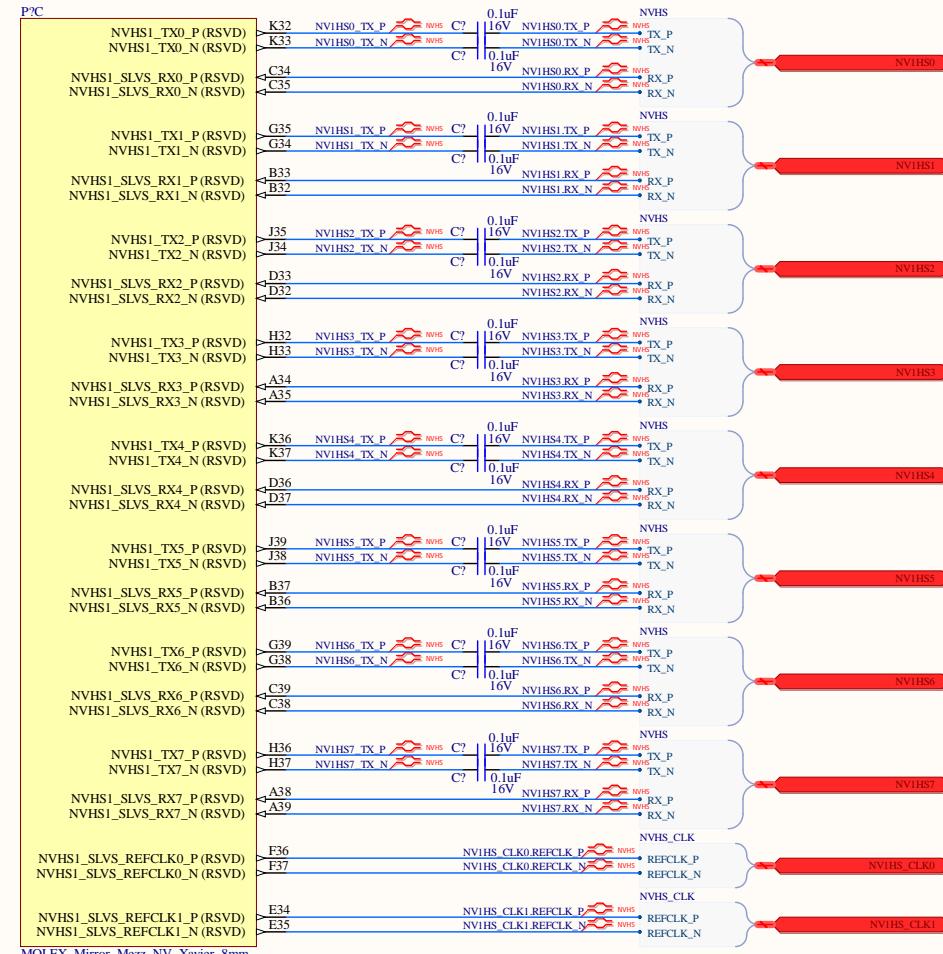
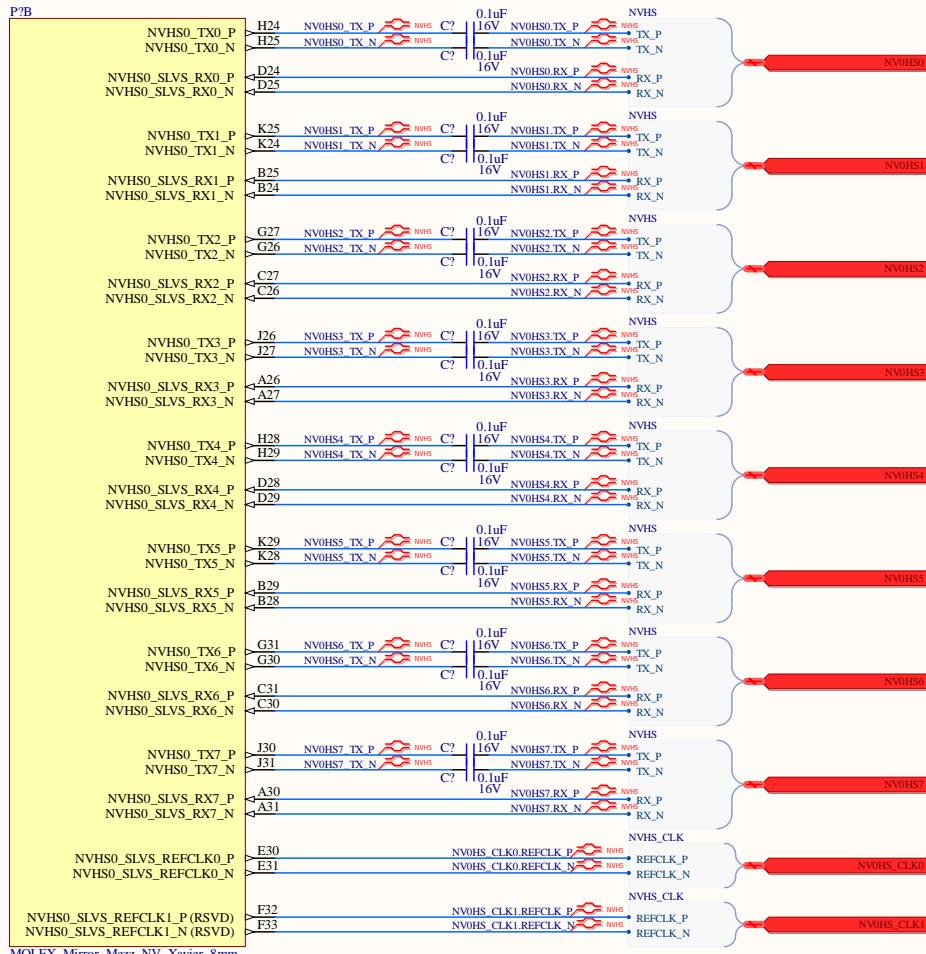
C

D





A



B

A

B

C

D

Title: Jetson AGX NVHS

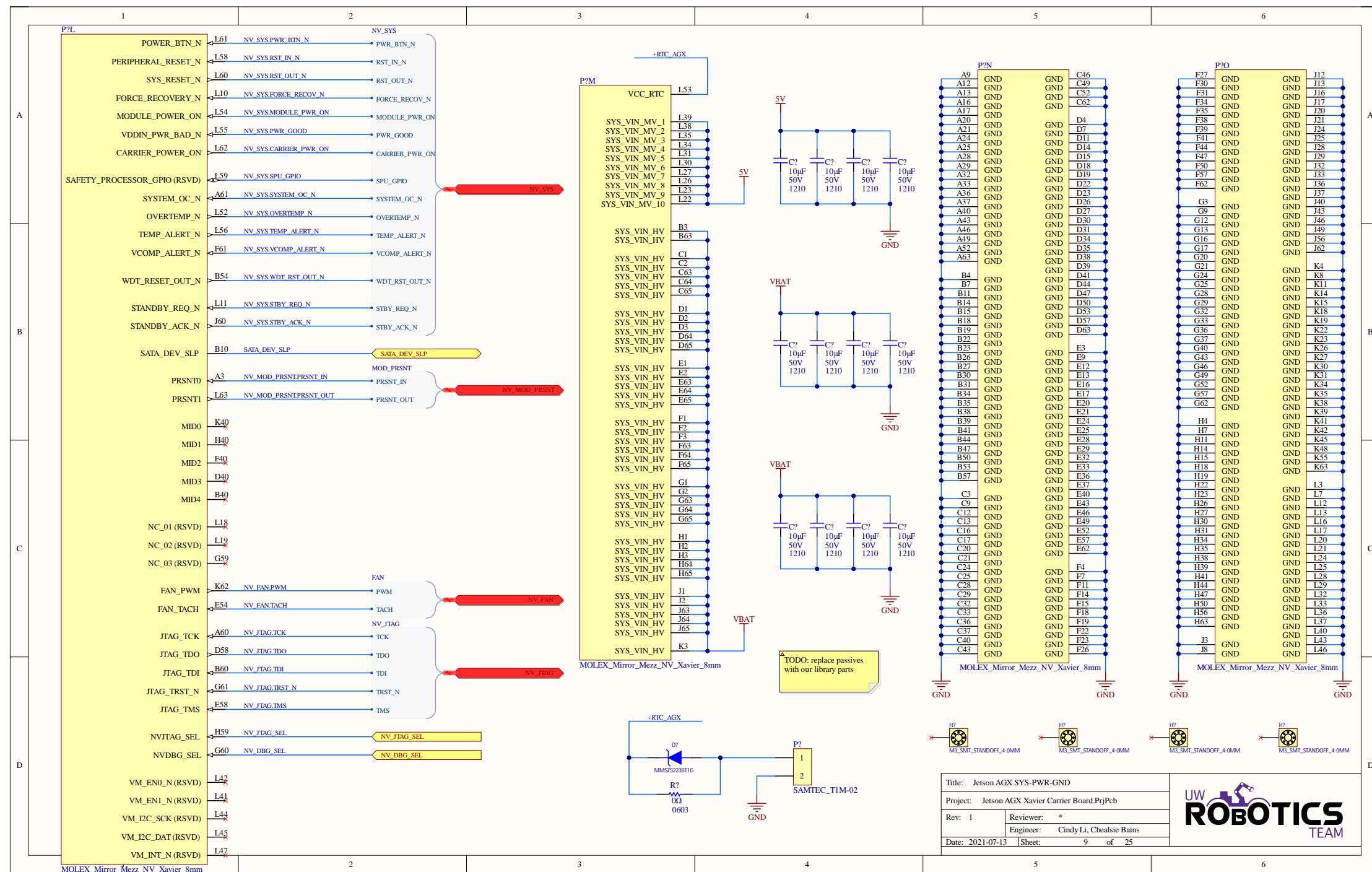
Project: Jetson AGX Xavier Carrier Board.PnjPcb

Rev: 1 Reviewer: *

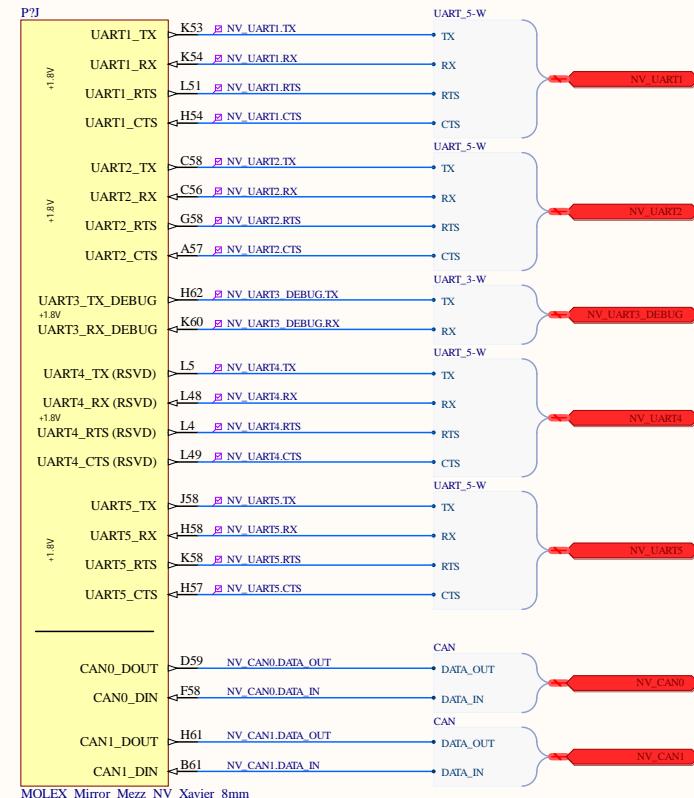
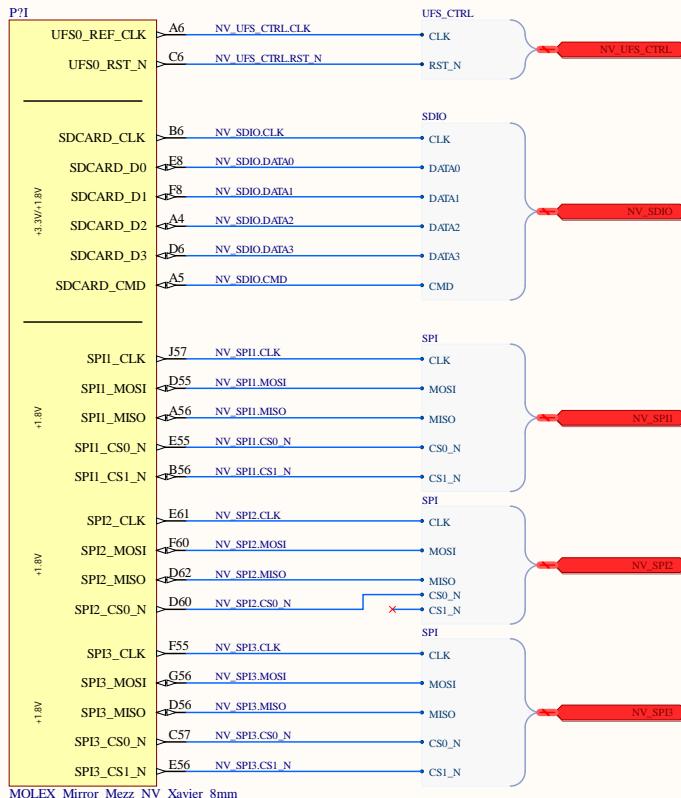
Engineer: Cindy Li, Chealsie Bains

Date: 2021-07-13 Sheet: 8 of 25





1 2 3 4 5 6

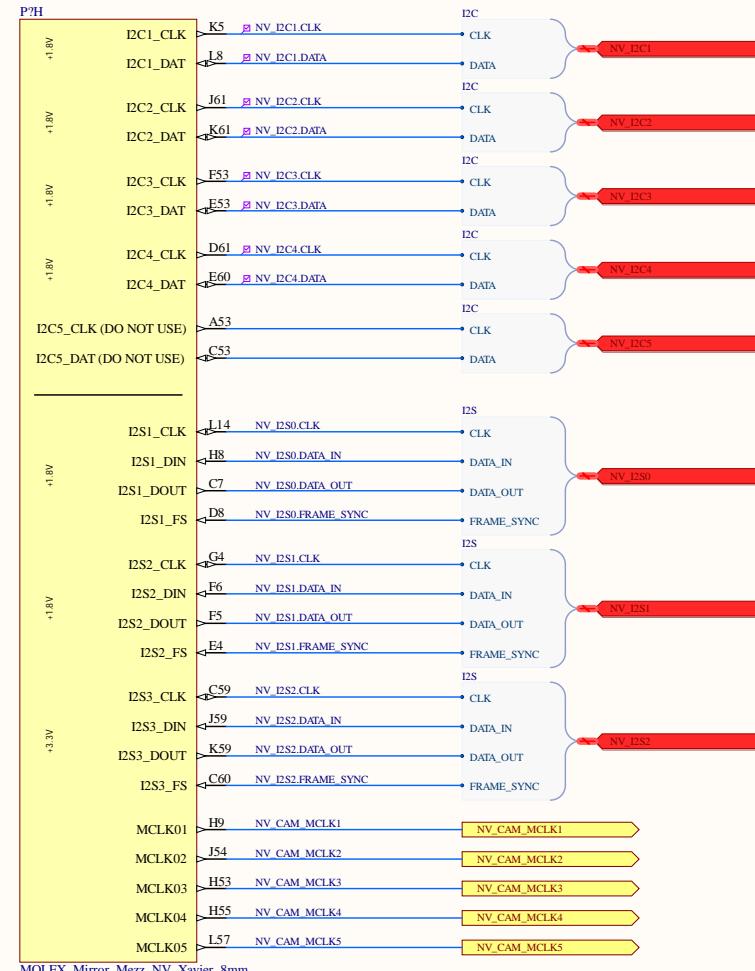
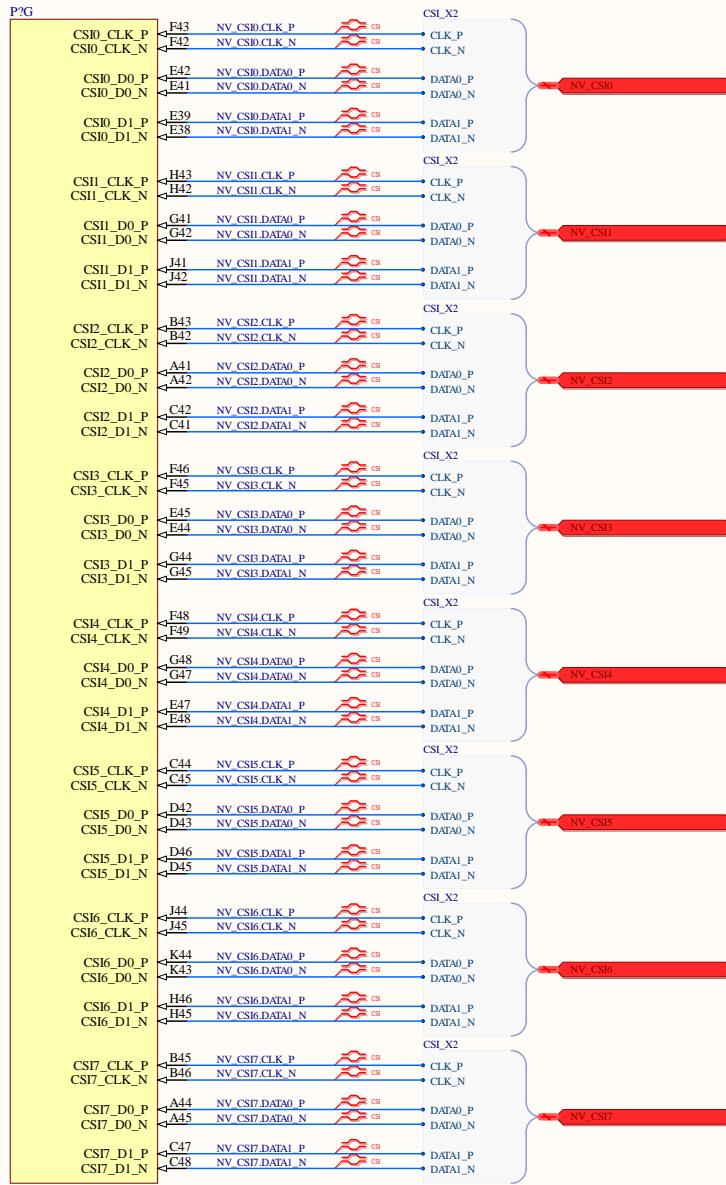


Title: Jetson AGX SDIO-SPI-UART-CAN-GPIO	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li, Chealsie Bains	
Date: 2021-07-13	Sheet: 10 of 25



1 2 3 4 5 6

1 2 3 4 5 6



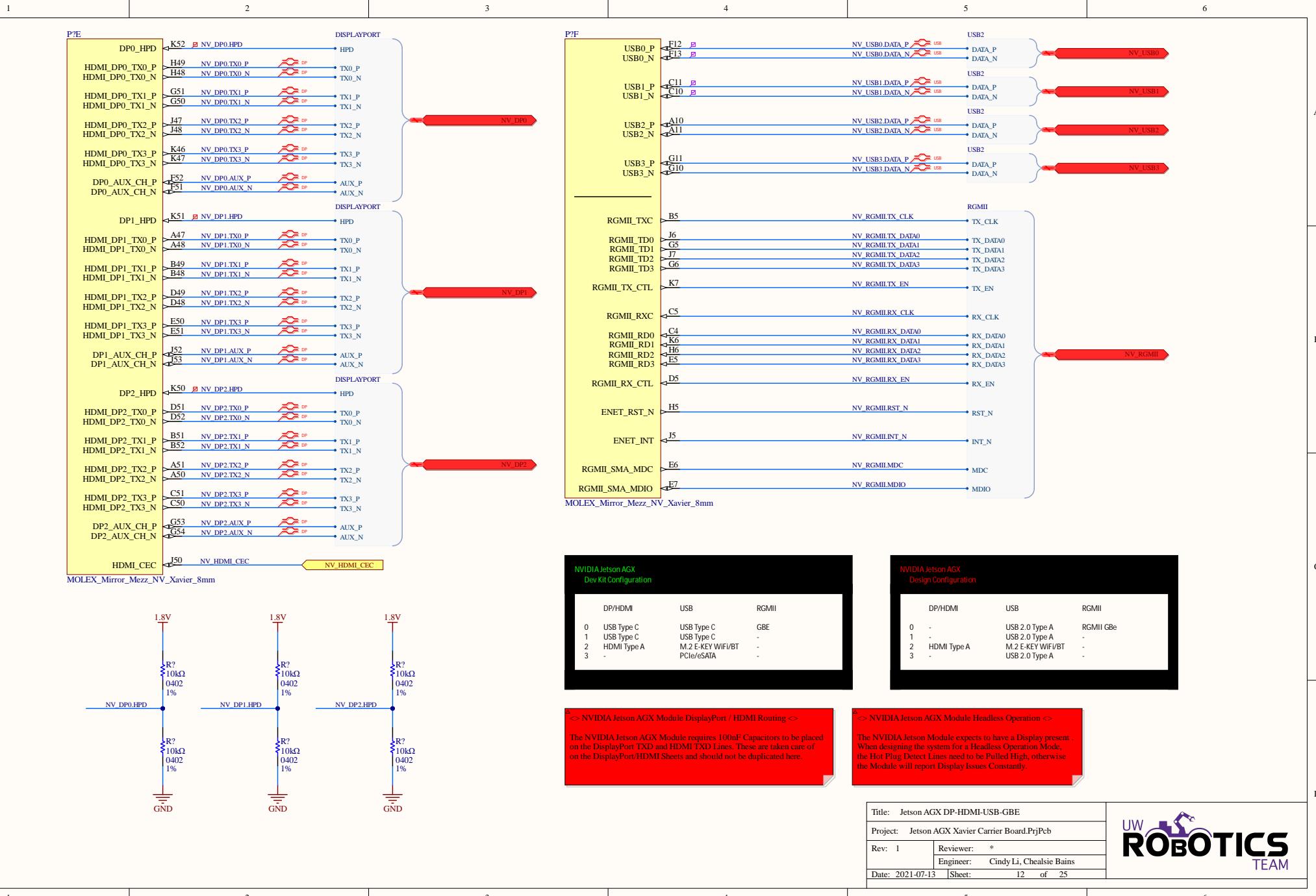
NVIDIA Jetson AGX Dev Kit Configuration		
CSI	I2C	I2S
0 CAM Expansion	-	-
1 CAM Expansion	ID EEPROM / Debug	-
2 CAM Expansion	PCIe x16 / M.2 E-Key	40 Pin Expansion
3 CAM Expansion	PCIe x16 / M.2 E-Key WiFi/BT	CAM Expansion
4 CAM Expansion	M.2 M.2 KEY NVMe	-
5 CAM Expansion	-	40 Pin Expansion
6 CAM Expansion	-	-
7 CAM Expansion	-	-

NVIDIA Jetson AGX Design Configuration		
CSI	I2C	I2S
0 -	-	-
1 -	-	-
2 -	M.2 E-Key + GPIO	GPIO
3 -	-	M.2 E-Key WiFi/BT
4 -	M.2 M.2 KEY NVMe	-
5 -	GPIO	M.2 E-Key WiFi/BT
6 -	-	GPIO
7 -	-	-

Title: Jetson AGX CSI-I2C-I2S
Project: Jetson AGX Xavier Carrier Board.PnjPcb
Rev: 1 Reviewer: *
Engineer: Cindy Li, Chealsie Bains
Date: 2021-07-13 Sheet: 11 of 25



1 2 3 4 5 6



A

A

B

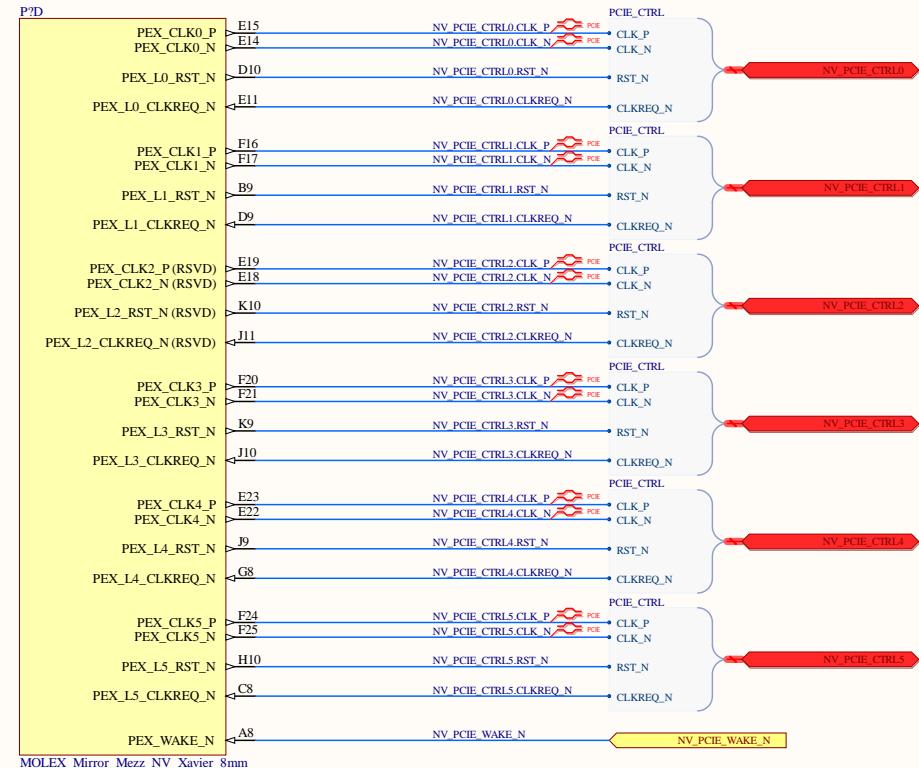
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C

C

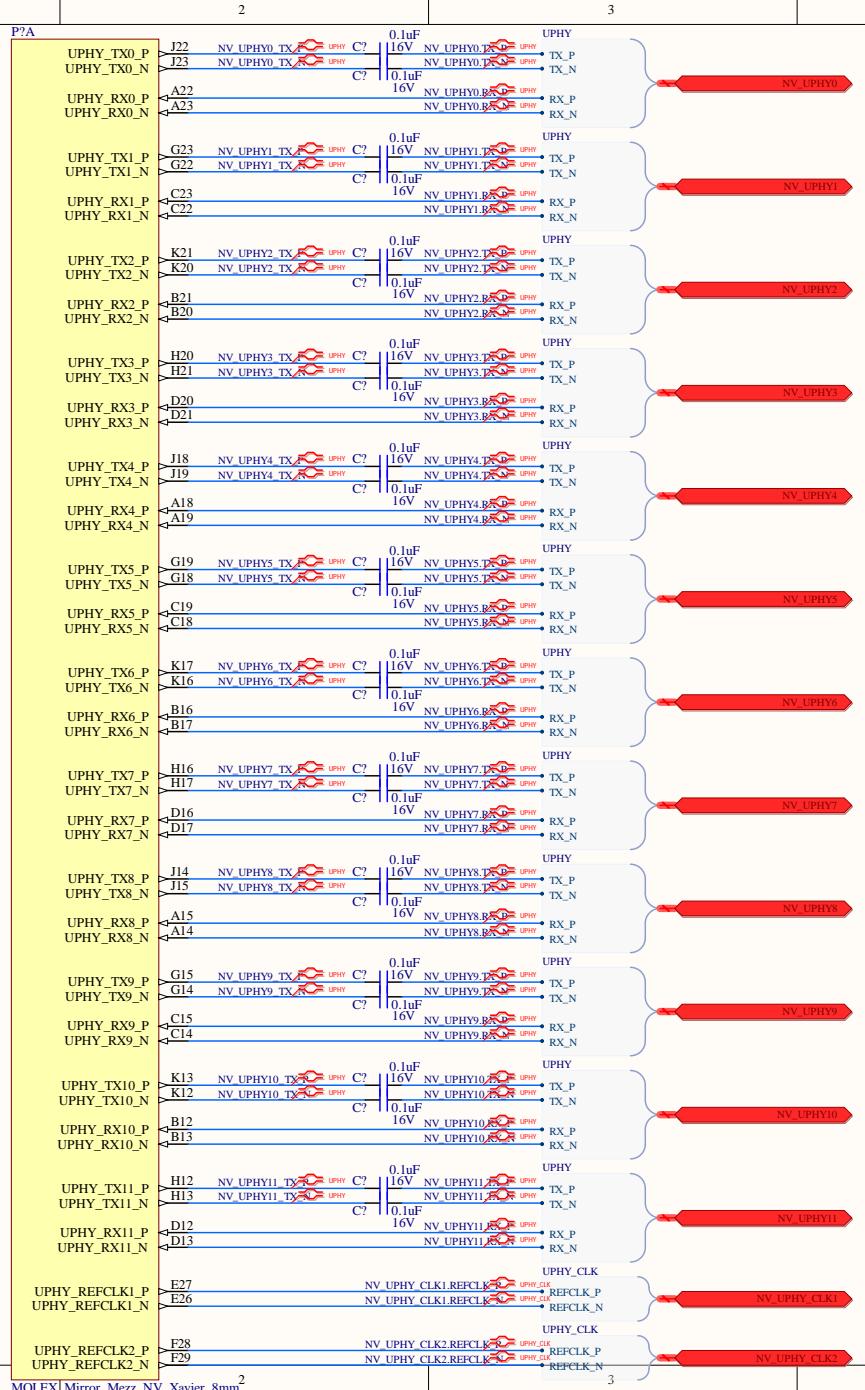
D

D



Title: Jetson AGX PCIe	
Project: Jetson AGX Xavier Carrier Board.PnjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li, Chealsie Bains	Date: 2021-07-13 Sheet: 13 of 25





NVIDIA Jetson AGX
Dev Kit Configuration

	UPHY	NVHS0	NVHS1	PCIE_CTRL
0	PCIe/eSATA	PCIe x16	-	M.2 M-KEY NVMe
1	USB Type-C	PCIe x16	-	PCIe/eSATA
2	M.2 M-KEY NVMe	PCIe x16	-	-
3	M.2 M-KEY NVMe	PCIe x16	-	M.2 E-KEY WiFi/BT
4	M.2 M-KEY NVMe	PCIe x16	-	-
5	M.2 M-KEY NVMe	PCIe x16	-	PCIe x16
6	USB Type-C	PCIe x16	-	-
7	M.2 E-KEY WiFi/BT	PCIe x16	-	-
8	-	-	-	-
9	-	-	-	-
10	UFS/MicroSD	-	-	-
11	PCIe/eSATA	-	-	-

NVIDIA Jetson AGX
Design Configuration

	UPHY	NVHS0	NVHS1	PCIE_CTRL
0	-	-	-	M.2 M-Key Storage
1	USB 3.0 Type A	-	-	
2	M.2 M-Key Lane 0	-	-	PCIE Gigabit Ethernet
3	M.2 M-Key Lane 1	-	-	M.2 E-KEY WiFi/BT
4	M.2 M-Key Lane 2	-	-	-
5	M.2 M-Key Lane 3	-	-	-
6	USB 3.0 Type A	-	-	-
7	M.2 E-KEY WiFi/BT	-	-	-
8	PCIe Gigabit Ethernet	-	-	-
9	-	-	-	-
10	-	-	-	-
11	USB 3.0 Type A	-	-	-

Table 1. Inter-AGY UPLIV

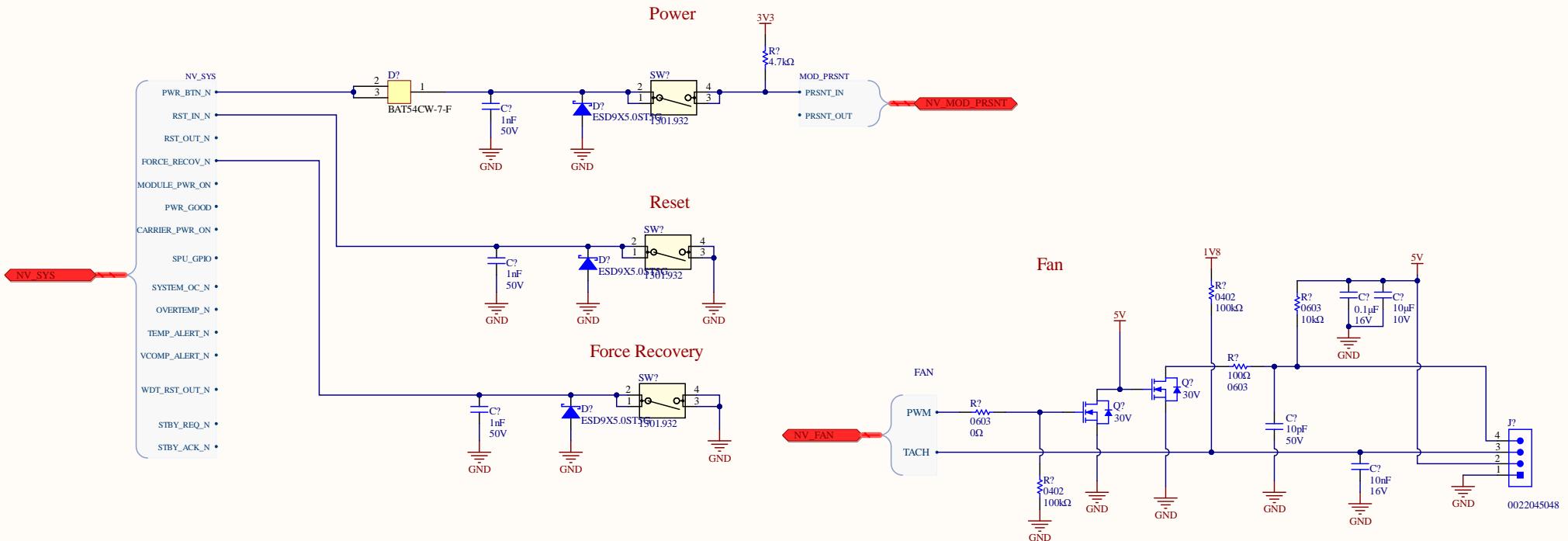
Project: Jetson AGX Xavier Carrier Board PriRcb

Rev. | Reviewer: *

Engineer: Cindy Li, Chealsie Bains

Date: 2021-07-13 Sheet: 14 of 25





Title: System	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Chealsie Bains	
Date: 2021-07-13	Sheet: 15 of 25

A

A

B

B

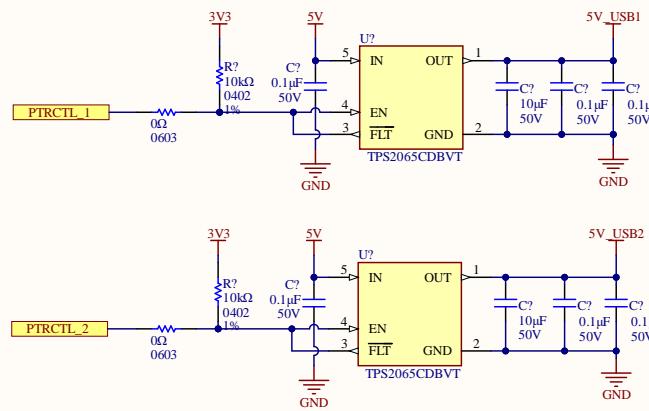
C

C

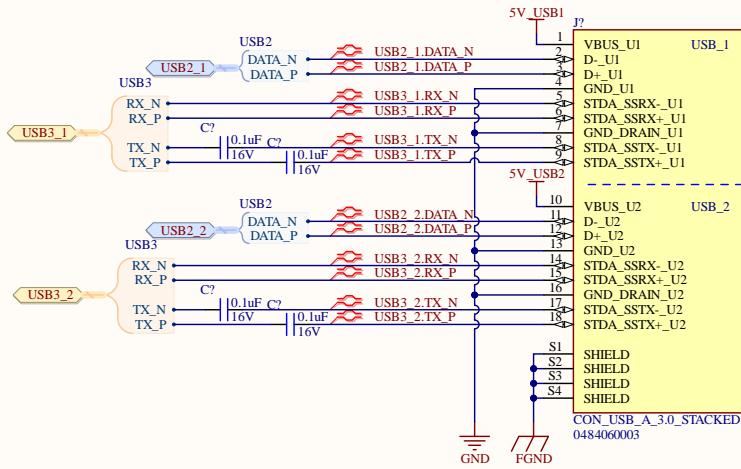
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D

Power Switches

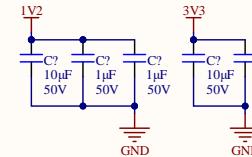
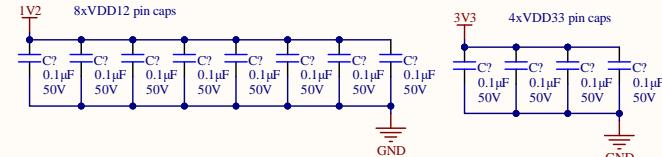
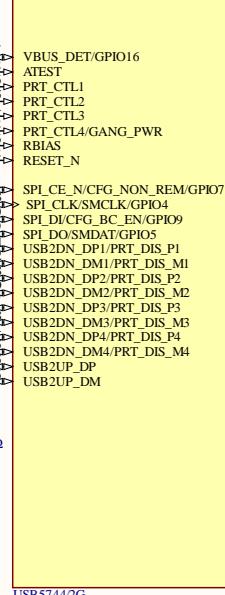
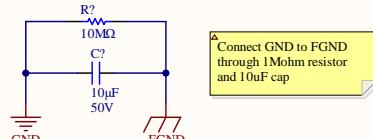
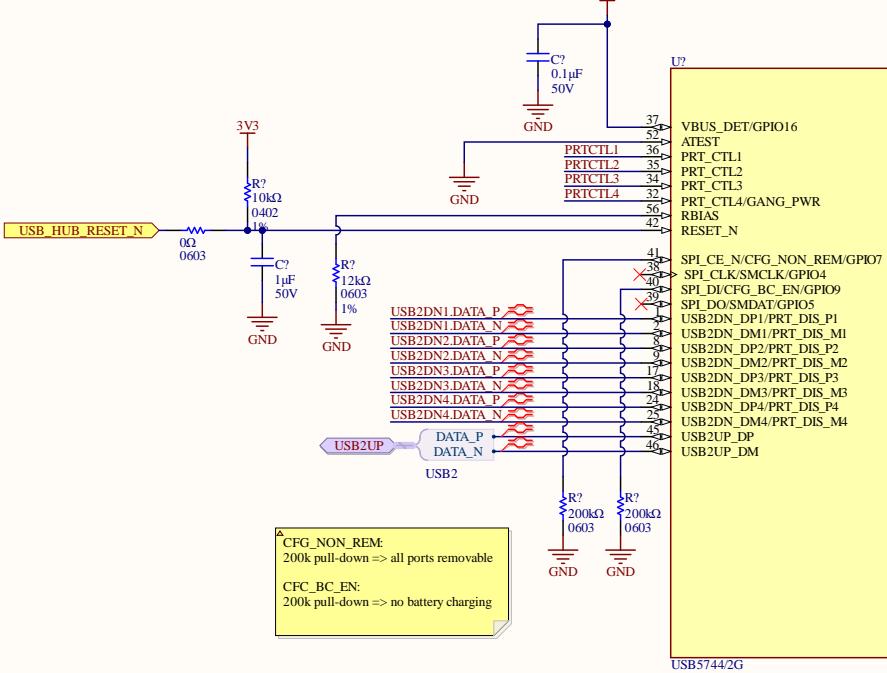


USB Ports



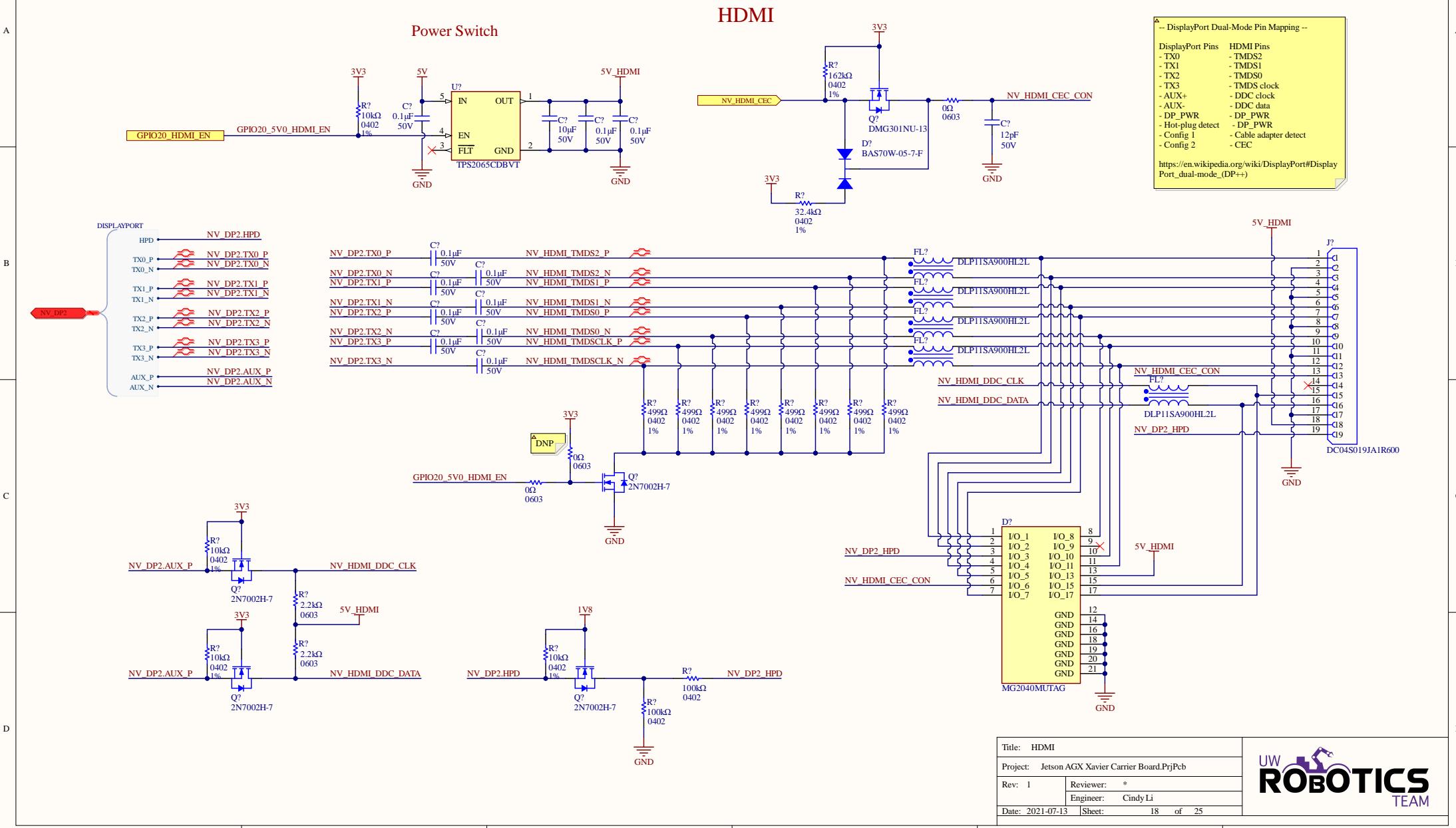
Title: USB Port	
Project: Jetson AGX Xavier Carrier Board.PnjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 16 of 25

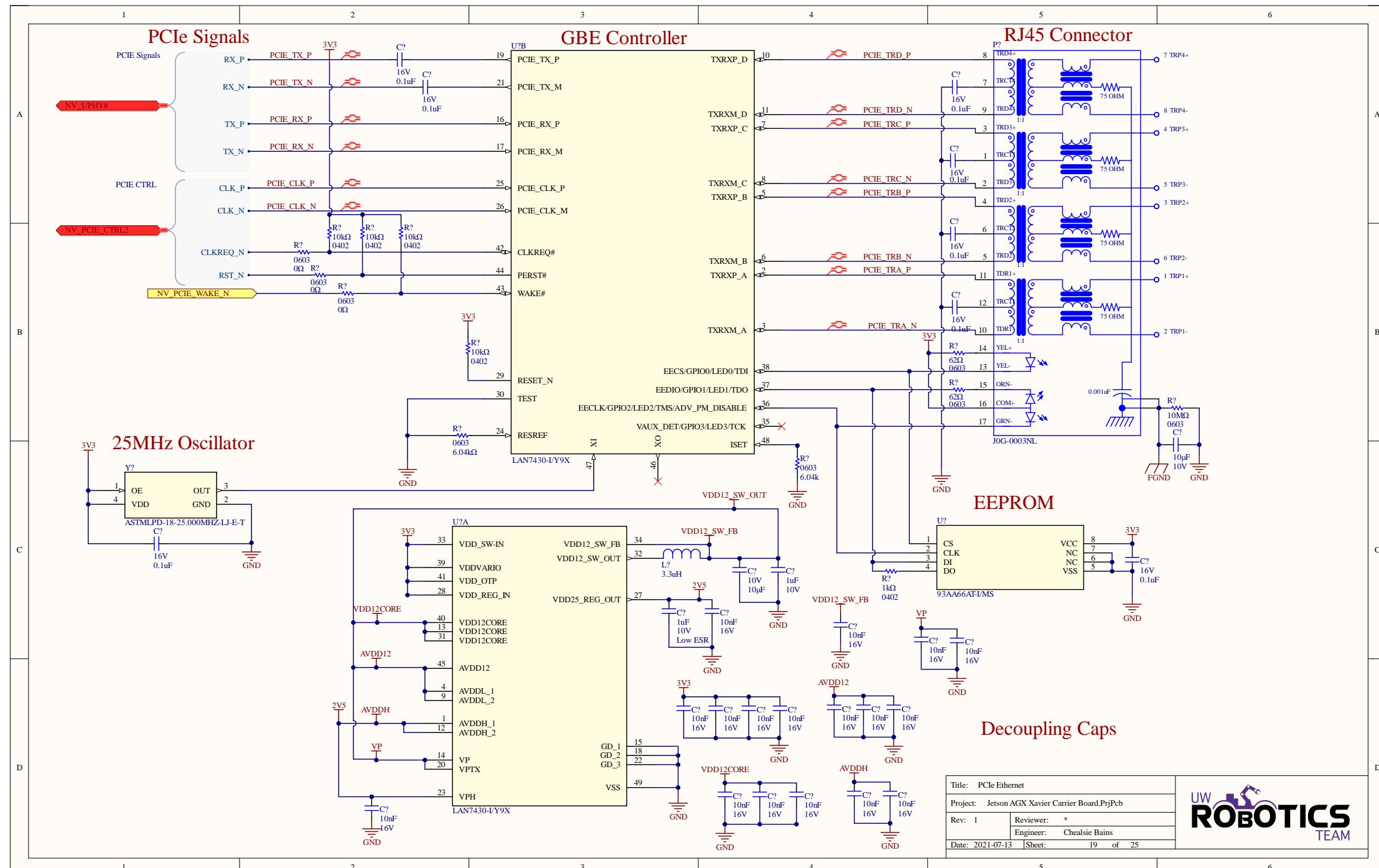


Bulk Capacitors**Decoupling Capacitors****USB Controller**

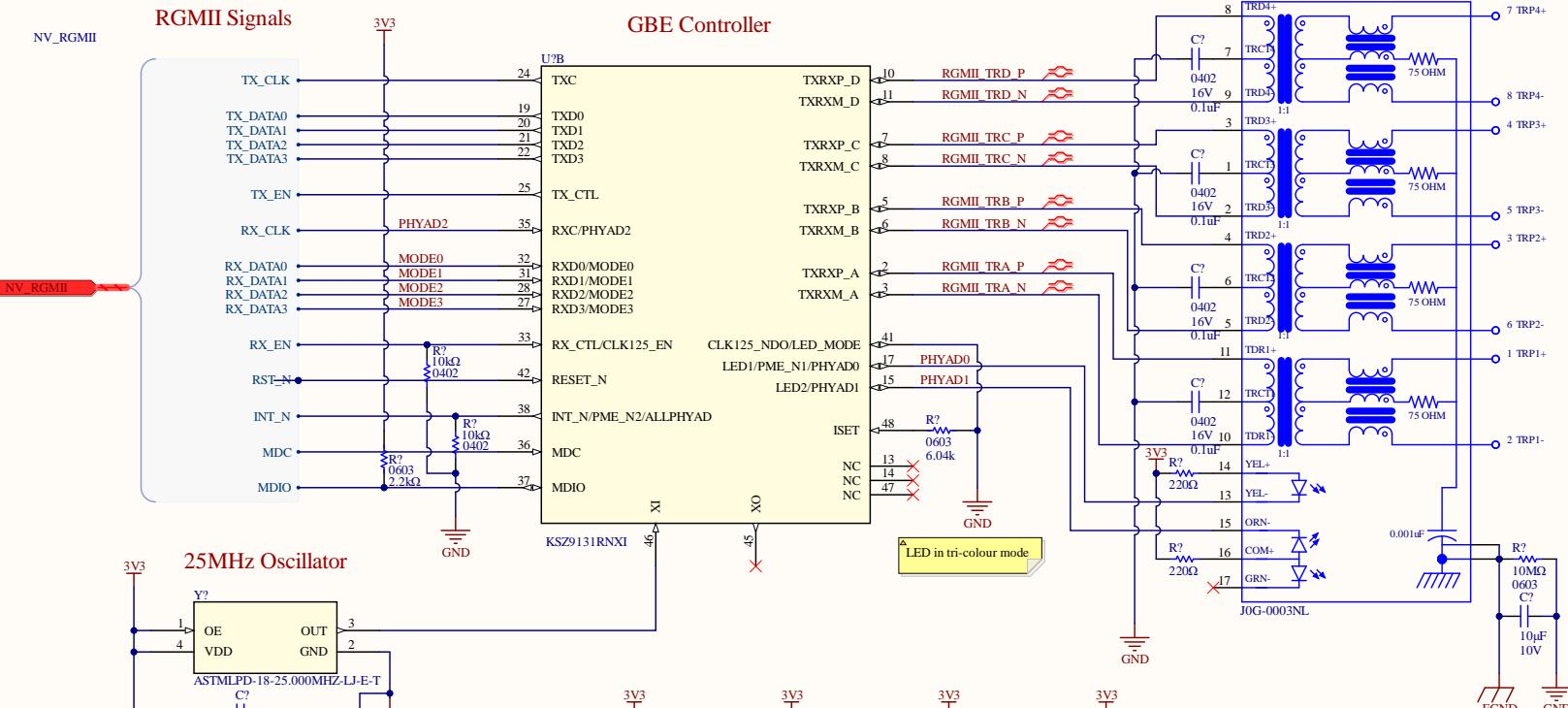
Title: USB	
Project: Jetson AGX Xavier Carrier Board.PnjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 17 of 25



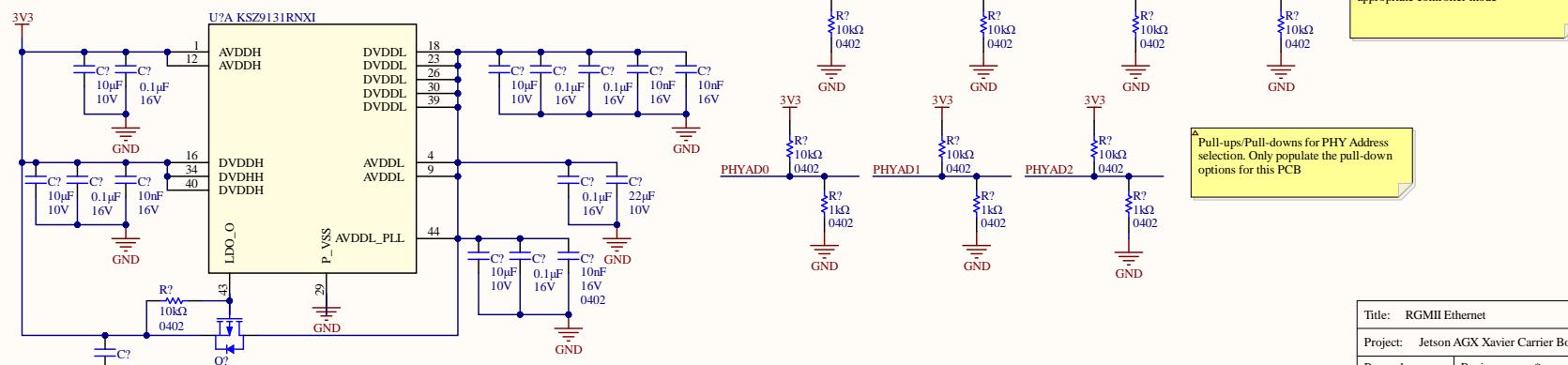




RJ45 Ethernet Connector



GBE Power



Title: RGMII Ethernet

Project: Jetson AGX Xavier Carrier Board.PrjPcb

Rev: 1

Reviewer: *

Engineer: Chealsie Bains

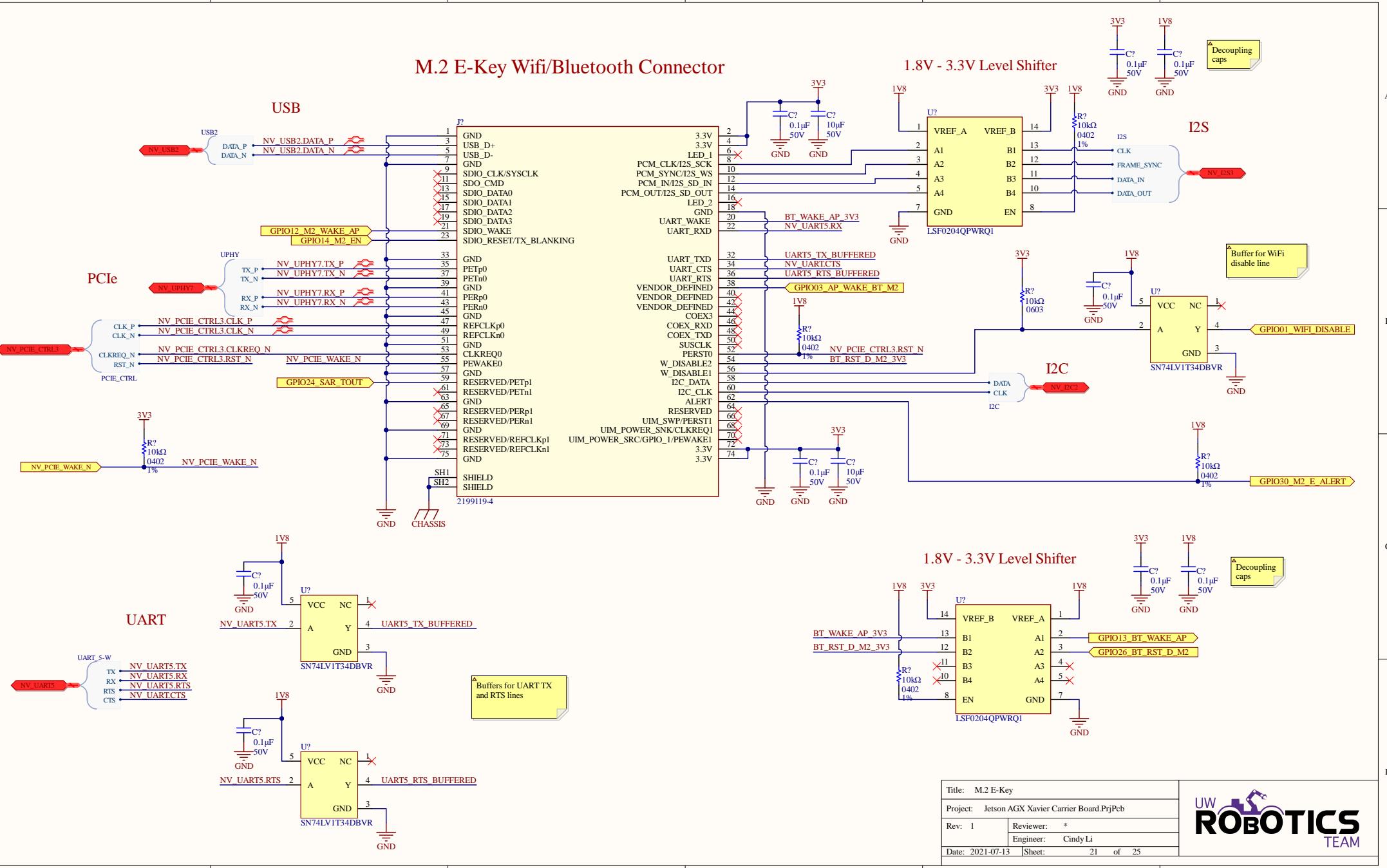
Date: 2021-07-13

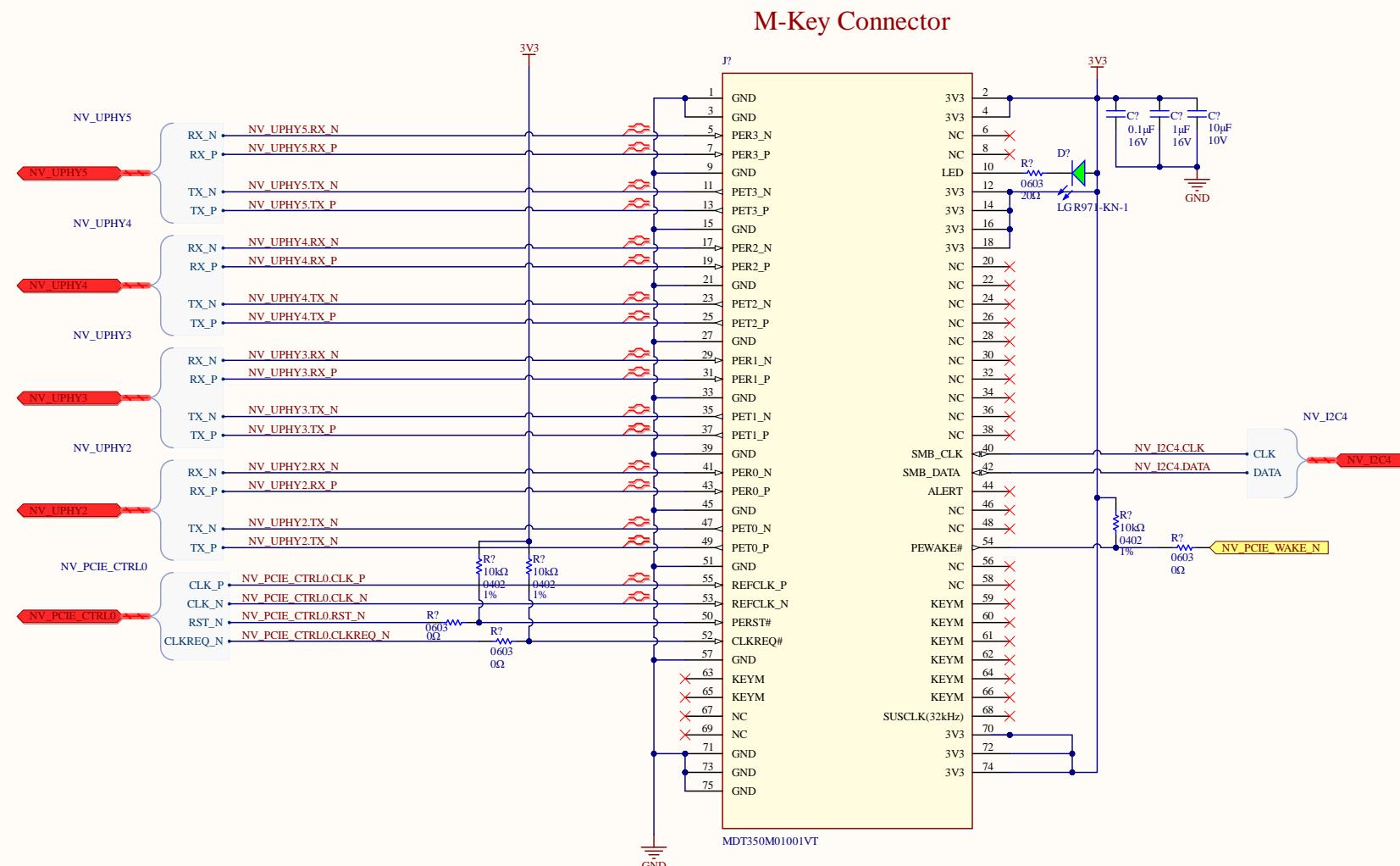
Sheet: 20 of 25



1 2 3 4 5 6

M.2 E-Key Wifi/Bluetooth Connector





Title: M.2 M-Key	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Chealsie Bains	Date: 2021-07-13 Sheet: 22 of 25

A

A

B

B

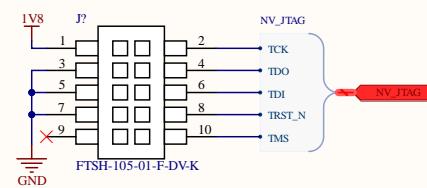
C

C

D

D

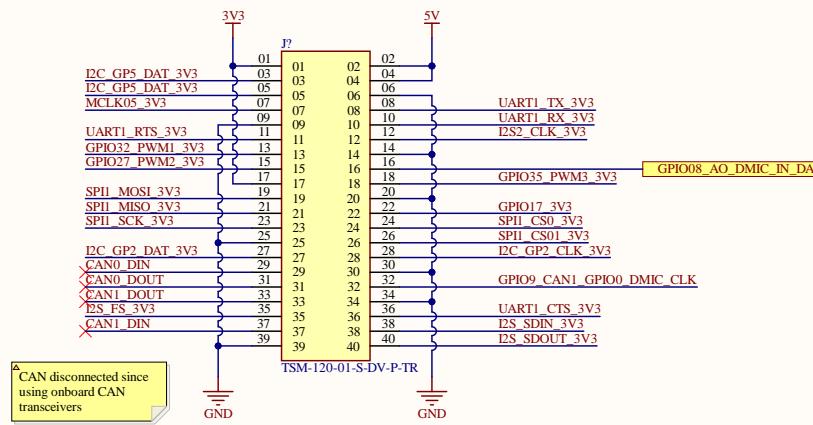
JTAG



Title: JTAG	
Project: Jetson AGX Xavier Carrier Board.PrjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 23 of 25

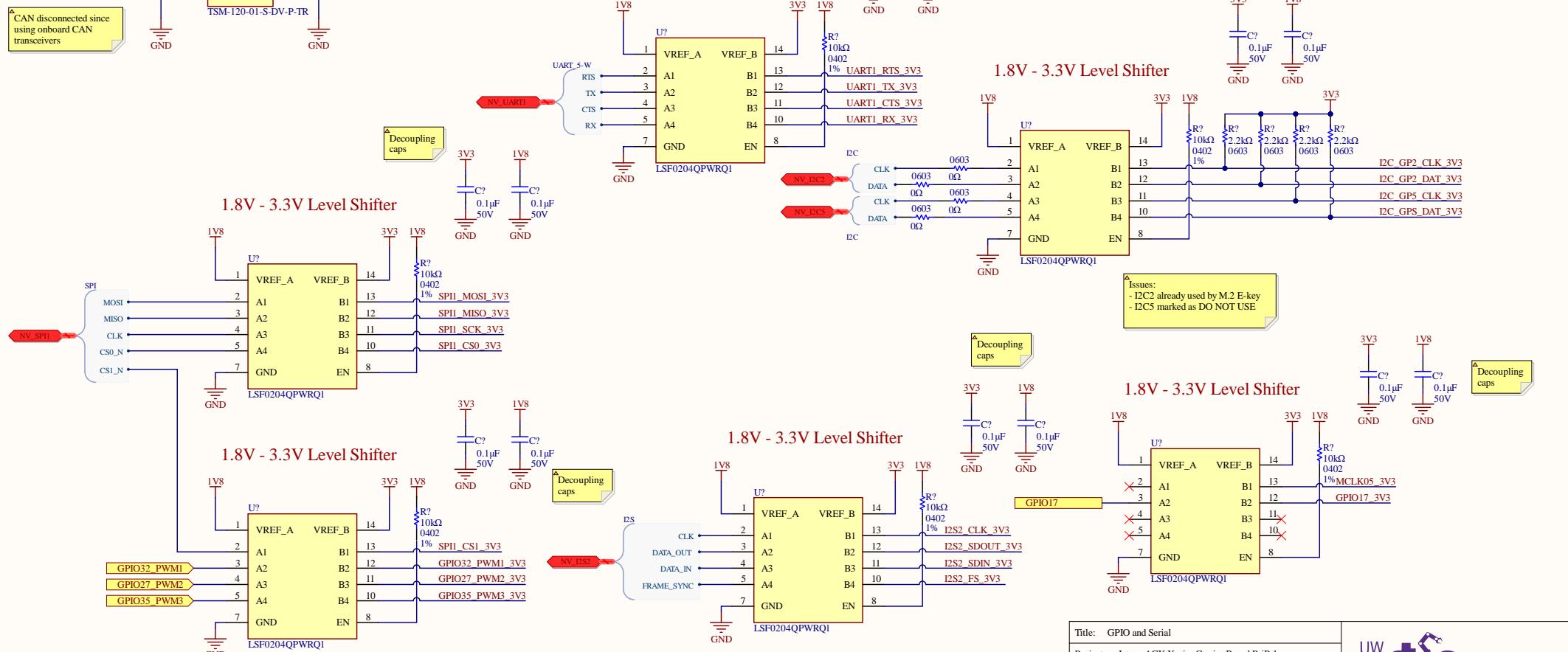


1 2 3 4 5 6



GPIO Expansion

Level shifter IC out of stock, may need to replace

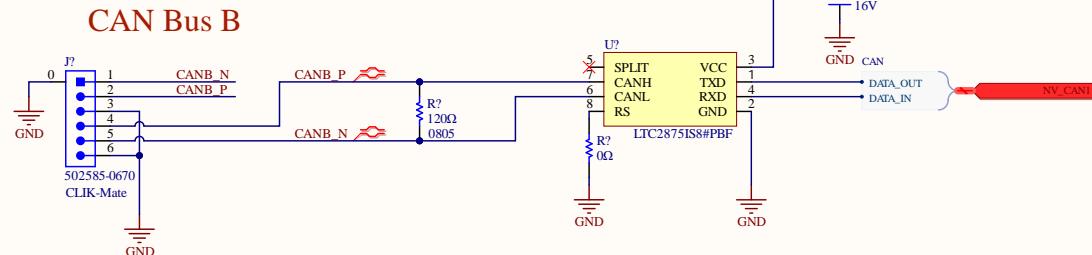
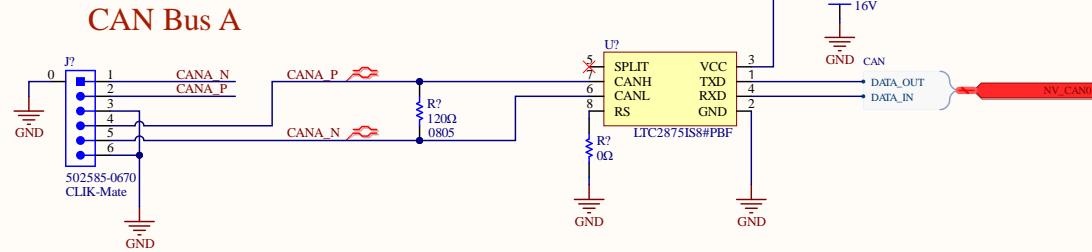


Title: GPIO and Serial	
Project: Jetson AGX Xavier Carrier Board.PjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	Date: 2021-07-13



1 2 3 4 5 6

CAN Transceivers

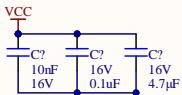


Title: CAN	
Project: Jetson AGX Xavier Carrier Board.PjPcb	
Rev: 1	Reviewer: *
Engineer: Cindy Li	
Date: 2021-07-13	Sheet: 25 of 25



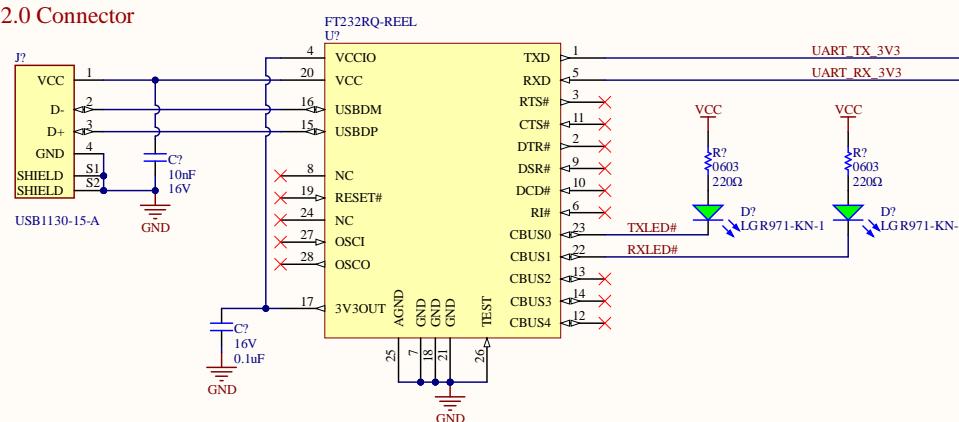
A

A

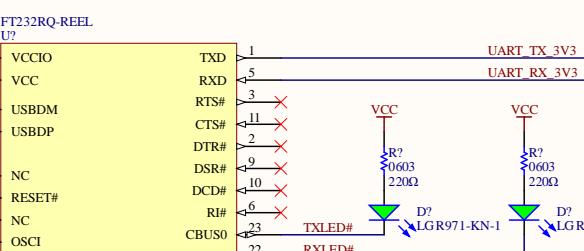


UART to USB

USB-A 2.0 Connector

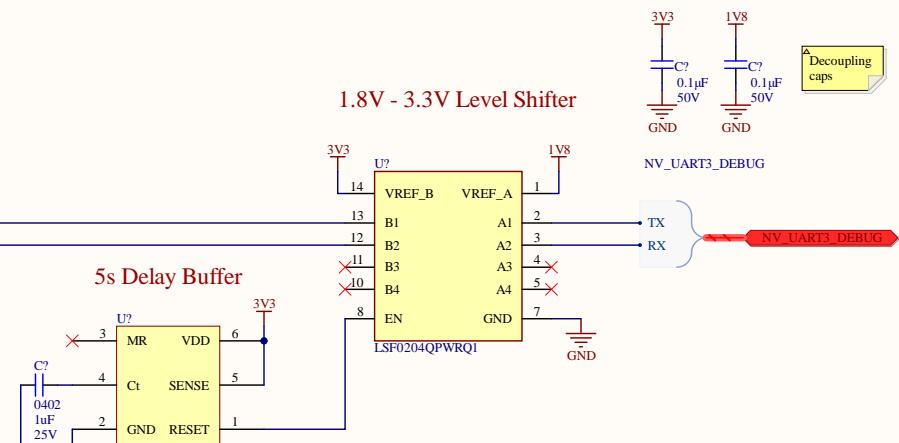


The power descriptors in the internal EEPROM of the FT232R should be programmed to match the current drawn by the device.



Default CBUS configurations:
CBUS0 - TXLED#
CBUS1 - RXLED#
CBUS2 - TXDEN
CBUS3 - PWREN#
CBUS4 - SLEEP#

1.8V - 3.3V Level Shifter



For a 5s delay:
 $C_t = (5 - 0.5E-3) * 175n = 875nF$
Can use 1000nF ie 1uF for a 5.7 s delay which is close enough

Title			Altium Limited
Size: B	Number:	Revision:	L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086
Date: 2021-07-13	Time: 9:03:22 PM	Sheet of	
File: C:\UWRT\MarsRover2021-hardware\Projects\Jetson AGX Xavier Carrier Board\Rev1\Debug UART.SchDoc			



Board Stack Report