

# P3768-A04

## Jetson Orin NX Carrier Board

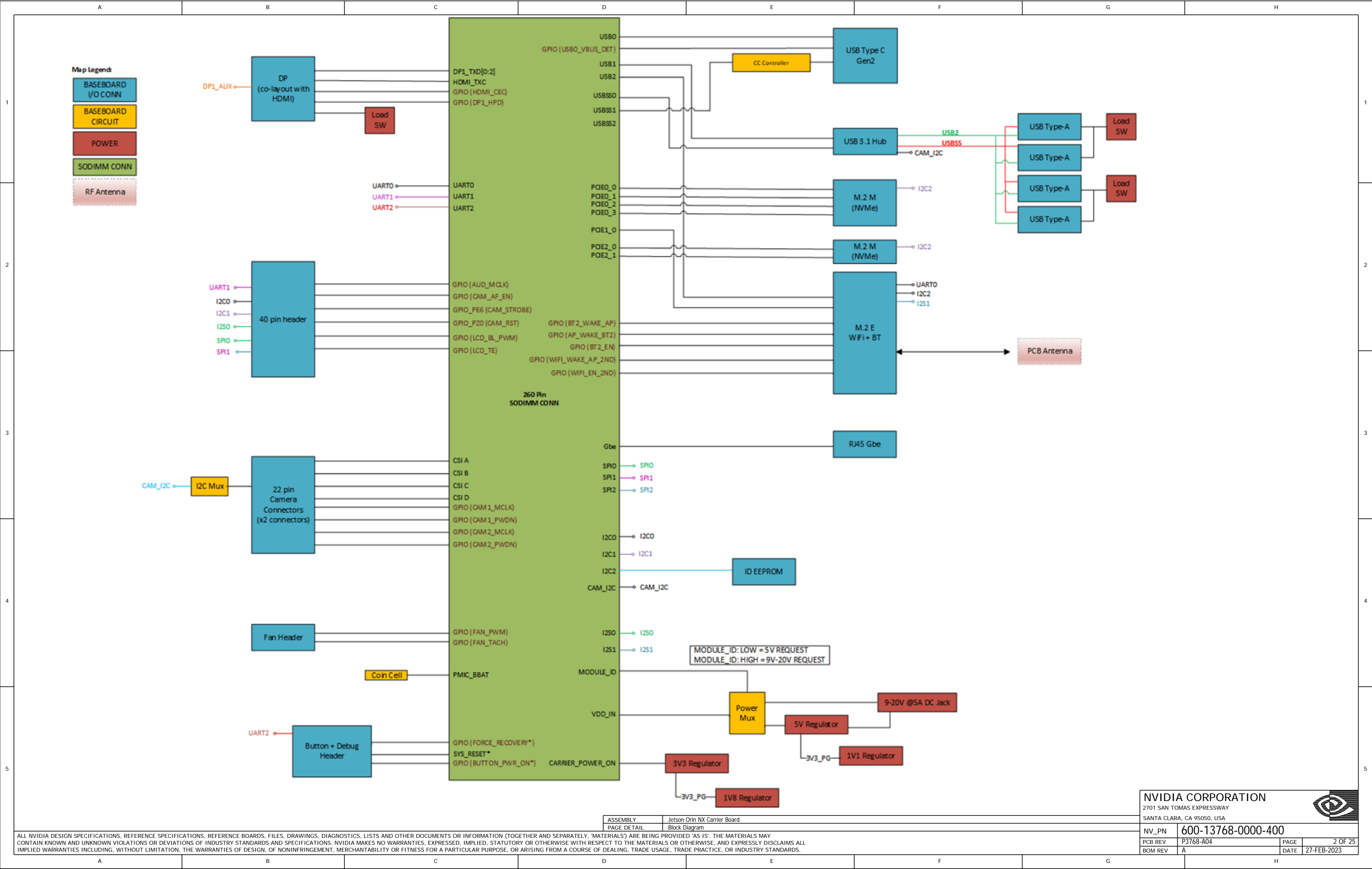
### TABLE OF CONTENTS

Page	Description
1	Table of Contents
2	Block Diagram
3	Power Tree
4	SODIMM Connector 1/3
5	SODIMM Connector 2/3
6	SODIMM Connector 3/3
7	DC JACK
8	CVM POWER MUX
9	PRE-REG 5V
10	PRE-REG 3V3
11	1V8 LDO & 3V3 AO Rails
12	BUTTON MCU
13	USB Type C
14	USB3.1 HUB
15	USB3.1 Type-A x2 [A]
16	USB3.1 Type-A x2 [B]
17	DISPLAYPORT/HDMI
18	CAMERA
19	ETHERNET
20	M.2 KEY-E (WIFI/BT)
21	M.2 KEY-M (NVMe) [A]
22	M.2 KEY-M (NVMe) [B]
23	40PIN GPIO Expansion HDR
24	FAN, DEBUG and EEPROM
25	MECHANICAL

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<small>NV_PN</small>	<b>600-13768-0000-400</b>	<small>PAGE</small>	<b>1 OF 25</b>
<small>PCB REV</small>	<b>P3768-A04</b>	<small>DATE</small>	<b>27-FEB-2023</b>
<small>BOM REV</small>	<b>A</b>		

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Map Legend

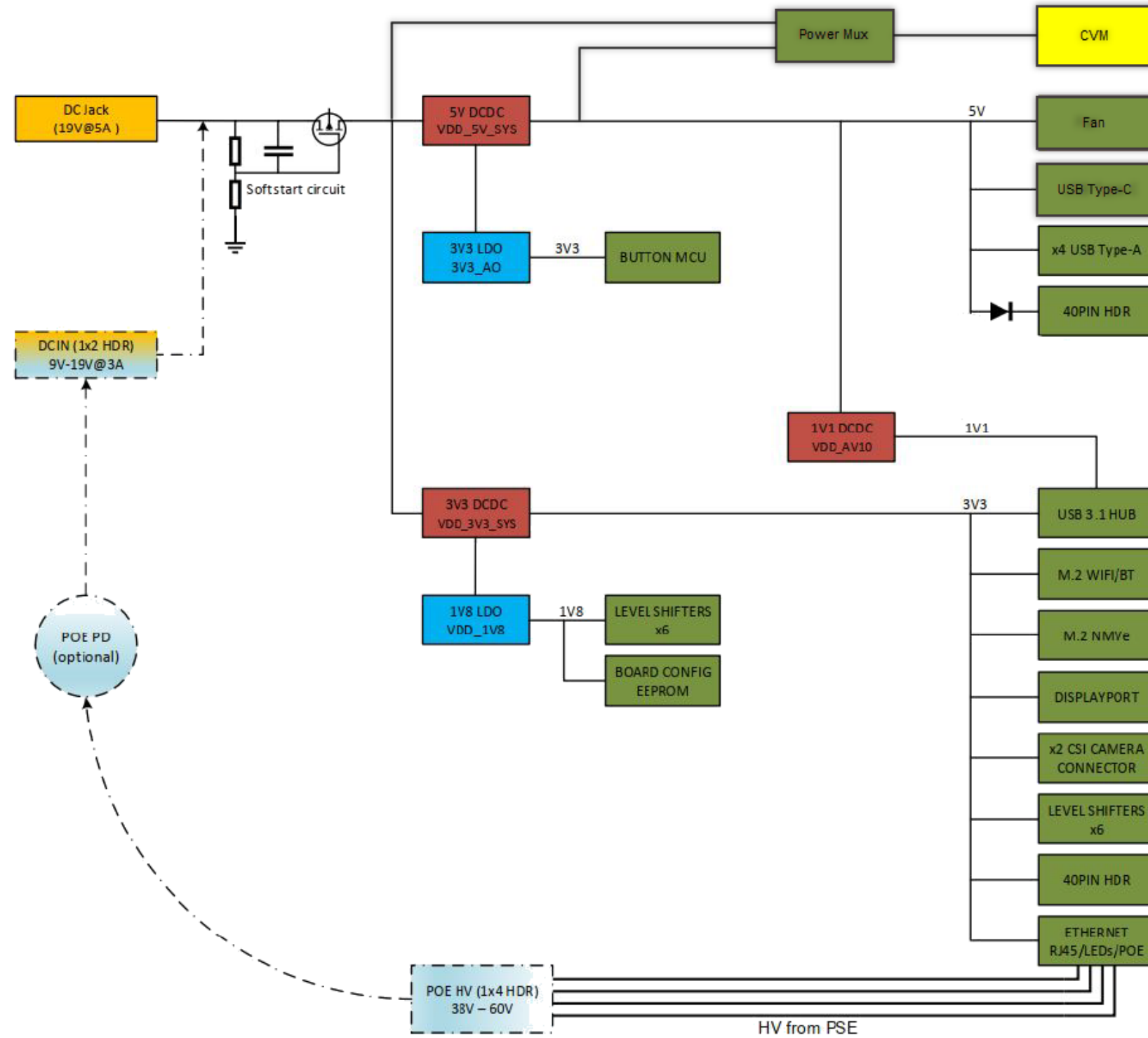
- BASEBOARD I/O CONN
- BASEBOARD CIRCUIT
- POWER
- SODIMM CONN
- RF Antenna

ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	Block Diagram

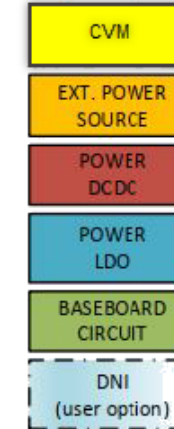
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NV_PN	600-13768-0000-400	PAGE	2 Of 25
PCB REV	P3768-A04	DATE	27-FEB-2023
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# Power Topology



## Map Legend:



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PAGE 3 OF 25

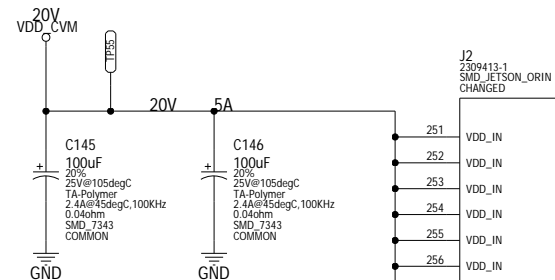
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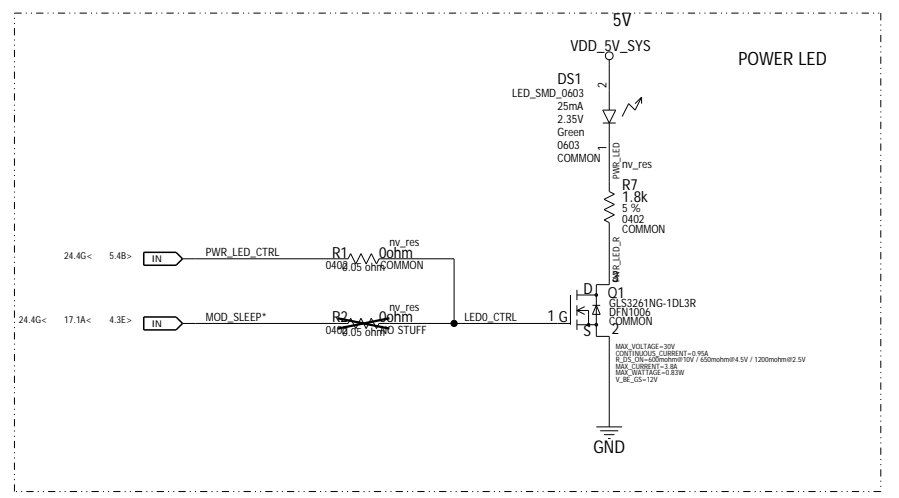
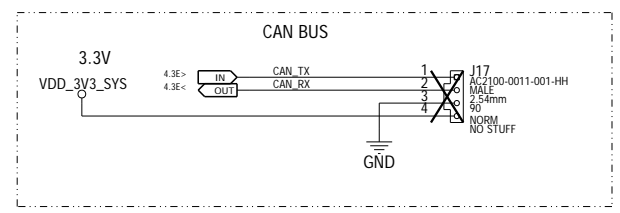
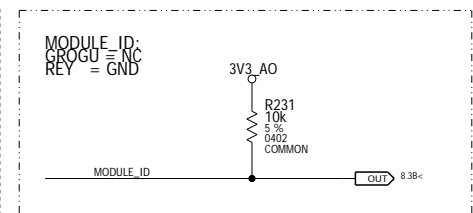
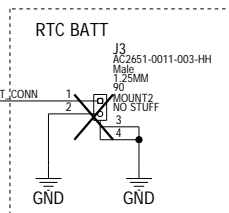
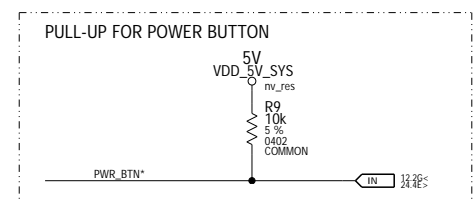
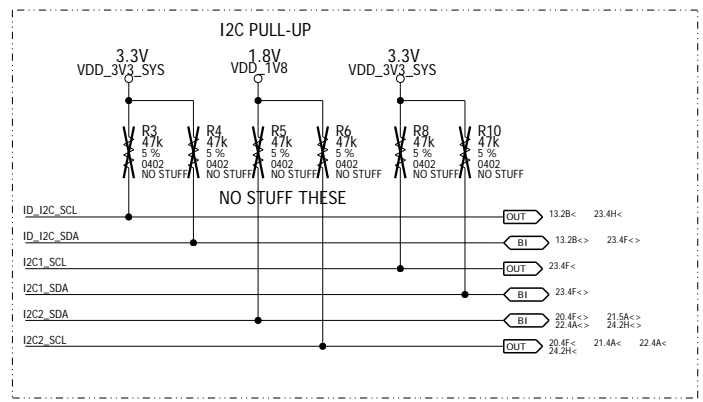
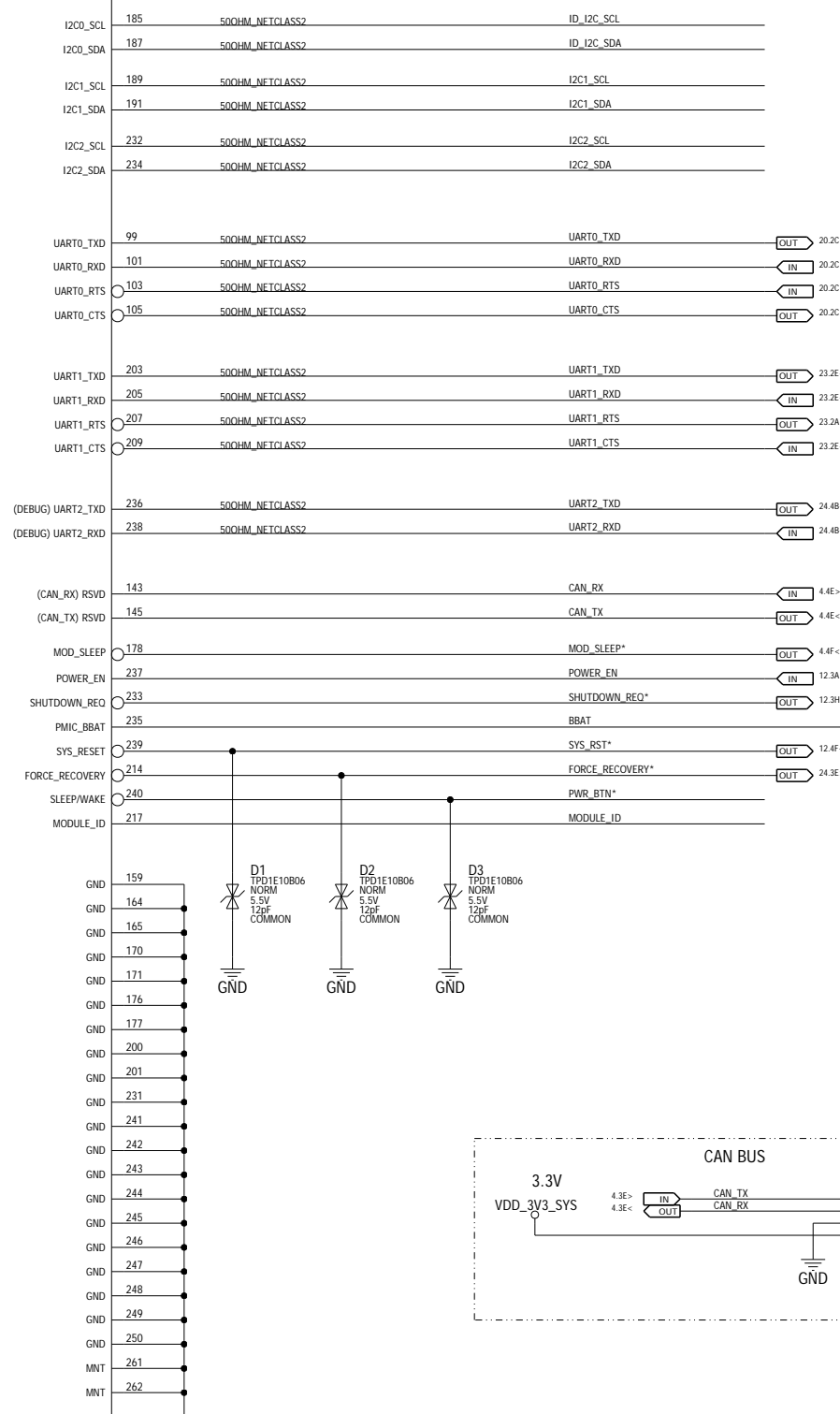
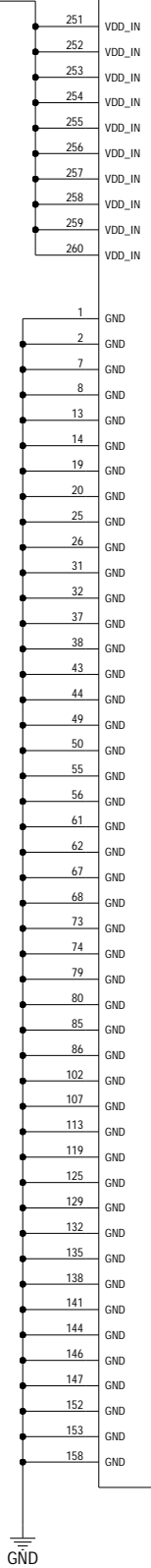
ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	Power Tree

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# UART, I2C, CAN and GPIOs



SODIMM CVB CON  
SECTION 1 OF 3

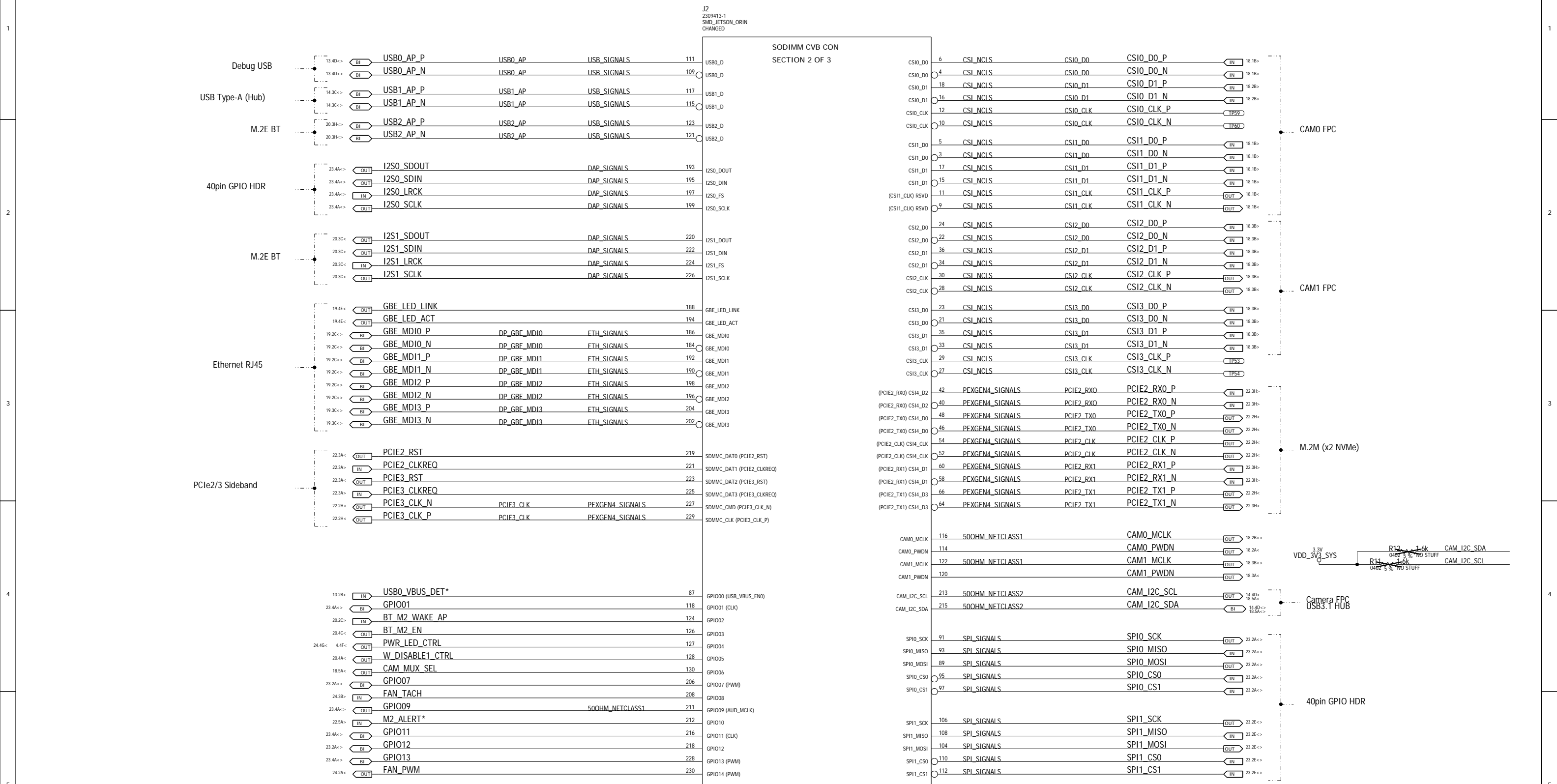


ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	SODIMM Connector 1/3

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# GPIOs, USB2.0, I2S, SPI, GBe and CSI



J2  
2309413-1  
SMD\_JETSON\_ORIN  
CHANGED

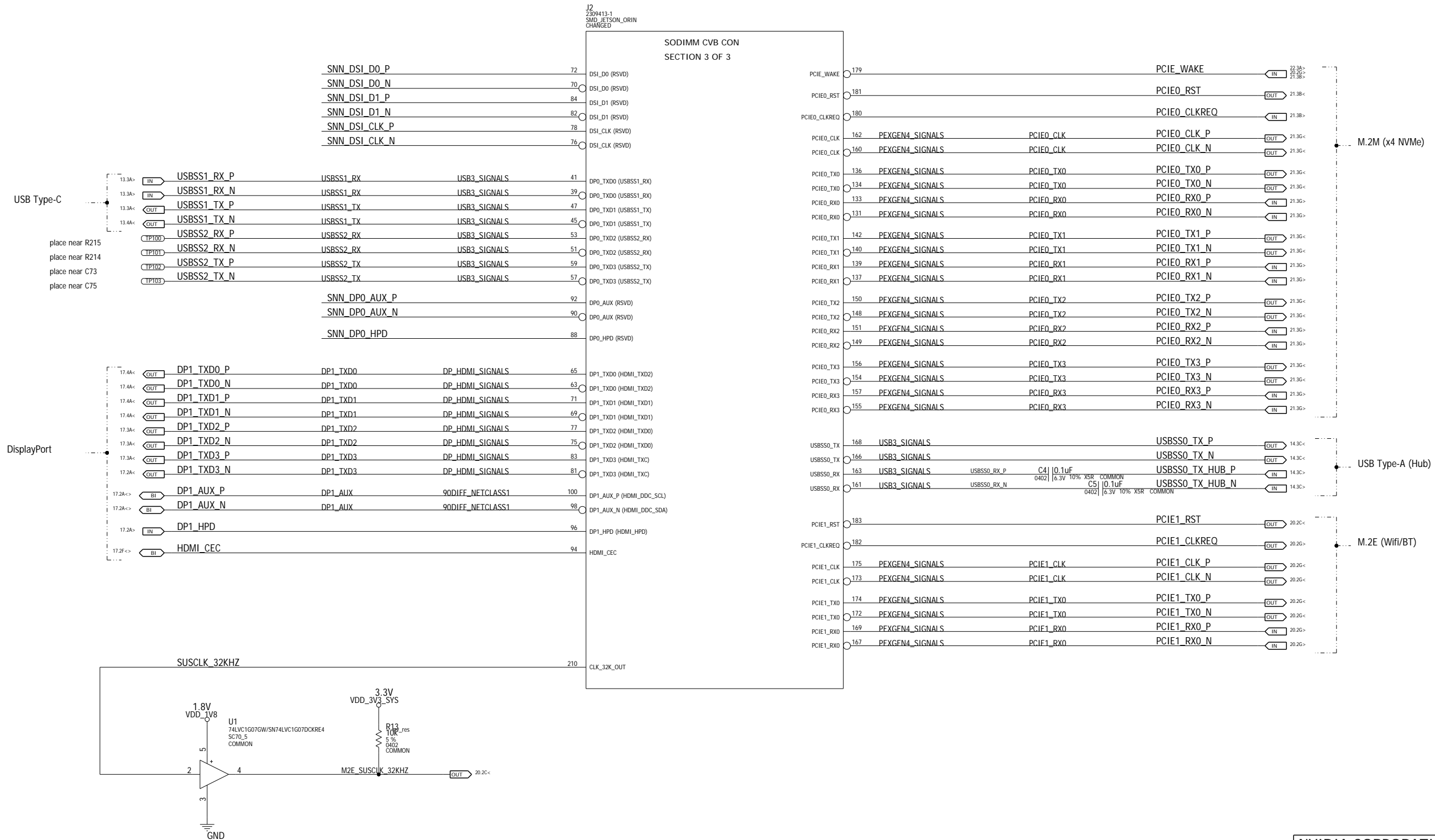
SODIMM CVB CON  
SECTION 2 OF 3

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PCB REV	P3768-A04	DATE	27-FEB-2023
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ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	SODIMM Connector 2/3

# DP, USBSS and PEX



ASSEMBLY Jetson Orin NX Carrier Board  
PAGE DETAIL SODIMM Connector 3/3

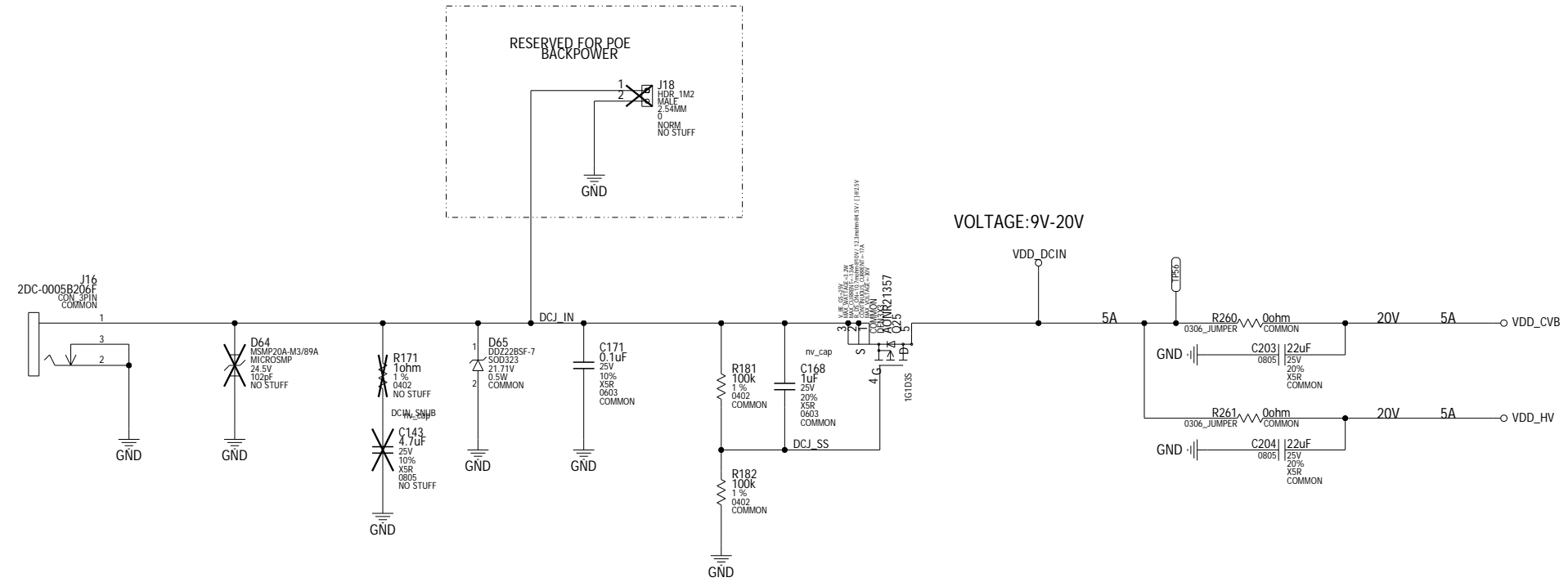
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PAGE 6 OF 25  
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# DC JACK POWER PATH

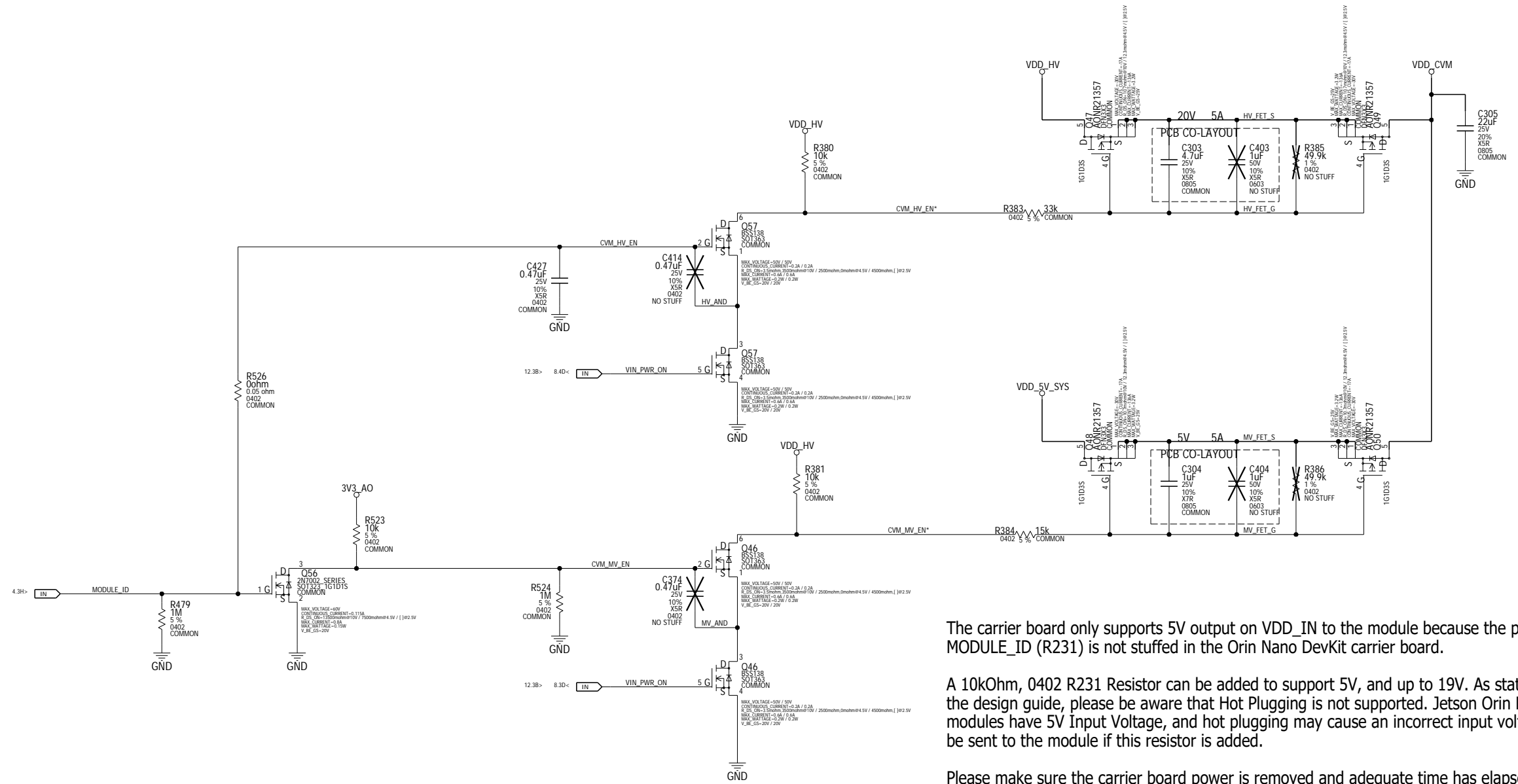


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PCB REV	P3768-A04	DATE	27-FEB-2023
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ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	DC JACK

# CVM MV/HV POWER MUX



The carrier board only supports 5V output on VDD\_IN to the module because the pull-up on MODULE\_ID (R231) is not stuffed in the Orin Nano DevKit carrier board.

A 10kOhm, 0402 R231 Resistor can be added to support 5V, and up to 19V. As stated in the design guide, please be aware that Hot Plugging is not supported. Jetson Orin Nano modules have 5V Input Voltage, and hot plugging may cause an incorrect input voltage to be sent to the module if this resistor is added.

Please make sure the carrier board power is removed and adequate time has elapsed for the various power rails to fully discharge before when plugging in the Jetson Orin Nano module. R231 (to pull MODULE\_ID high) is located on the SODIMM Connector 1/3 (page 4).

VIN_PWR_ON	MODULE_ID	VDD_CVM
0	0	OFF
0	1	OFF
1	0	5V
1	1	HV

ASSEMBLY Jetson Orin NX Carrier Board  
PAGE DETAIL CVM POWER MUX

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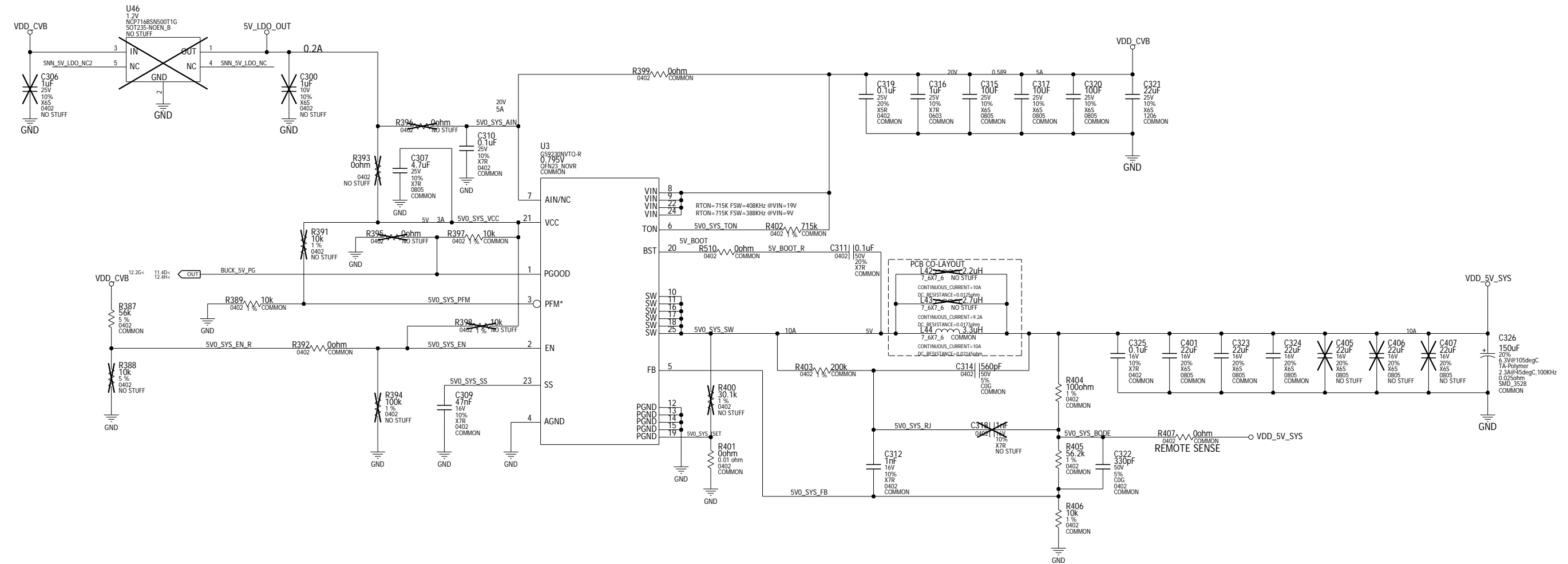
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PCB REV	P3768-A04
BOM REV	A

PAGE 8 OF 25  
DATE 27-FEB-2023

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# PRE-REG 5V DCDC

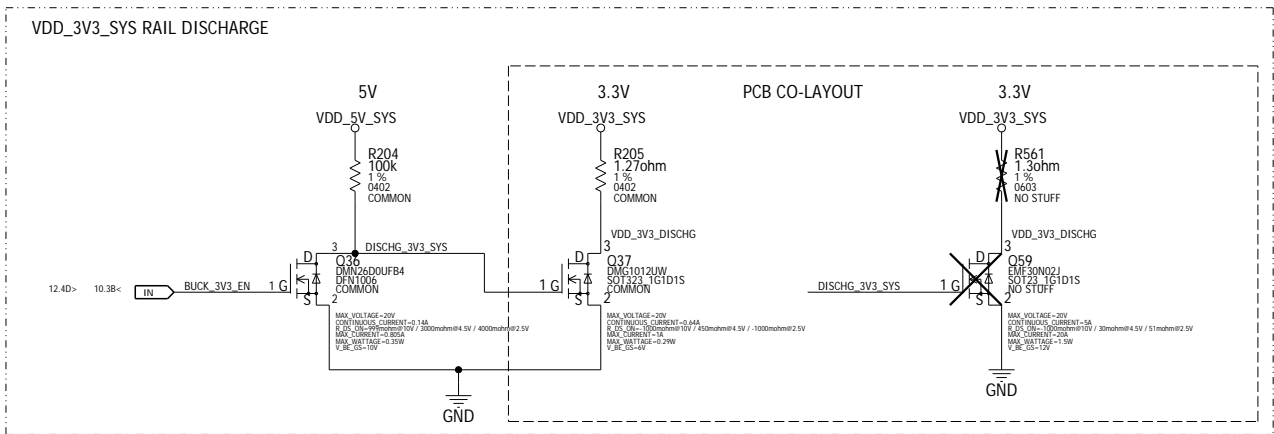
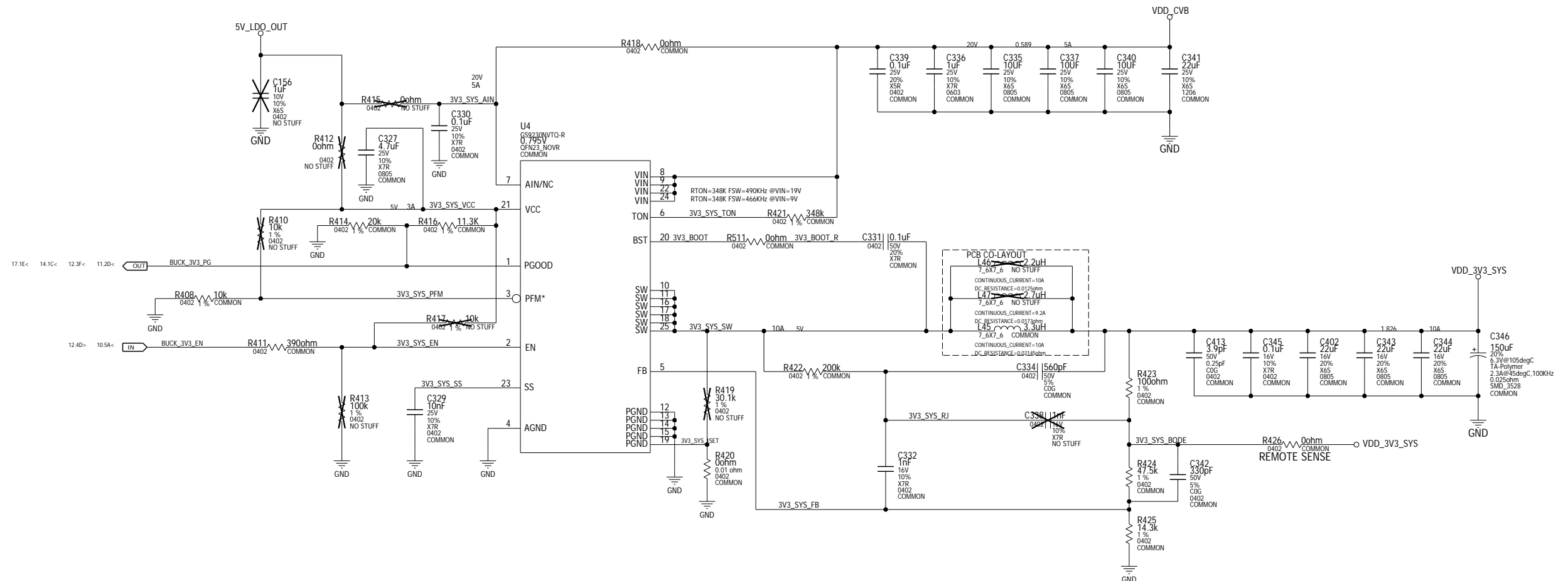


ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	PRE-REG 5V

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NV_PN	600-13768-0000-400	PAGE	9 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		

# PRE-REG 3V3 DCDC



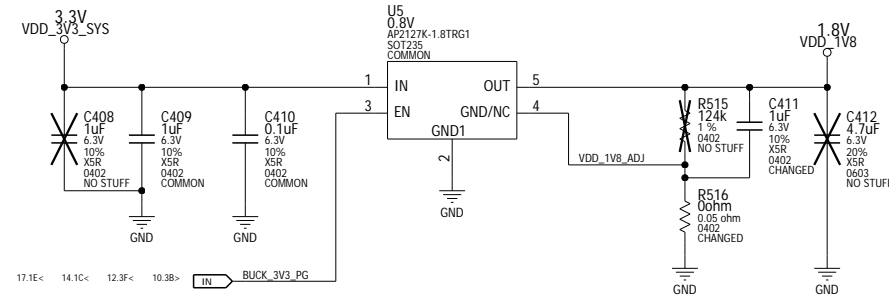
ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	PRE-REG 3V3

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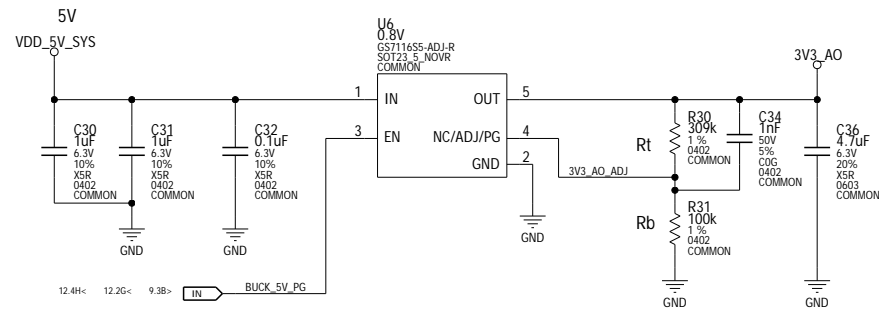
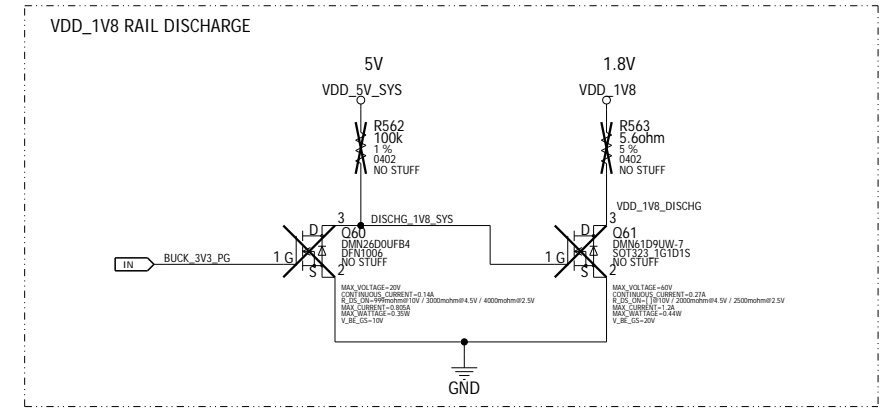
NV_PN	600-13768-0000-400	PAGE	10 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		

# 1V8 LDO AND 3V3 AO RAILS



$$V_{OUT} = V_{REF}(0.8V) * (1 + (R_T/R_B)) + I_{adj}(1nA) * R_t$$

$R_T = 124k$   
 $R_B = 100k$   
 $V_{OUT} = 1.792V$



$$V_{OUT} = V_{REF}(0.8V) * (1 + (R_T/R_B)) + I_{adj}(1nA) * R_t$$

$R_T = 309k$   
 $R_B = 100k$   
 $V_{OUT} = 3.272V$

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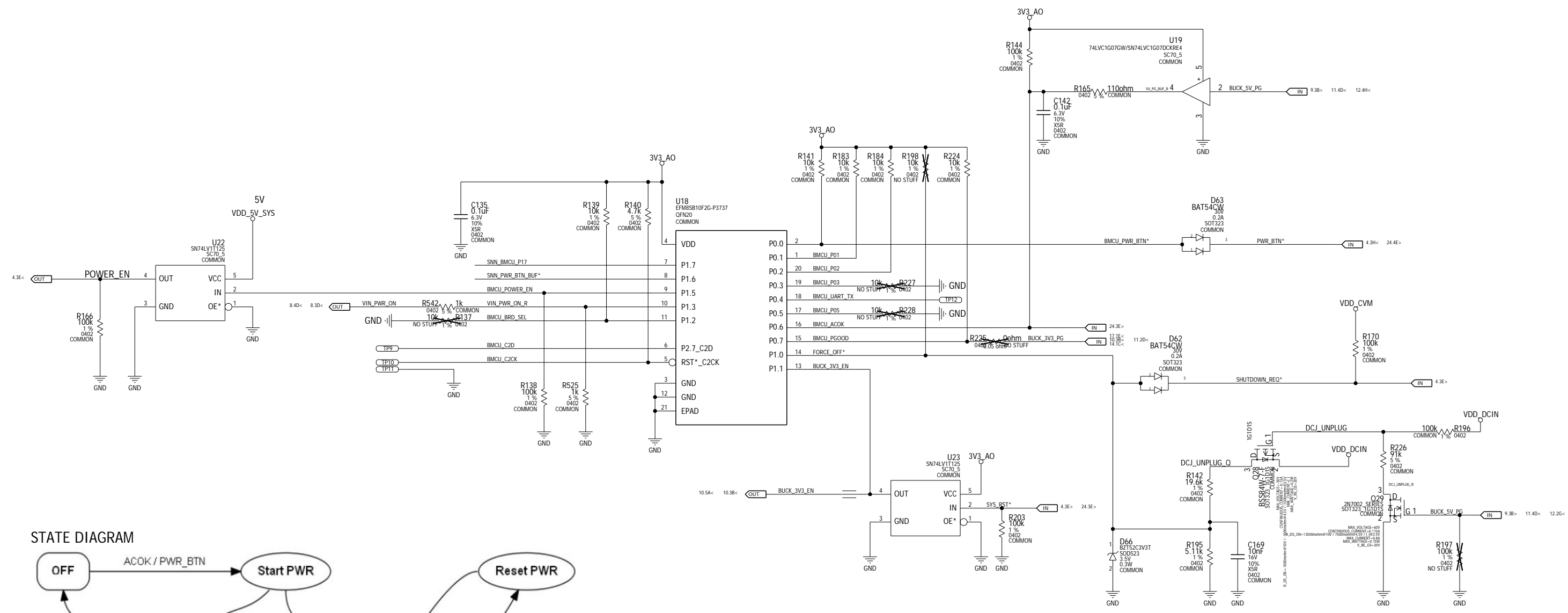
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PCB REV	P3768-A04	PAGE	11 OF 25
BOM REV	A	DATE	27-FEB-2023

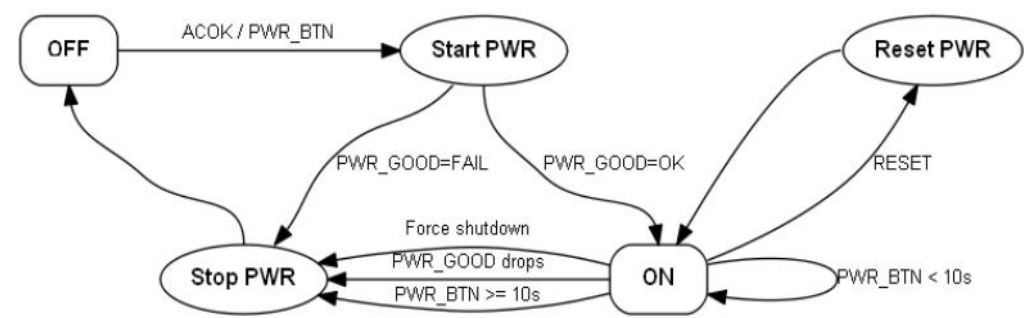
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ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	1V8 LDO & 3V3 AO Rails

# BUTTON MCU FOR POWER UP



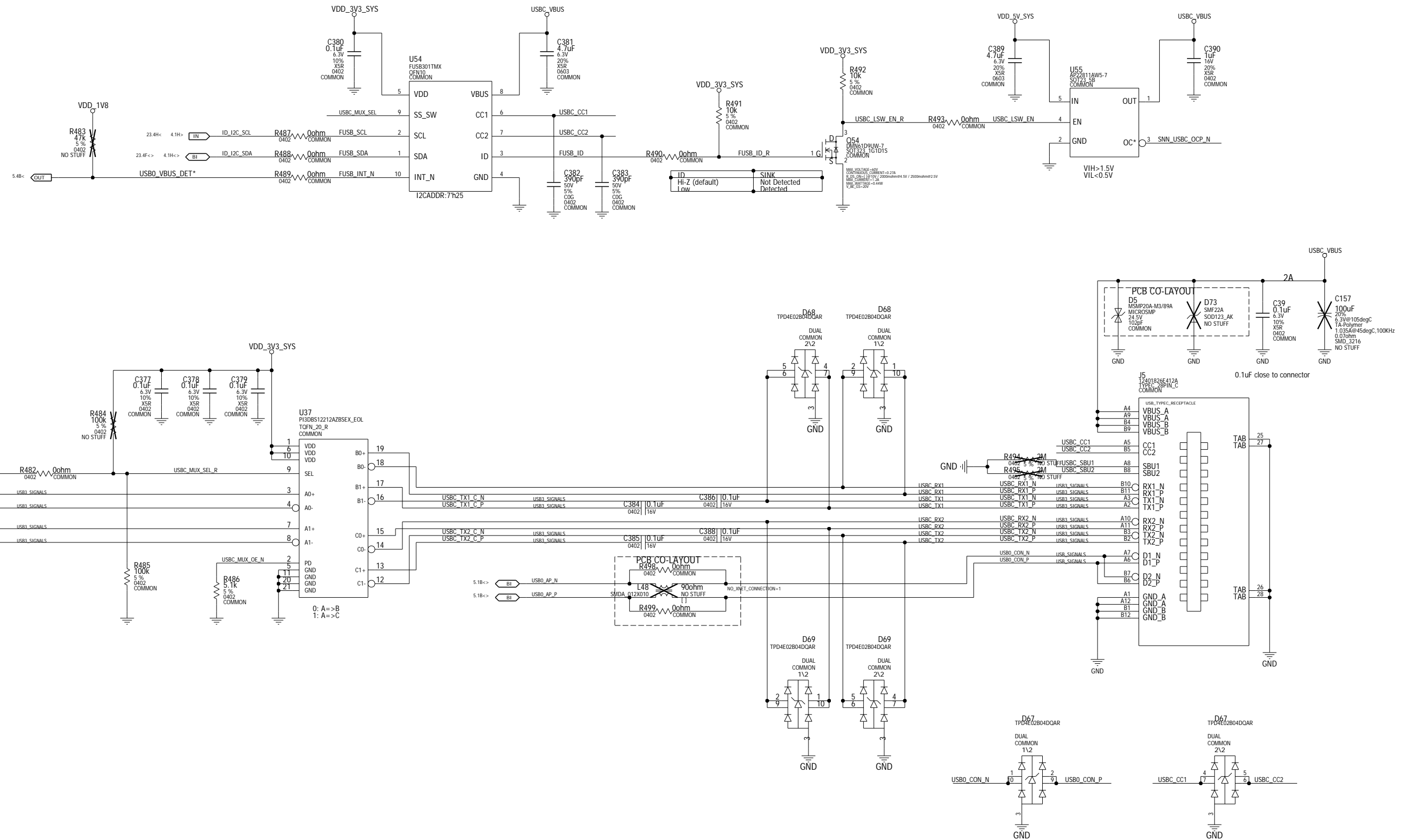
STATE DIAGRAM



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ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	BUTTON MCU

# USB-C (Recovery Port)



ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	USB Type C

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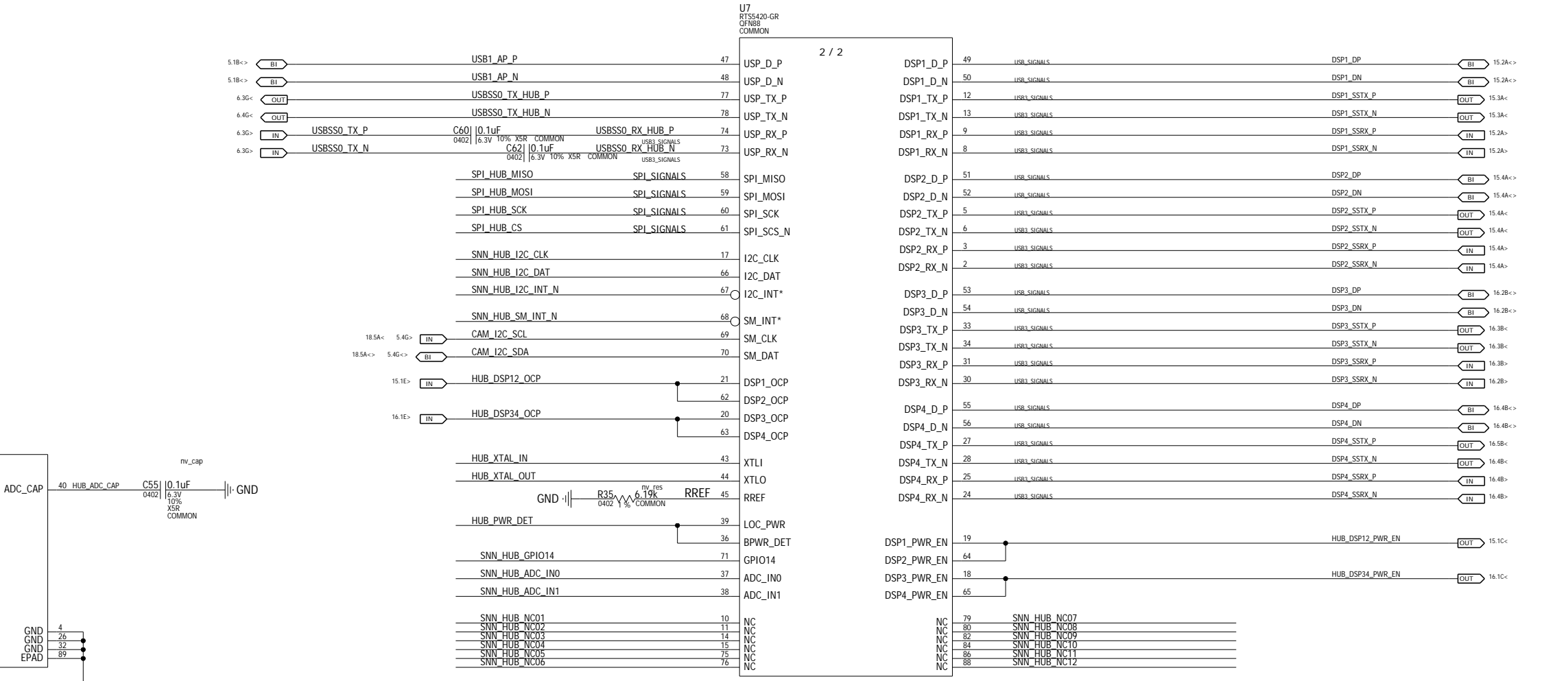
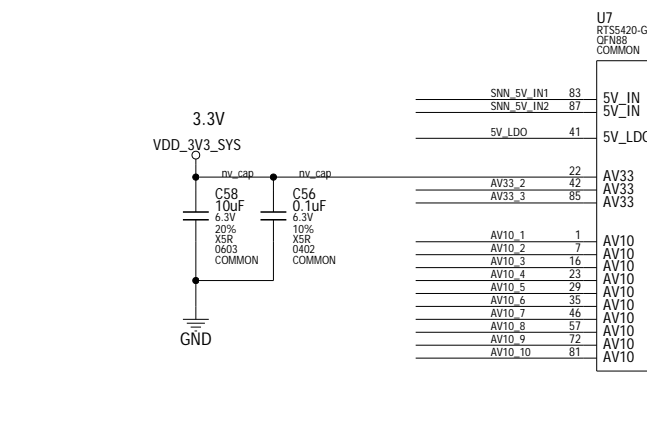
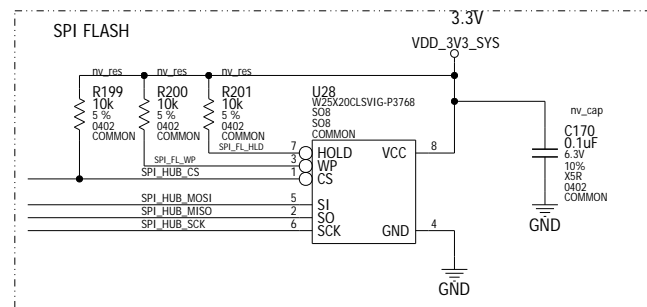
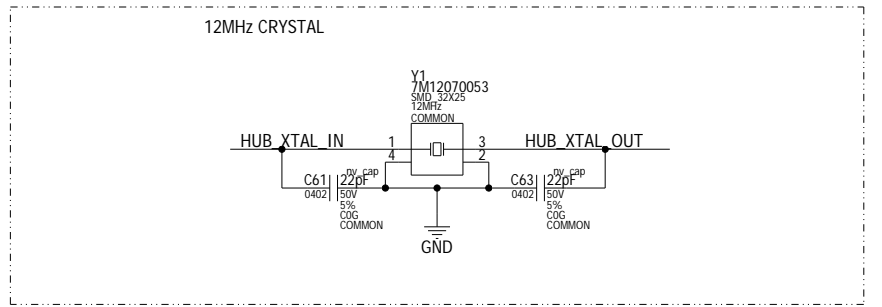
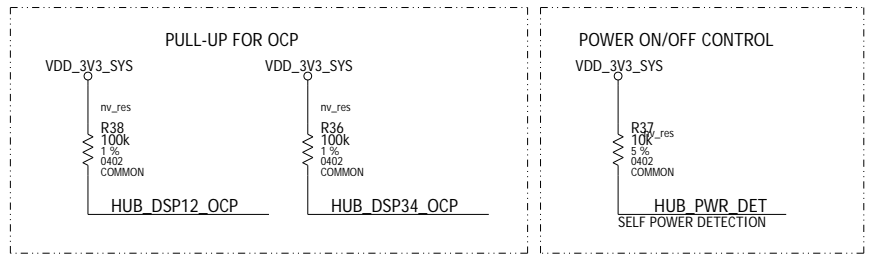
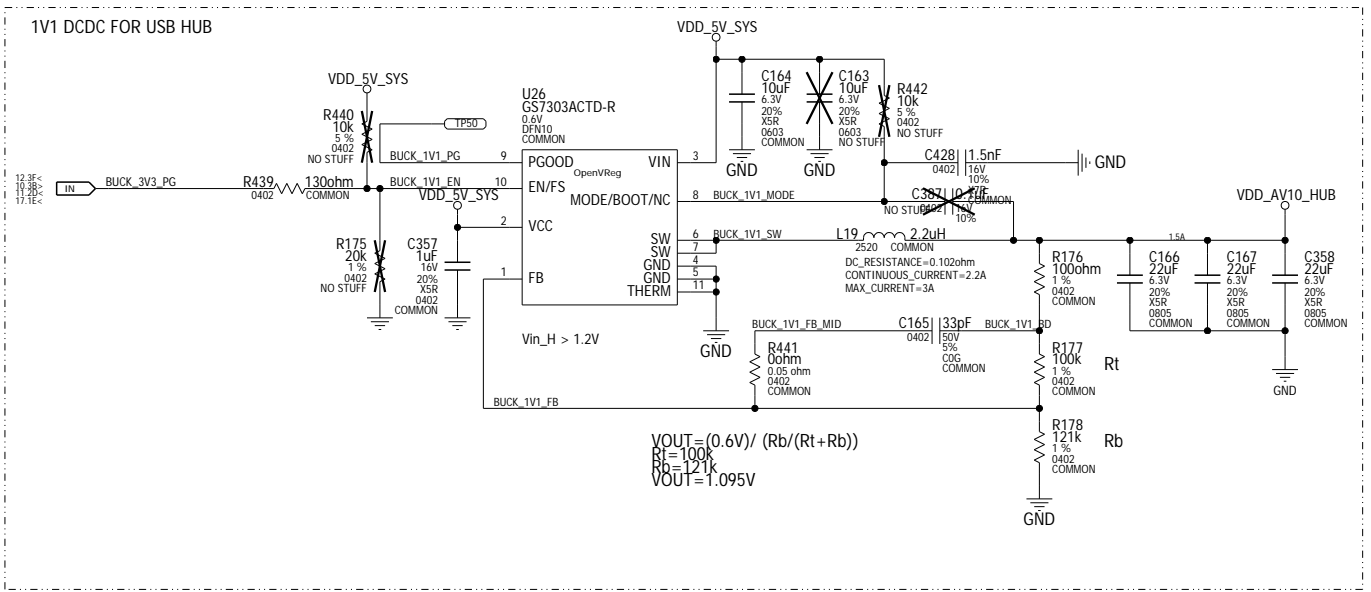
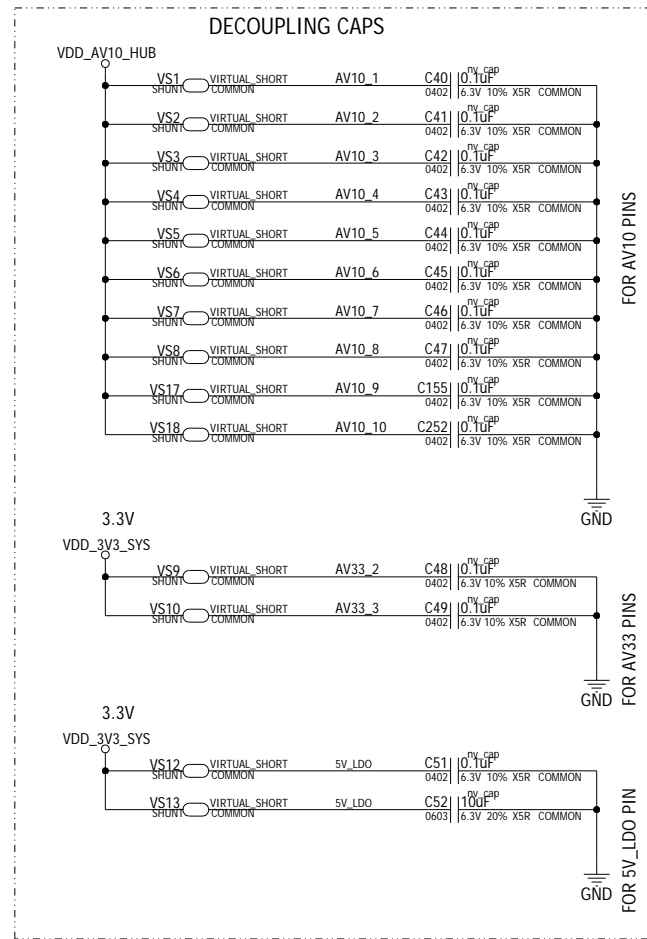
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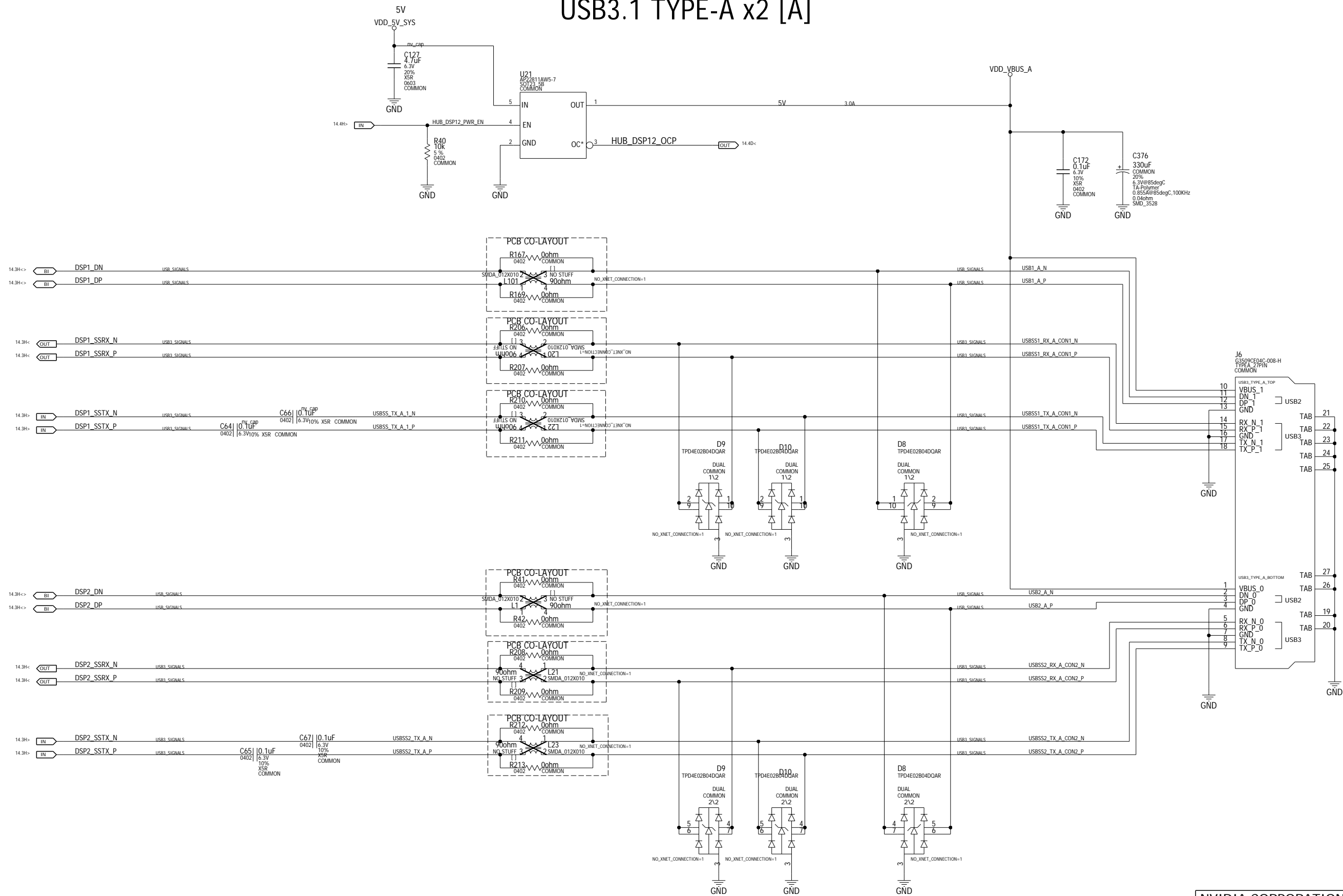
PCB REV	P3768-A04	PAGE	13 OF 25
BOM REV	A	DATE	27-FEB-2023

# USB3.2 GEN2 HUB x4 PORTS



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# USB3.1 TYPE-A x2 [A]

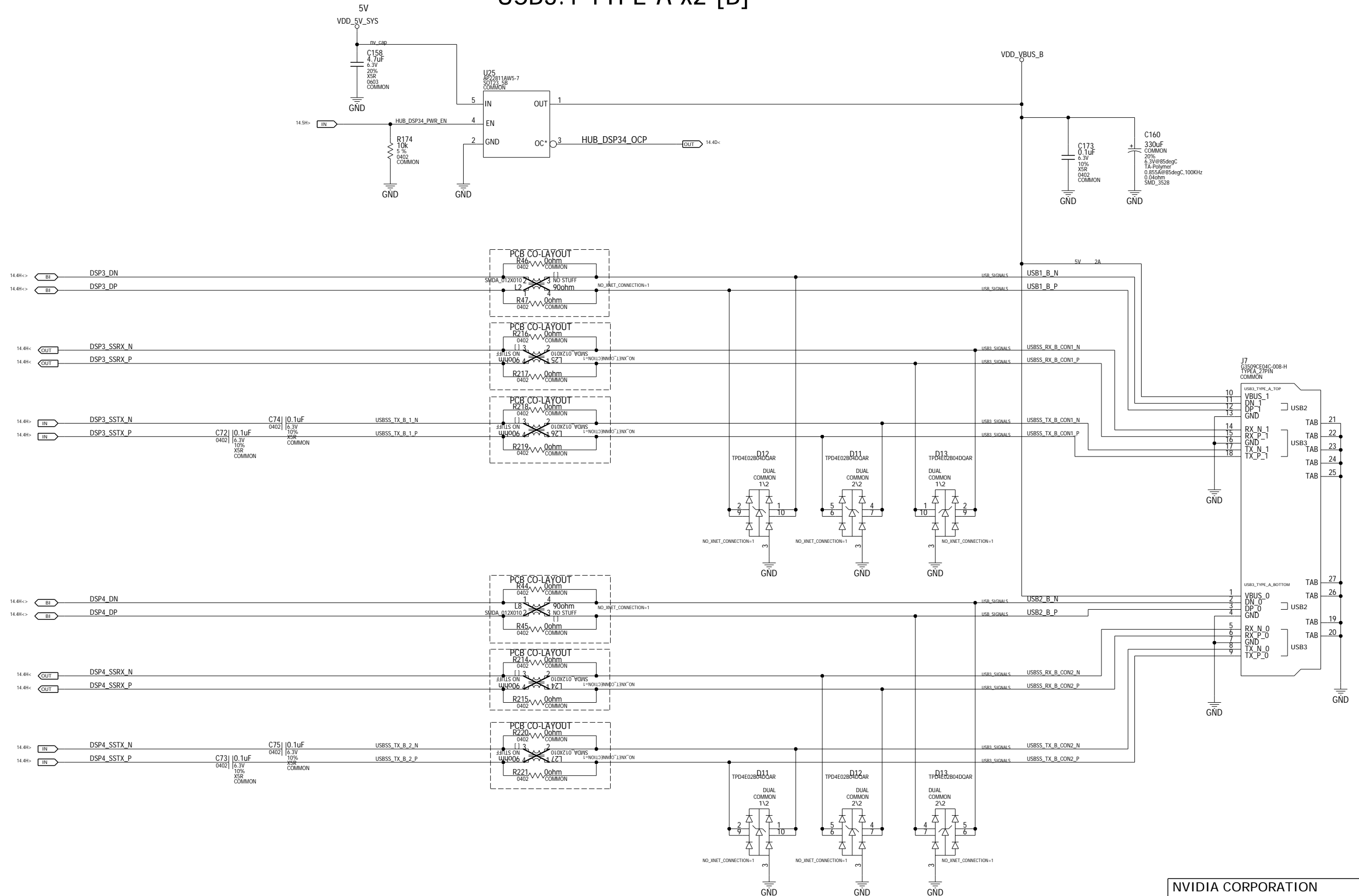


ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	USB3.1 Type-A x2 [A]

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NV_PN	600-13768-0000-400	PAGE	15 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		

# USB3.1 TYPE-A x2 [B]



ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	USB3.1 Type-A x2 [B]

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NV_PN	600-13768-0000-400
PCB REV	P3768-A04
BOM REV	A

PAGE	16 Of 25
DATE	27-FEB-2023

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# DisplayPort/HDMI Connector

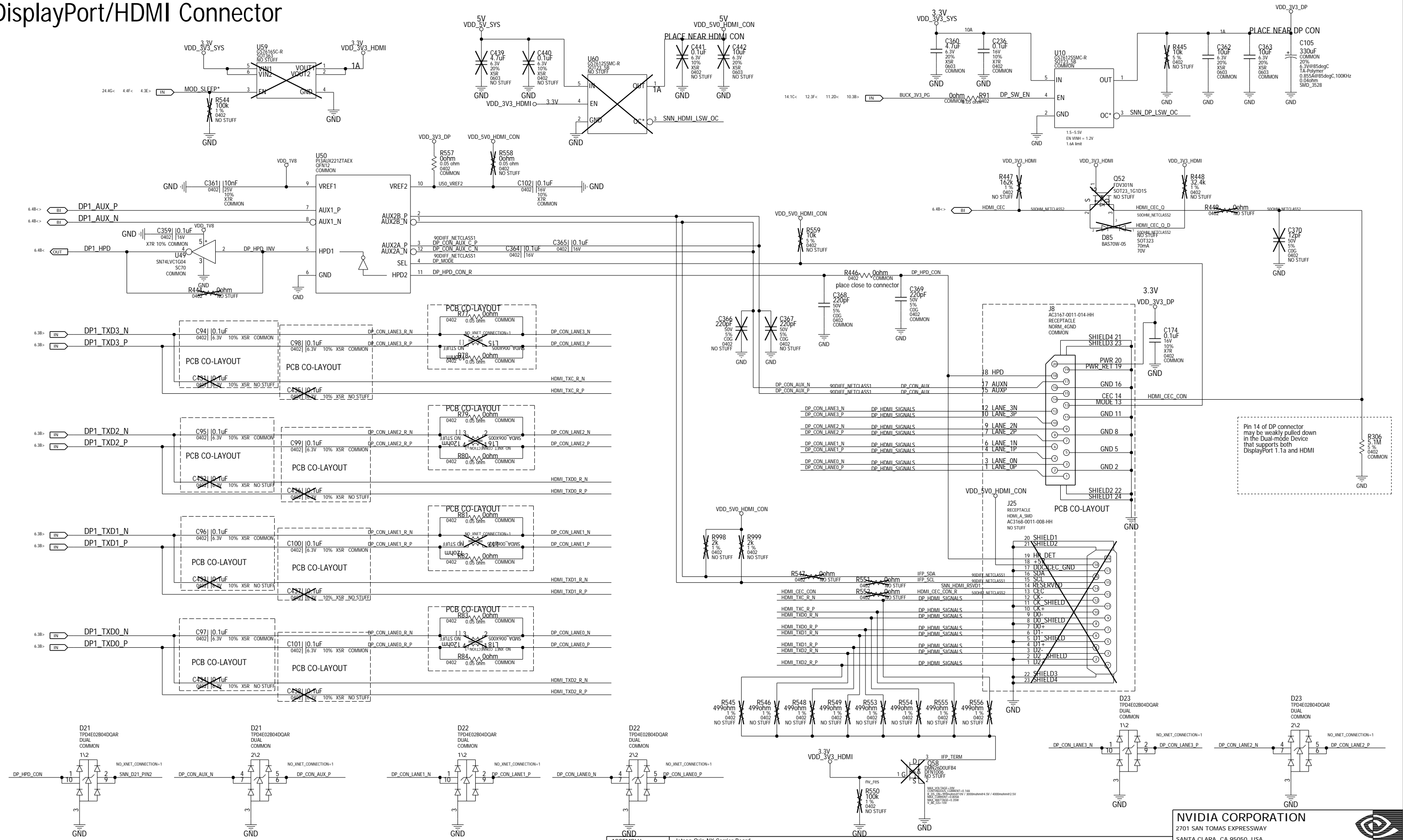
1

2

3

4

5



Pin 14 of DP connector may be weakly pulled down in the Dual-mode Device that supports both DisplayPort 1.1a and HDMI

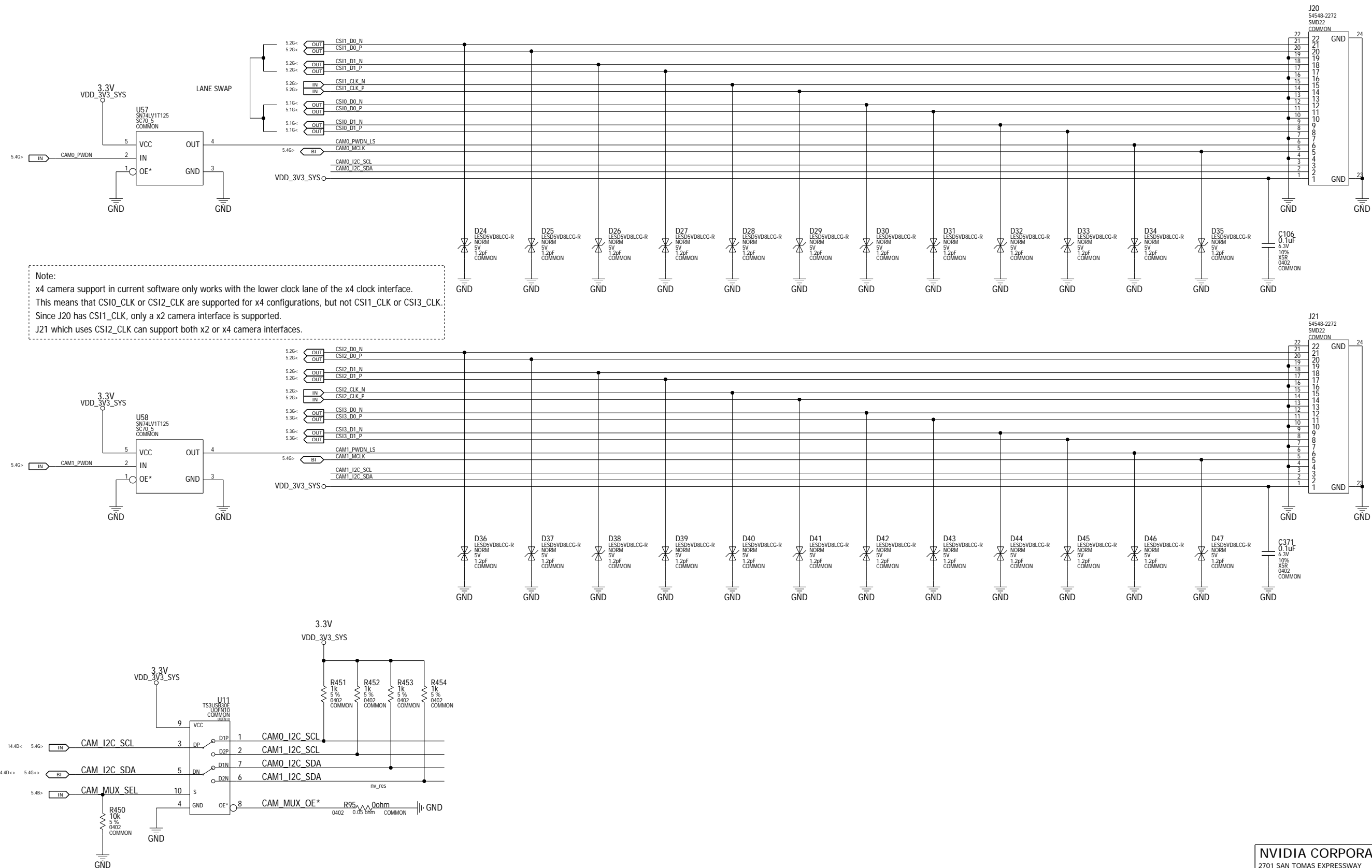
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NV_PN	600-13768-0000-400	PAGE	17 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		

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ASSEMBLY: Jetson Orin NX Carrier Board  
 PAGE DETAIL: DISPLAYPORT/HDMI

# CSI CAM CONNECTORS



**Note:**  
 x4 camera support in current software only works with the lower clock lane of the x4 clock interface. This means that CS10\_CLK or CS12\_CLK are supported for x4 configurations, but not CS11\_CLK or CS13\_CLK. Since J20 has CS11\_CLK, only a x2 camera interface is supported. J21 which uses CS12\_CLK can support both x2 or x4 camera interfaces.

ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	CAMERA

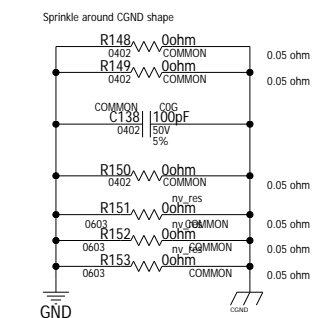
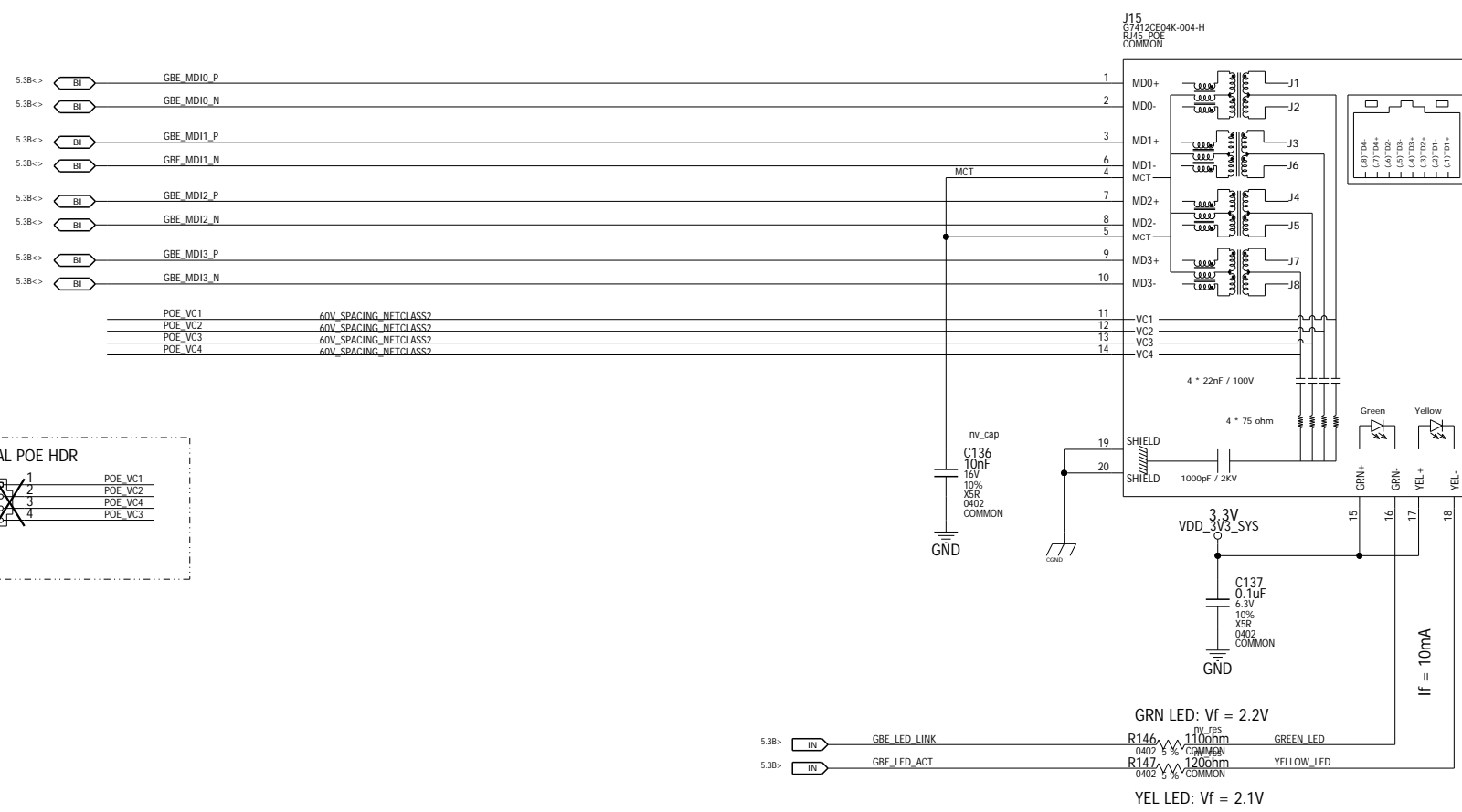
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NV_PN	600-13768-0000-400
PCB REV	P3768-A04
BOM REV	A

PAGE 18 OF 25  
 DATE 27-FEB-2023

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# GIGABIT ETHERNET W/ POE



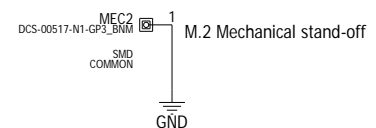
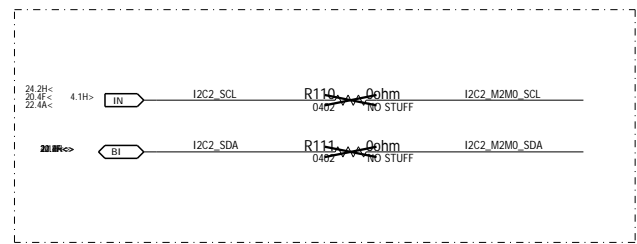
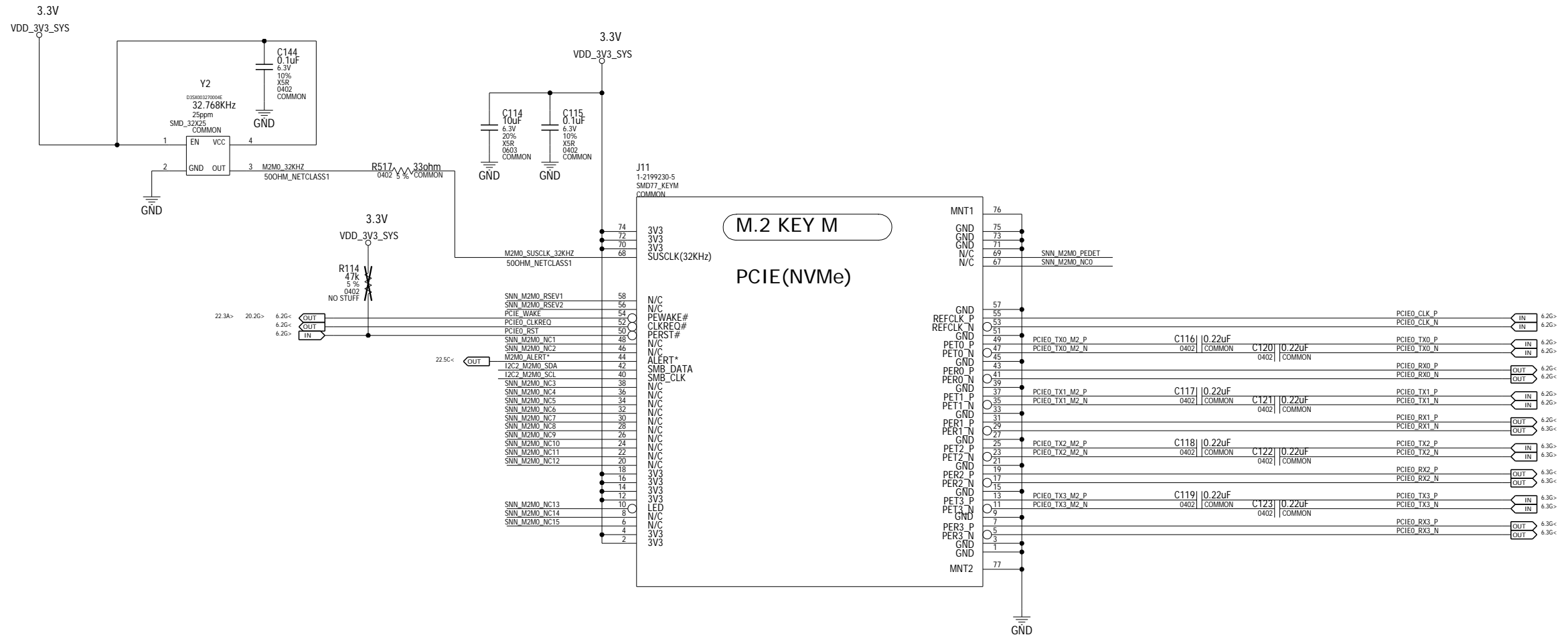
ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	ETHERNET

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NV_PN	600-13768-0000-400	PAGE	19 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		



# M.2 KEY-M (NVMe) [A] (1x X4PCIe)



ASSEMBLY	Jetson Orin NX Carrier Board
PAGE DETAIL	M.2 KEY-M (NVMe) [A]

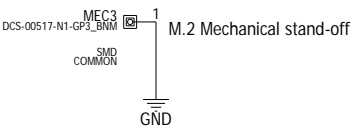
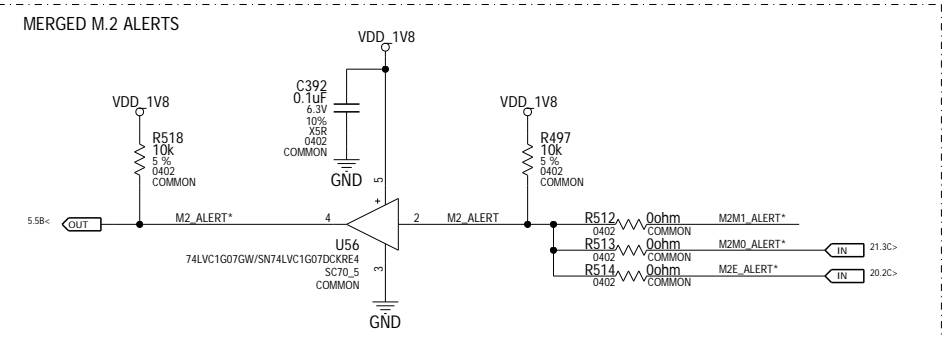
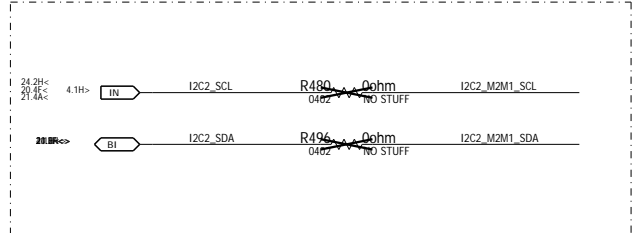
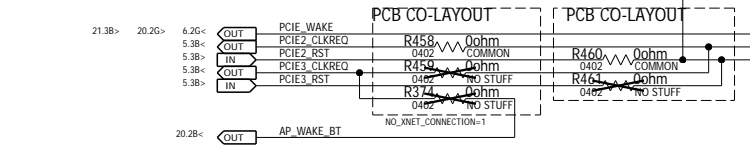
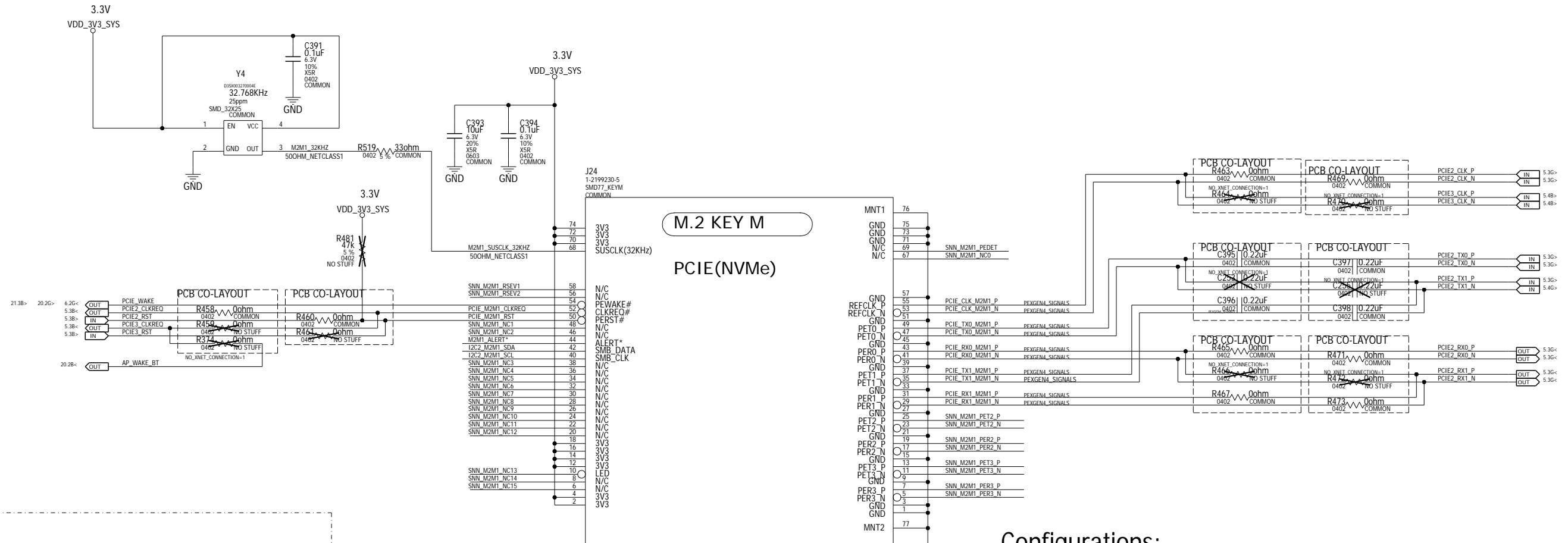
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NV_PN	600-13768-0000-400
PCB REV	P3768-A04
BOM REV	A

PAGE 21 OF 25  
 DATE 27-FEB-2023

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# M.2 KEY-M (NVME) [B] (1x X2PCIe OR 2x X1PCIe)



**Configurations:**  
 x2(C7) : PCIE2\_CLK, PCIE2\_TX[0:1], PCIE2\_RX[0:1] (Default)  
 x1(C7) : PCIE2\_CLK, PCIE2\_TX0, PCIE2\_RX0  
 x1(C9) : PCIE3\_CLK, PCIE2\_TX1, PCIE2\_RX1

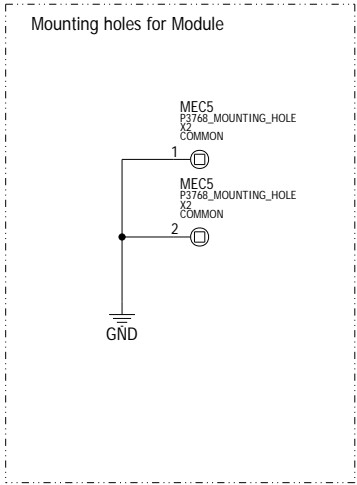
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# MECHANICAL



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PAGE DETAIL	MECHANICAL

NV_PN	600-13768-0000-400	PAGE	25 OF 25
PCB REV	P3768-A04	DATE	27-FEB-2023
BOM REV	A		

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