Experimental USB 3 adapter for GMM-7550 Module

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2	Block diagram
3	USB 3 Type-C Connector and 5 Gbps switch
4	USB 1.1 and USB 2.0 transceivers
5	GMM-7550 Module Power and Control
6	GMM-7550 SA and SB IO banks
7	RP2040 MCU: control, configuration, debug
8	USB 3 Power Delivery controller and Power Path

Revision	Date	Notes
0.9	2025-07-24	Initial schematic release (pre-layout)
0.9.1	2025-08-06	Change U12 and U13 to AP7330 Change jumper block to a DIP-switch Bridge I2C buses (R89/R90)
0.9.2	2025-08-17	Change U14 (RP2040 SPI FLASH)
0.9.3	2025-09-02	Add USB Type-C orientation indicator
0.9.4	2025-09-18	FPGA and RP I/O rearrangement
0.9.5	2025-10-01	USB Power Delivery re-design
1.0	2025-10-01	Release to manufacturing

FID1 FID2

FID3

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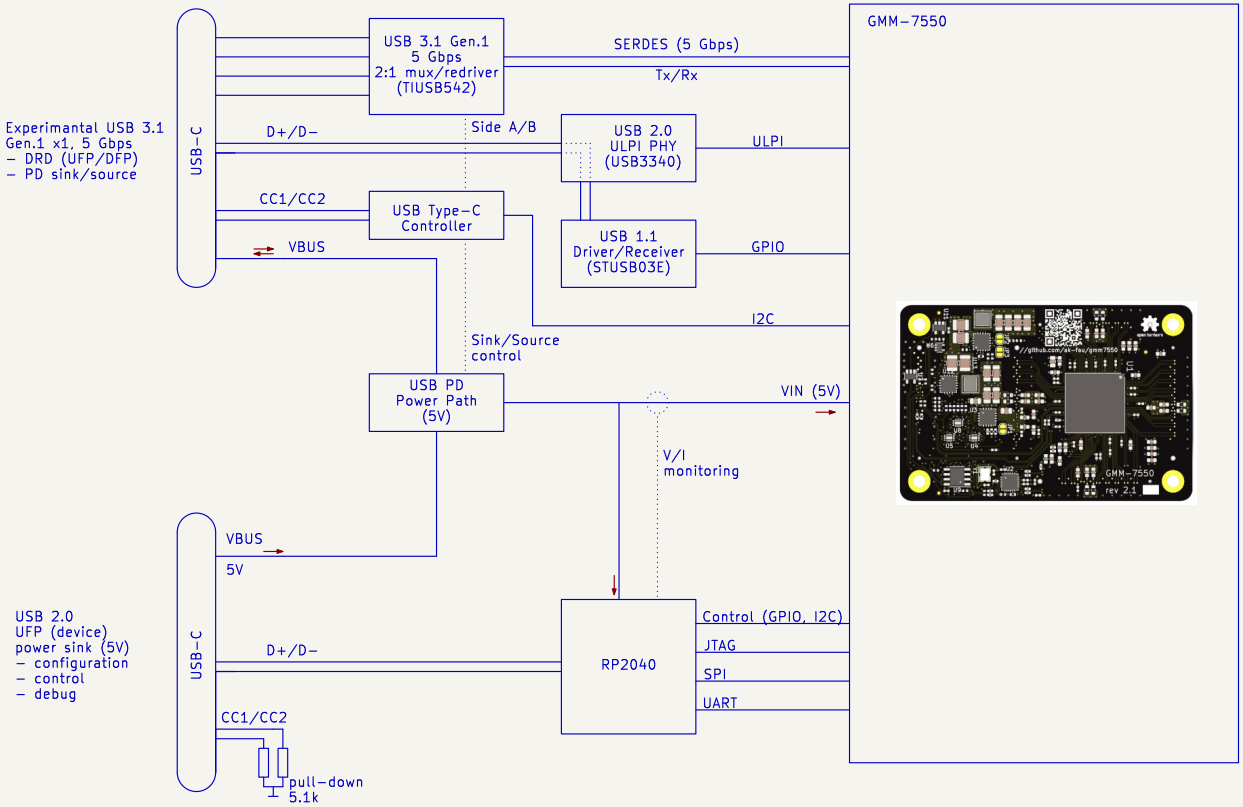
Sheet: /
File: usb3-gmm7550.kicad_sch

Title: GMM-7550 USB3 Adapter

Size: A4	Date: 2025-10-10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 1/8



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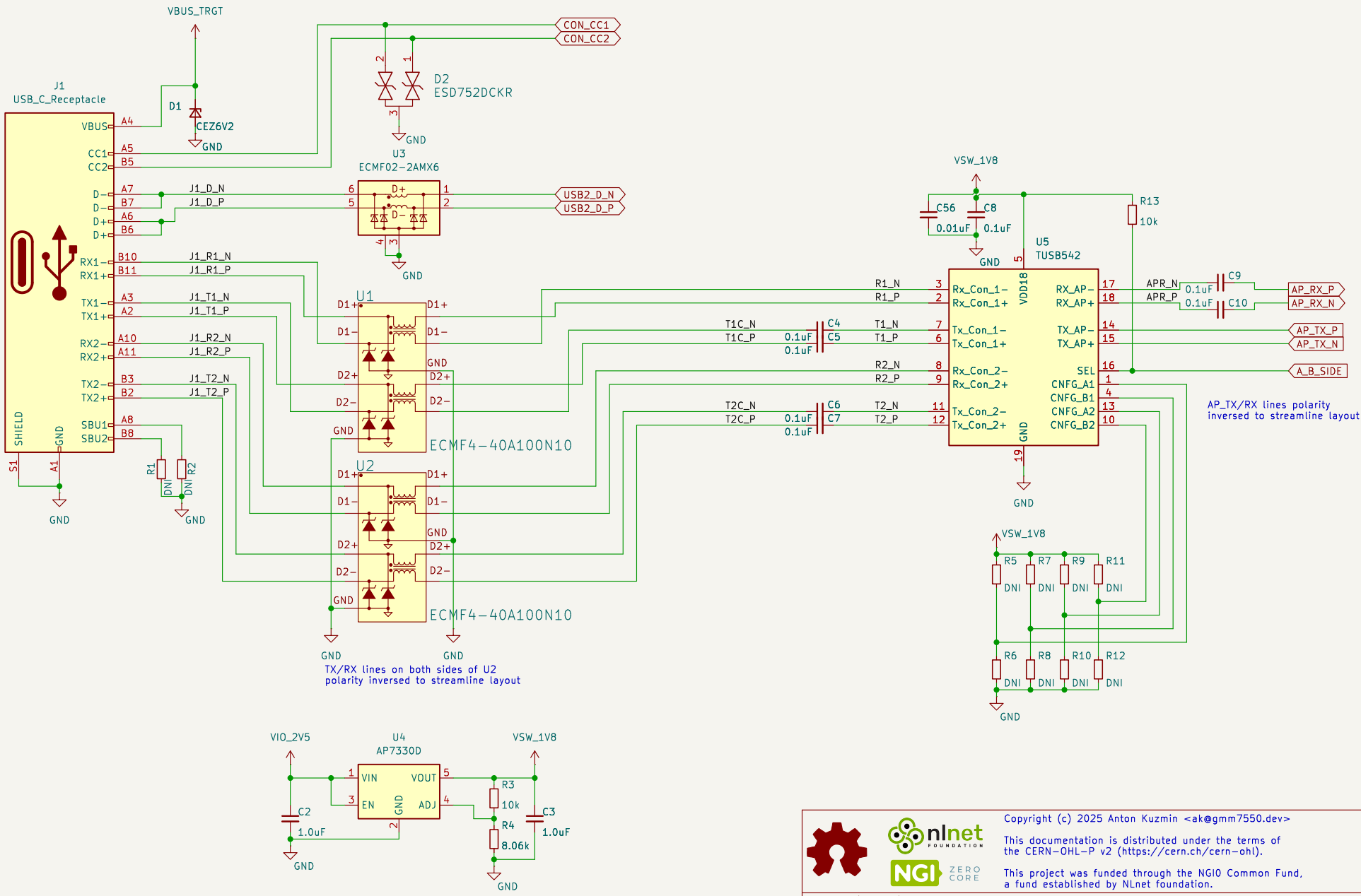
Sheet: /Block diagram/
File: block_diag.kicad_sch

Title: GMM–7550 USB3 Adapter

Size: A4	Date: 2025–10–10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 2/8



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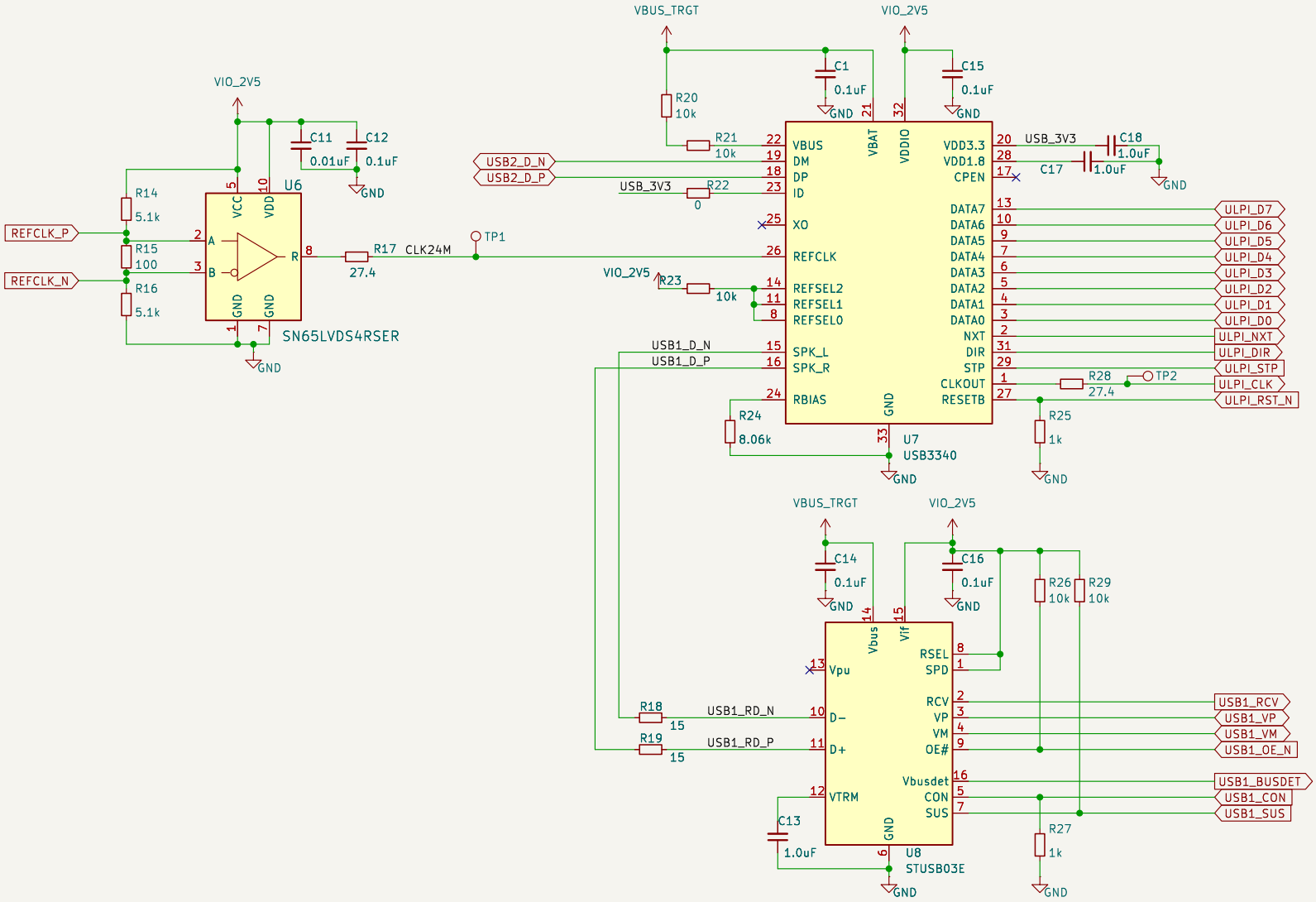
Sheet: /USB3/		
File: usb3.kicad_sch		
Title: GMM−7550 USB3 Adapter		
Size: A4	Date: 2025−10−10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 3/8



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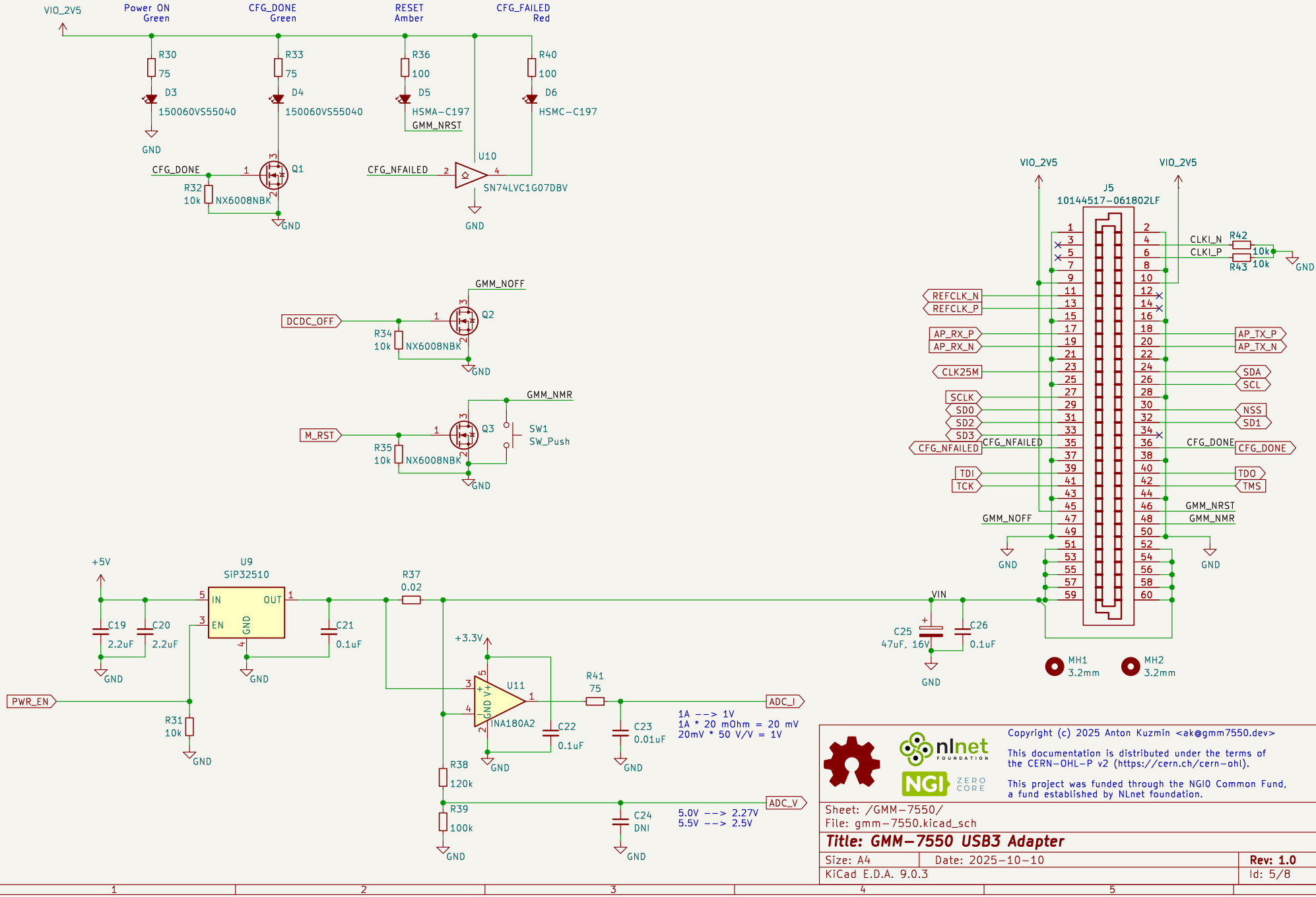
Sheet: /USB1_2/
File: usb1_2.kicad_sch

Title: GMM-7550 USB3 Adapter

Size: A4	Date: 2025-10-10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 4/8



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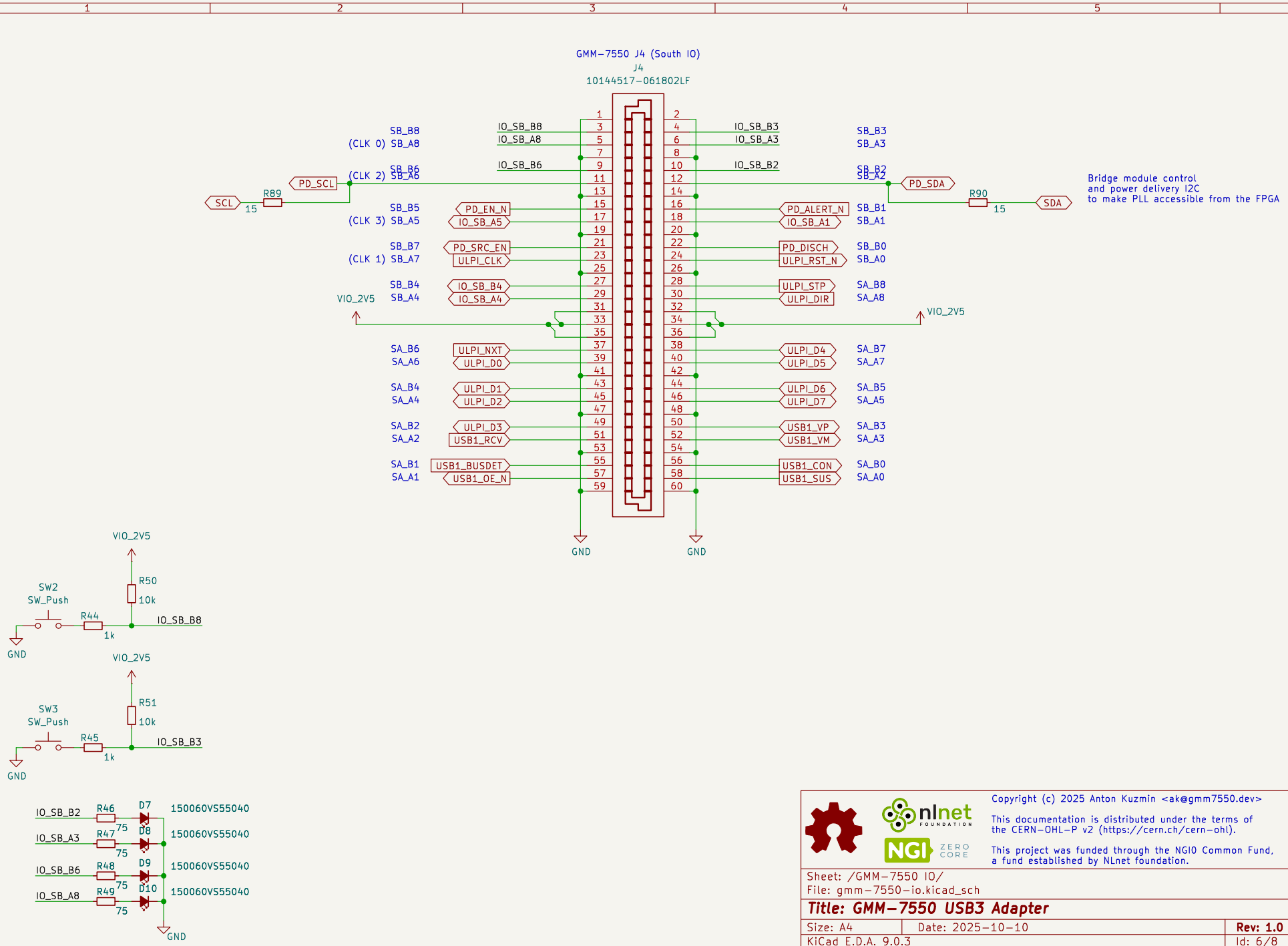
Sheet: /GMM-7550/
File: gmm-7550.kicad_sch

Title: GMM-7550 USB3 Adapter

Size: A4	Date: 2025-10-10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 5/8



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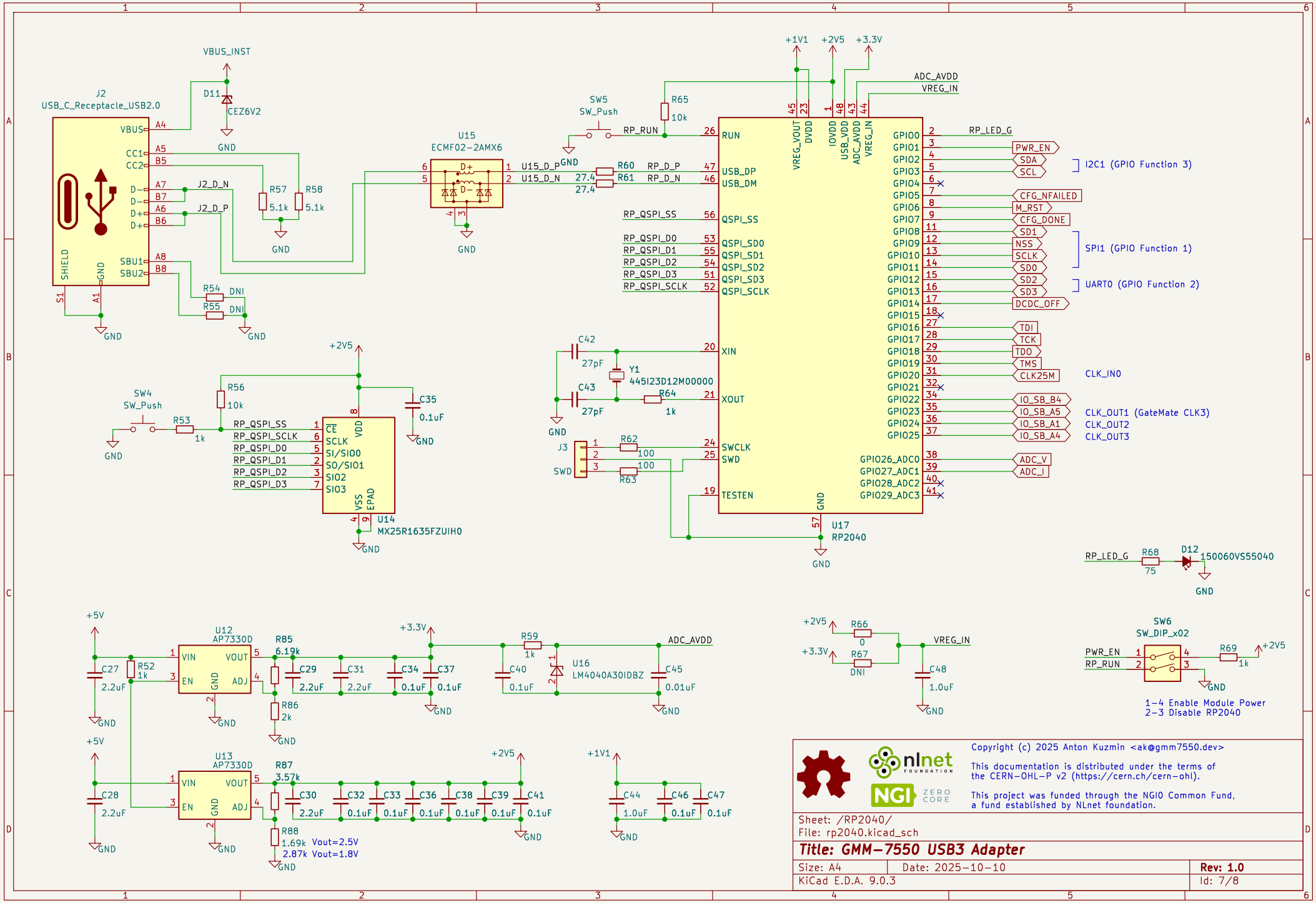
Sheet: /GMM-7550 IO/
File: gmm-7550-io.kicad_sch

Title: GMM-7550 USB3 Adapter

Size: A4	Date: 2025-10-10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 6/8


J2
USB_C_Receptacle_USB2.0
VBUS_INST
D11
CEZ6V2
R57 5.1k
R58 5.1k
R54 DNI
R55 DNI
U15
ECMF02-2AMX6
SW5
SW_Push
R65 10k
RP_RUN
R60 27.4
R61 27.4
RP_D_P
RP_D_N
RP_QSPI_SS
RP_QSPI_D0
RP_QSPI_D1
RP_QSPI_D2
RP_QSPI_D3
RP_QSPI_SCLK
+1V1
+2V5
+3.3V
ADC_AVDD
VREG_IN
RUN
USB_DP
USB_DM
QSPI_SS
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
QSPI_SCLK
XIN
XOUT
SWCLK
SWD
TESTEN
VREG_VOUT
DVDD
IOVDD
USB_VDD
ADC_AVDD
VREG_IN
GPIO0 RP_LED_G
GPIO1 PWR_EN
GPIO2 SDA
GPIO3 SCL
I2C1 (GPIO Function 3)
GPIO5 CFG_NFAILED
GPIO6 M_RST
GPIO7 CFG_DONE
GPIO8 SD1
GPIO9 NSS
GPIO10 SCLK
GPIO11 SD0
GPIO12 SD2
GPIO13 SD3
SPI1 (GPIO Function 1)
UART0 (GPIO Function 2)
GPIO14 DCDC_OFF
GPIO16 TDI
GPIO17 TCK
GPIO18 TDO
GPIO19 TMS
GPIO20 CLK25M
CLK_IN0
GPIO22 IO_SB_B4
GPIO23 IO_SB_A5
GPIO24 IO_SB_A1
GPIO25 IO_SB_A4
CLK_OUT1 (GateMate CLK3)
CLK_OUT2
CLK_OUT3
GPIO26_ADC0 ADC_V
GPIO27_ADC1 ADC_I
GPIO28_ADC2
GPIO29_ADC3
U17
RP2040
C42 27pF
C43 27pF
Y1
445I23D12M00000
R64 1k
J3
R62 100
R63 100
SW4
SW_Push
R53 1k
R56 10k
C35 0.1uF
U14
MX25R1635FZUIH0
RP_LED_G
R68 75
D12
150060VS55040
SW6
SW_DIP_x02
PWR_EN
RP_RUN
R69 1k
1-4 Enable Module Power
2-3 Disable RP2040
+5V
U12
AP7330D
R85 6.19k
R86 2k
C27 2.2uF
R52 1k
C29 2.2uF
C31 2.2uF
C34 0.1uF
C37 0.1uF
R59 1k
U16
LM4040A30IDBZ
C40 0.1uF
C45 0.01uF
U13
AP7330D
R87 3.57k
R88 1.69k Vout=2.5V
2.87k Vout=1.8V
C28 2.2uF
C30 2.2uF
C32 0.1uF
C33 0.1uF
C36 0.1uF
C38 0.1uF
C39 0.1uF
C41 0.1uF
C44 1.0uF
C46 0.1uF
C47 0.1uF
R66 0
R67 DNI
C48 1.0uF
VREG_IN
GND
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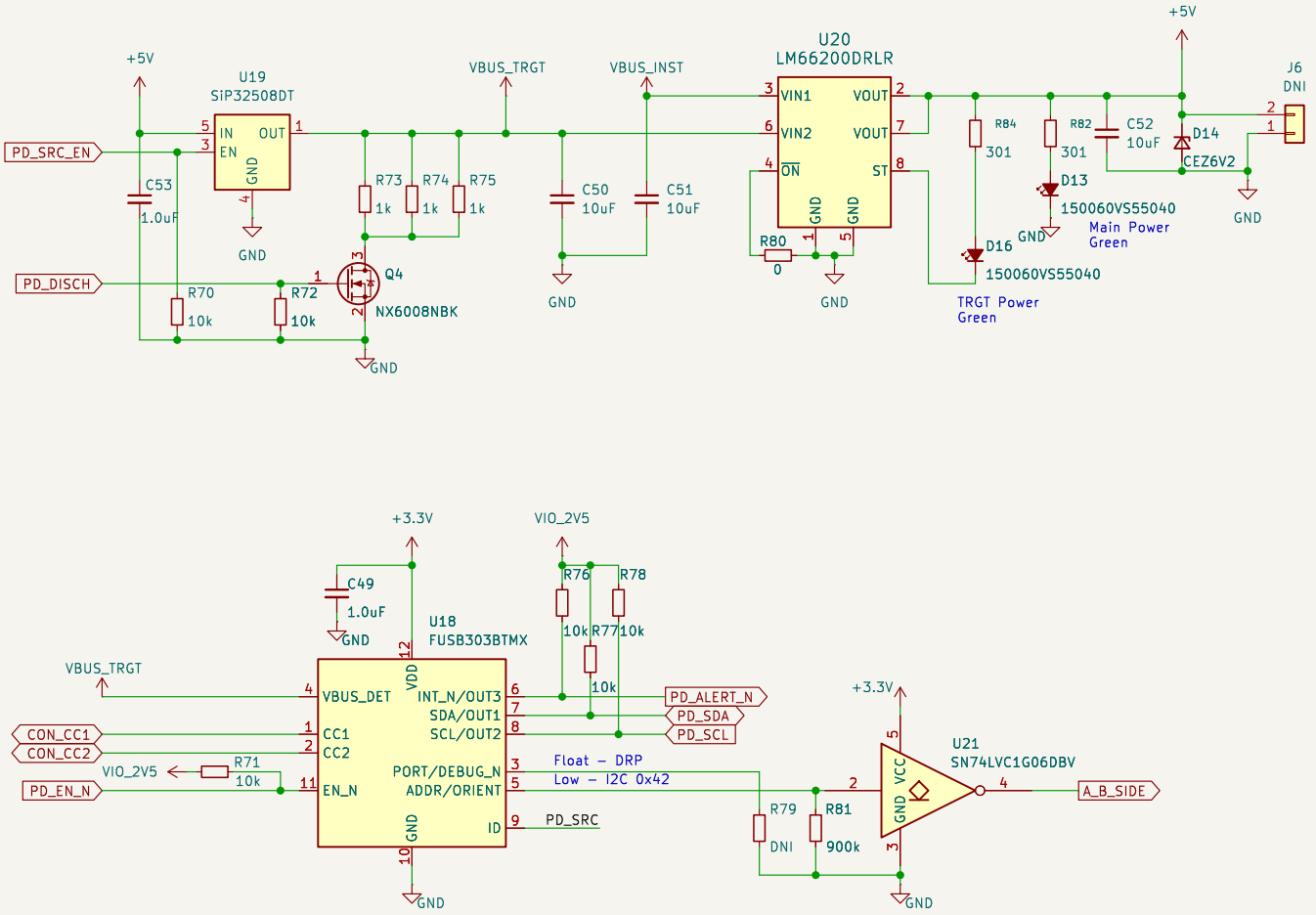
Sheet: /RP2040/
File: rp2040.kicad_sch
Title: GMM-7550 USB3 Adapter
Size: A4
Date: 2025-10-10
Rev: 1.0
KiCad E.D.A. 9.0.3
Id: 7/8



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Sheet: /USB PD/
File: usb3-pd.kicad_sch

Title: GMM-7550 USB3 Adapter

Size: A4	Date: 2025-10-10	**Rev: 1.0**
KiCad E.D.A. 9.0.3		Id: 8/8