

Title: Nautilus_Mainboard

Sheet: /STM/

Rev: 0

Author: Evan

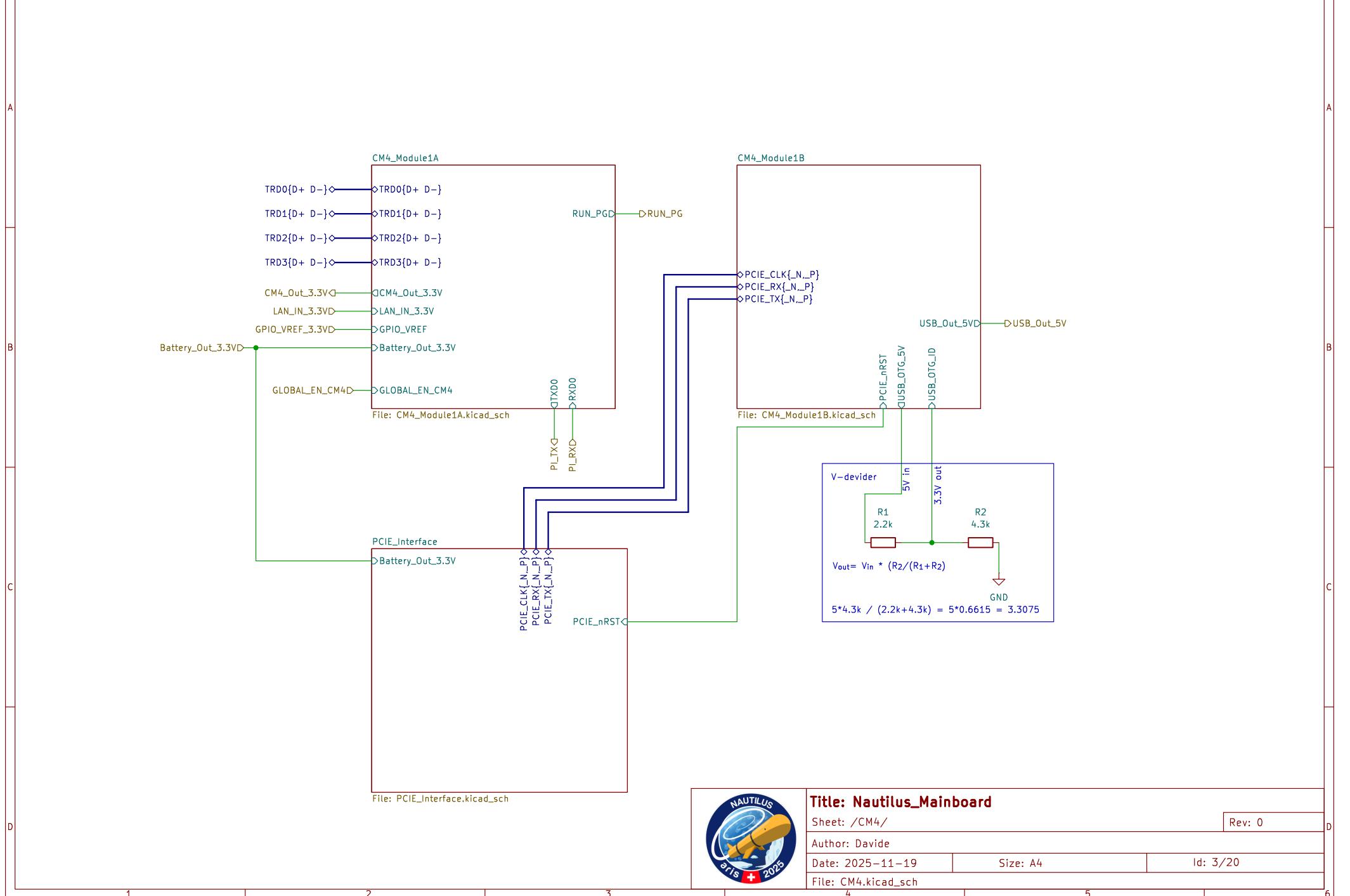
Date: 2025-11-19

Size: A4

Id: 2/20

File: STM.kicad_sch

1 2 3 4 5 6



1 2 3 4 5 6

A

A

B

B

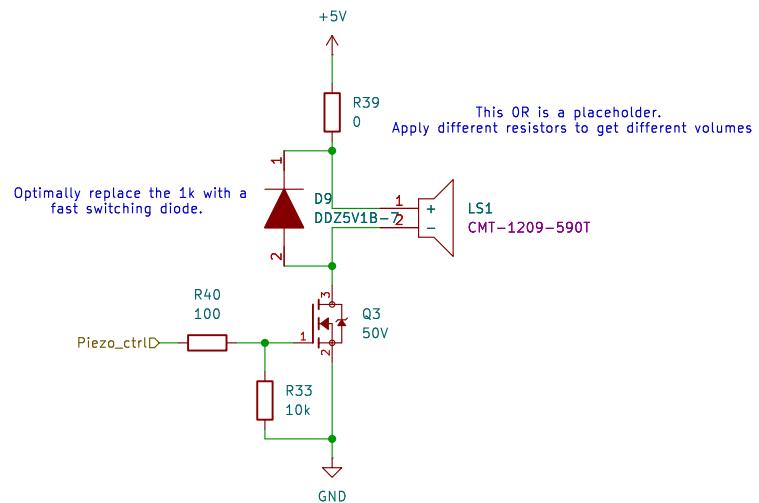
C

C

D

D

Not in the PCB yet as we dont know if we actually need it.



Title: Nautilus_Mainboard

Sheet: /Piezzo/

Rev: 0

Author: Evan

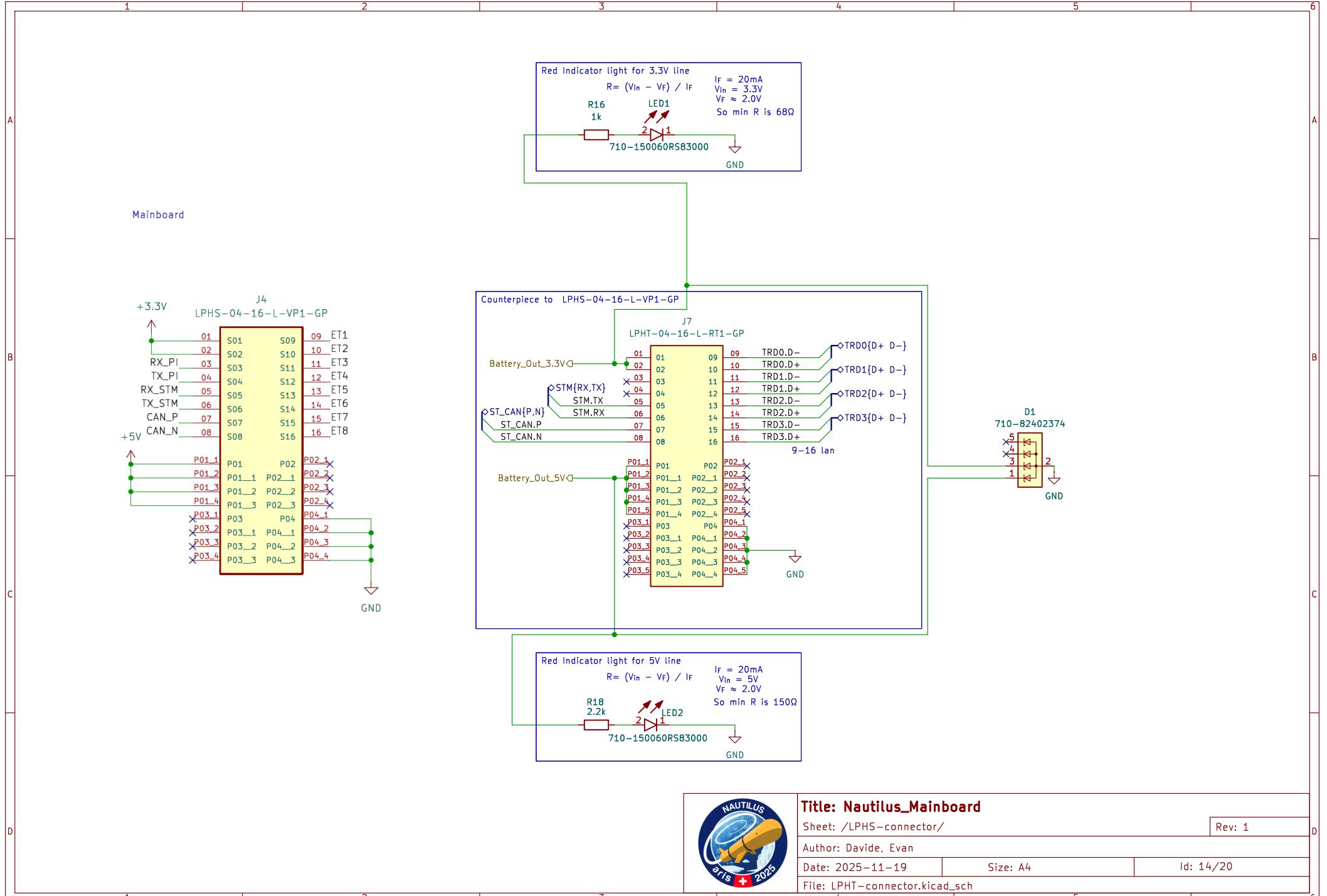
Date: 2025-11-19

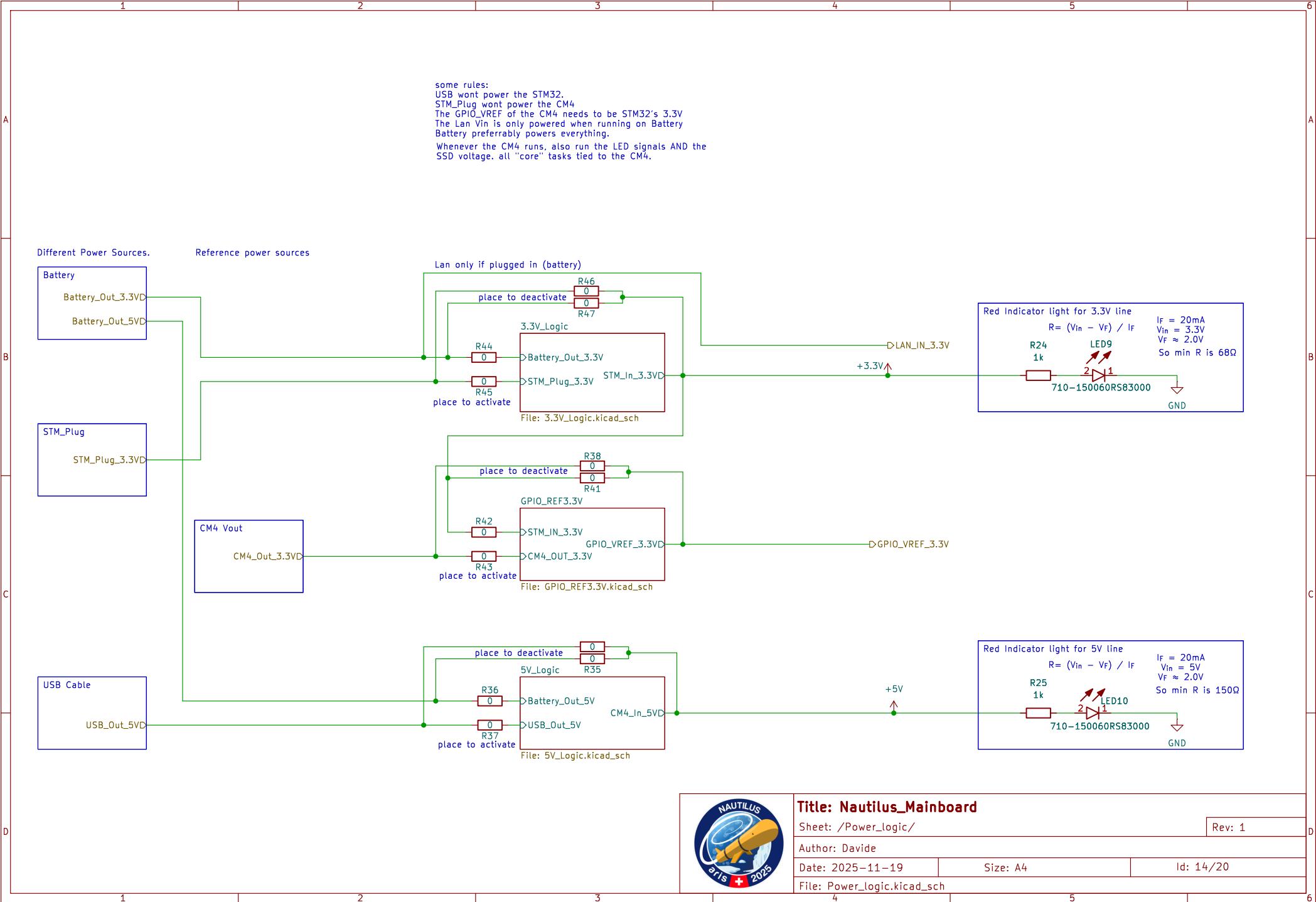
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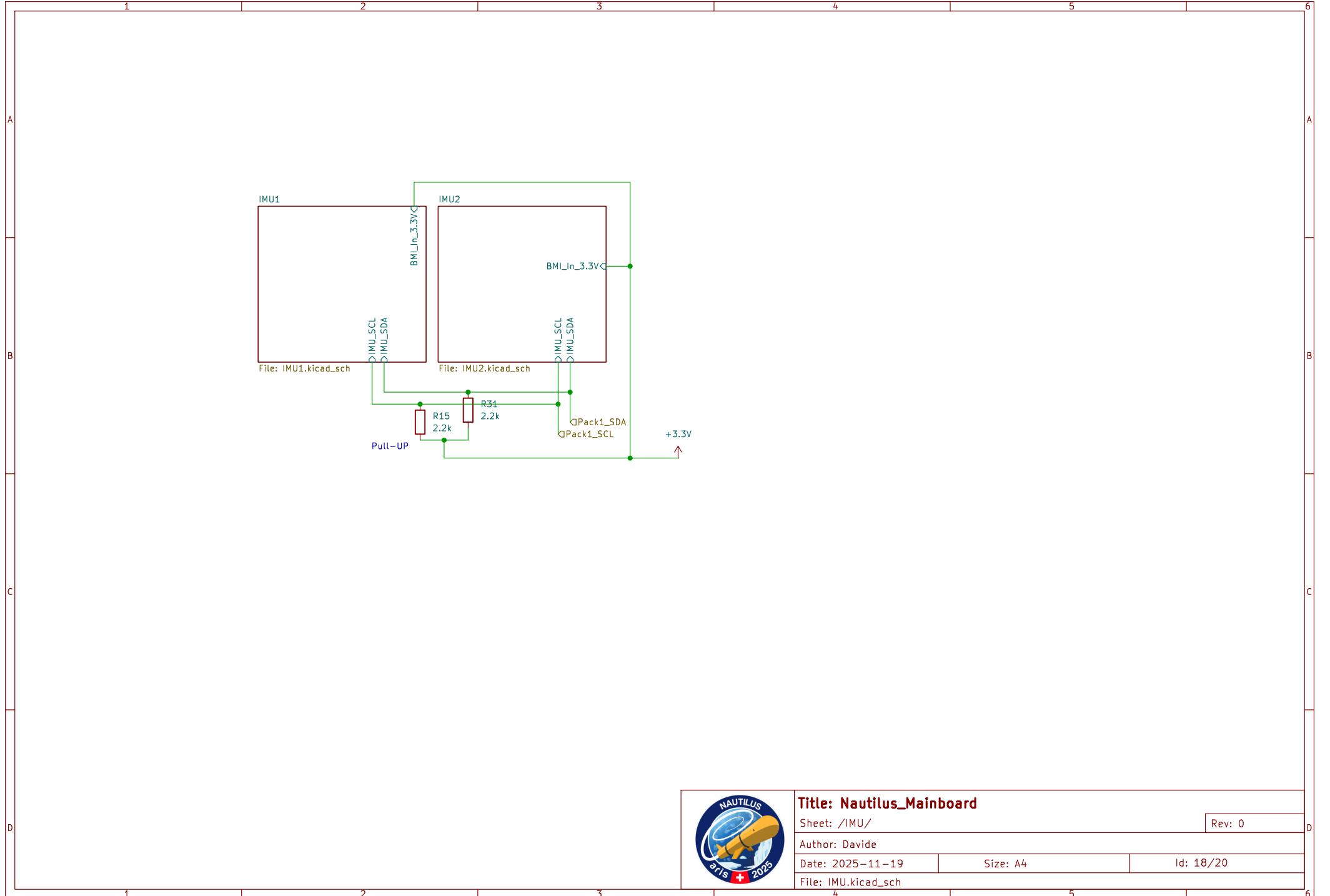
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File: Piezzo.kicad_sch

1 2 3 4 5 6







Title: Nautilus_Mainboard

Sheet: /IMU/

Rev: 0

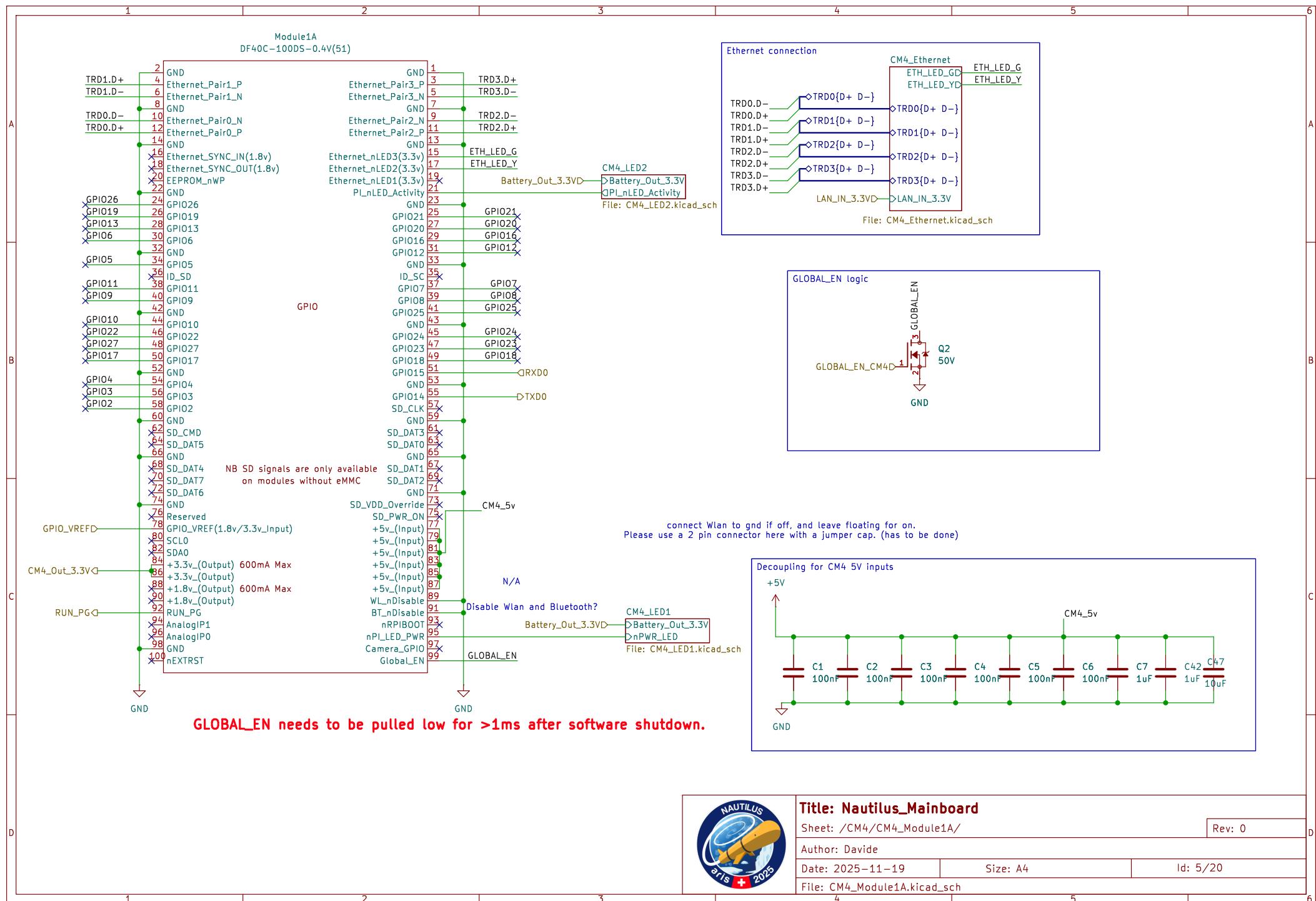
Author: Davide

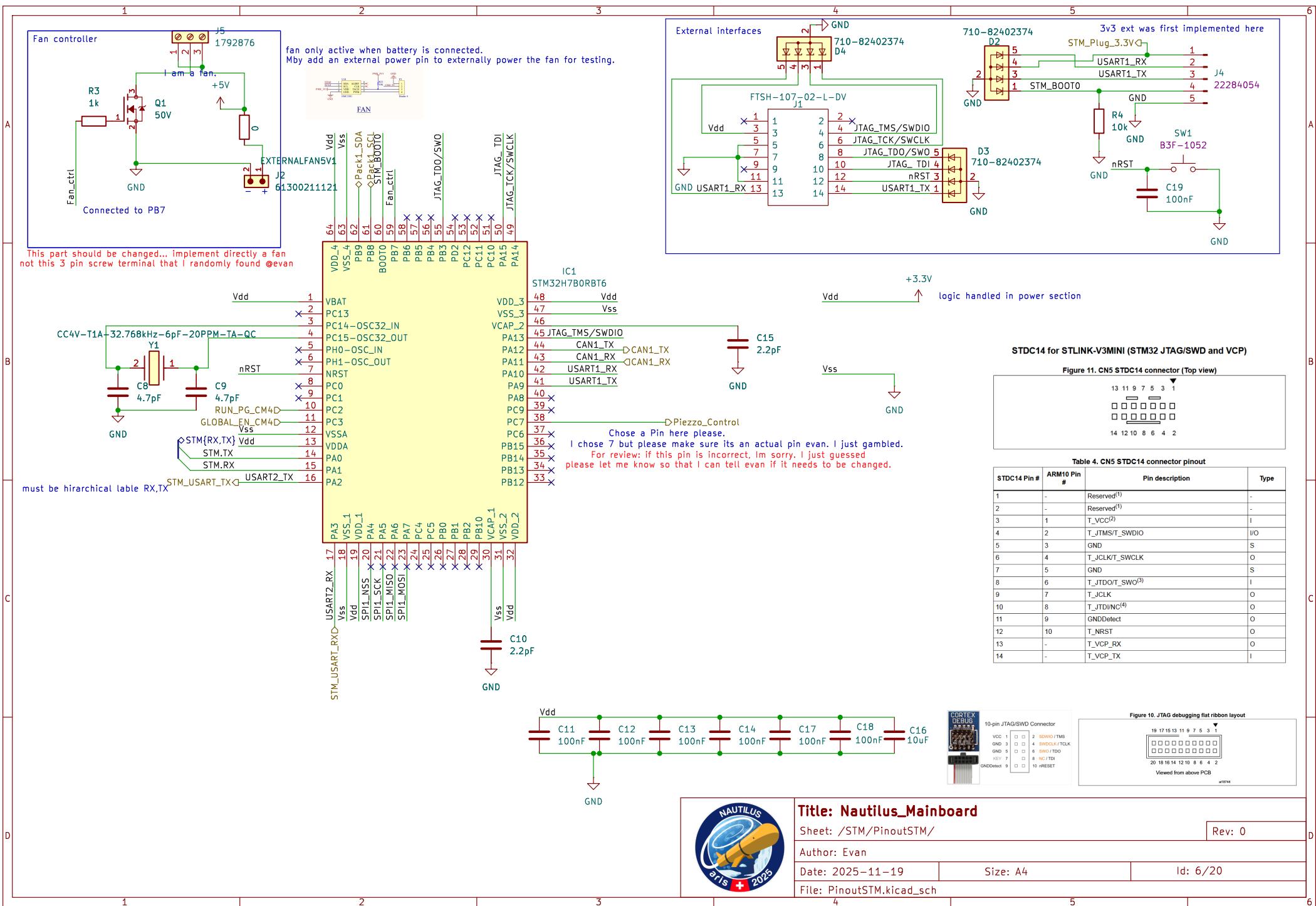
Date: 2025-11-19

Size: A4

Id: 18/20

File: IMU.kicad_sch





A

A

B

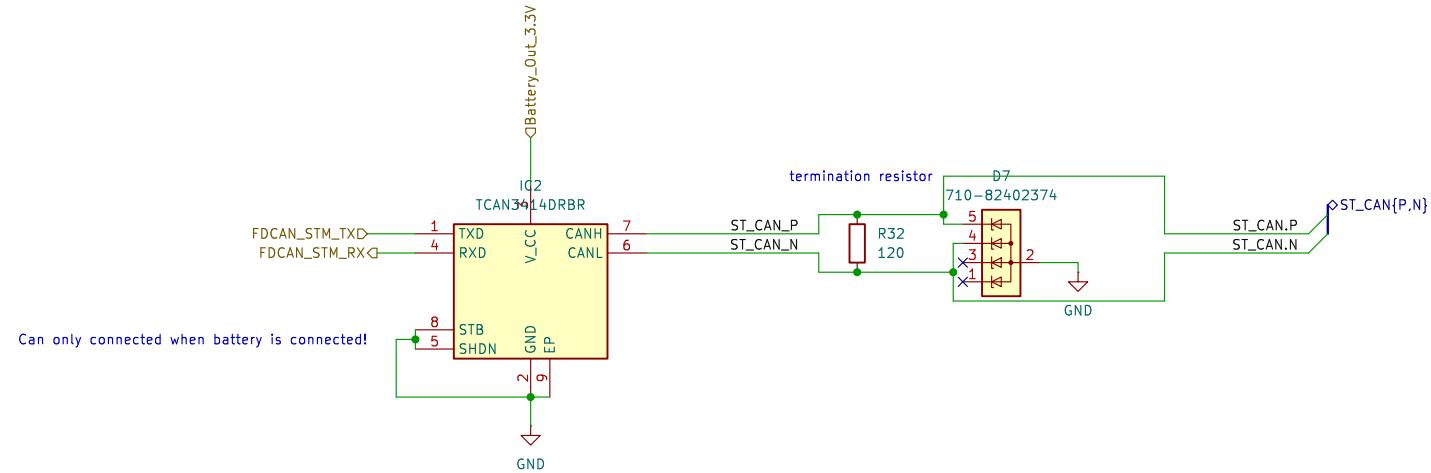
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /STM/CAN_Interface/

Rev: 1

Author: Evan & Davide

Date: 2025-11-19

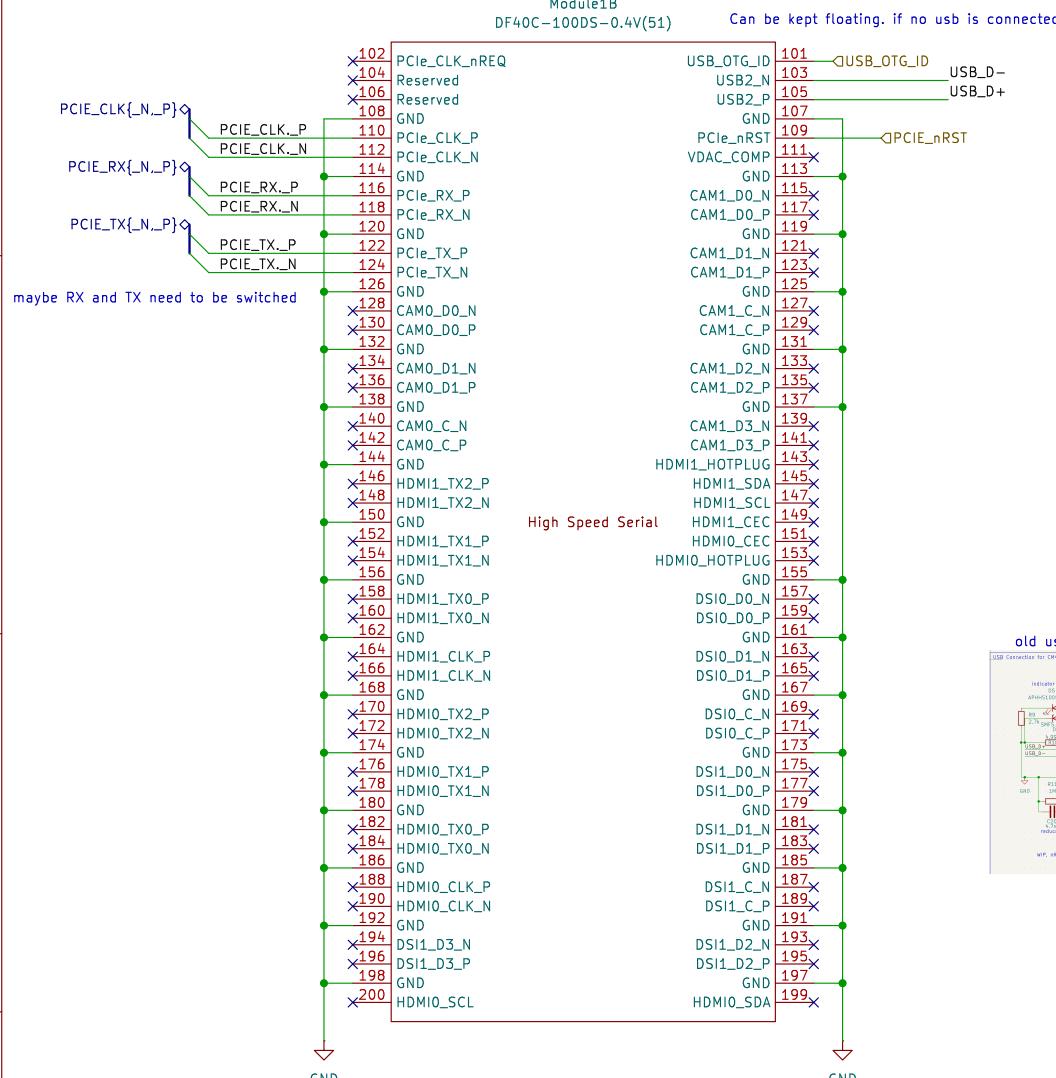
Size: A4

Id: 7/20

File: PowerSTM.kicad_sch

1 2 3 4 5 6

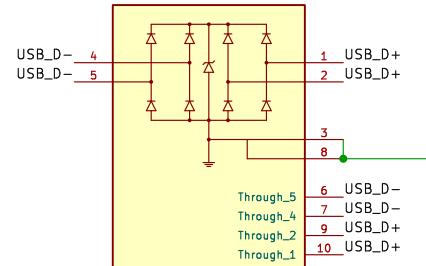
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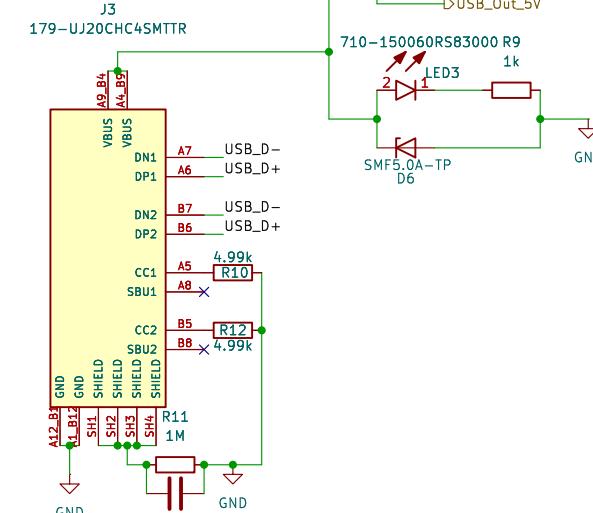
Can be kept floating. if no usb is connected

ESD/EMP protection for the USB
Super important to not differ lengths or curve a lot with D+ and D-.
Also should have same hole counts (vias) and same length.

TPD4EUSB30DQAR3



USB Connection for CM4



WIP, nRPI_BOOT? power only to certain parts? -> Diode (later)
indication? (YES! LED)



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1B/

Rev: 0

Author: Davide

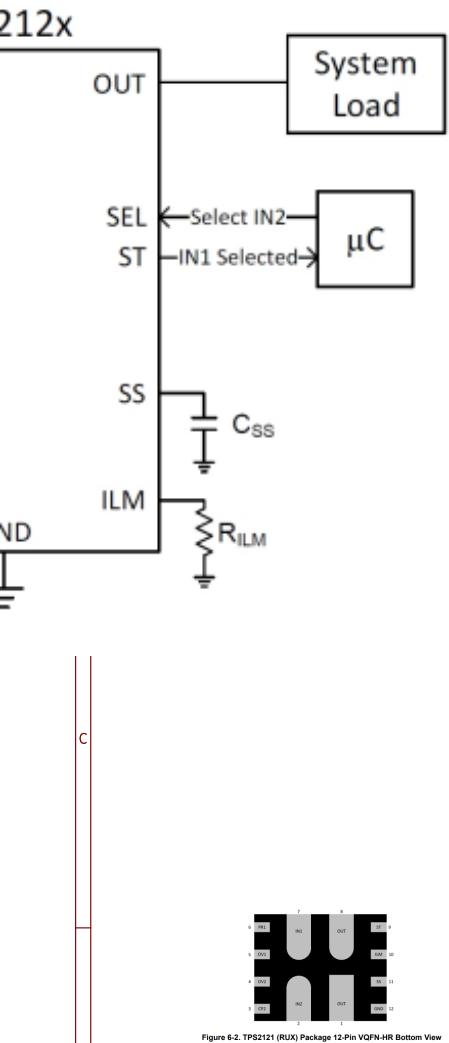
Date: 2025-11-19

Size: A4

Id: 11/20

File: CM4_Module1B.kicad_sch

1 2 3 4 5 6



for questions about wiring etc please consult the datasheet...
<https://www.ti.com/lit/ds/symlink/tps2120.pdf?ts=176167817832>

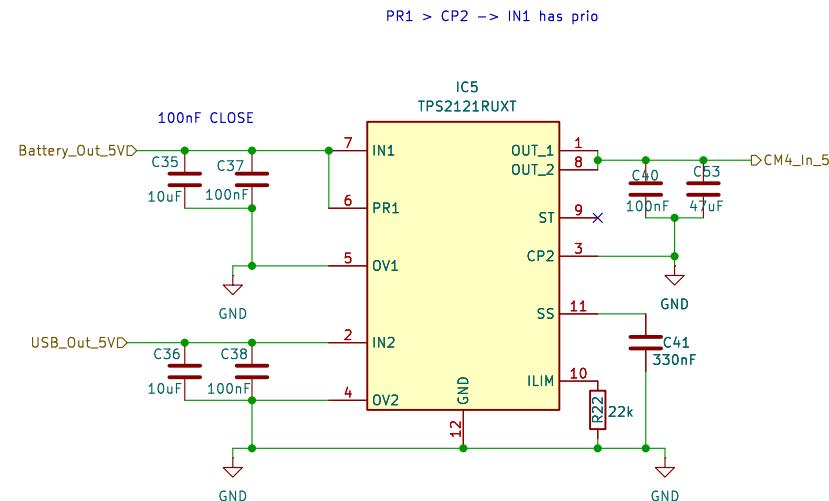


Figure 6-2. TPS2121 (RUX) Package 12-Pin VQFN-HR Bottom View

Pin Functions				
Pin	TP2512P	TP2512I	I/O	Description
NAME	WCSP	VDPIN-HR		
IN1	B1, B2, C1	?	I	Power Input for Source 1
IN2	B3, B4, C2	?	I	Power Input for Source 2
C2	C3, C4	1.8	O	Power Output
DUT	D2, D3, D4			
ST	E1	9	O	Output signal indicating which channel is selected. Connect to GND if not required.
EN	E2	10	O	Output Current Limiting for both channels.
SS	E3	11	O	Adjust Input Setting Delay Time and Output Soft Start Time
GND	E4	12	—	Device Ground
PR1	A1	6	—	Enables Priority Operation. Connect to IN1 to set switcher voltage. Connect to GND if not required.
DV1	A2	5	I	Active Low Enable Suspender for IN1 Overvoltage Protection. Connect to GND if not required.
DV2	A3	4	I	Active Low Enable Suspender for IN2 Overvoltage Protection. Connect to GND if not required.
SEL	A4	—	I	Active low enable for IN1. Allow GPO to override priority operation and manually switch between TP2512P/2512I.



Title: Nautilus_Mainboard

Sheet: /Power logic/5V Logic/

Author: David

Date: 2025-11-19

Rev:

CP2	—	3	I	Enables Comparator Operation and is compared to PRT1 to set switchover voltage. Connect to GND if not required. TPS2121 only.
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2

1 2 3 4 5 6

A

A

B

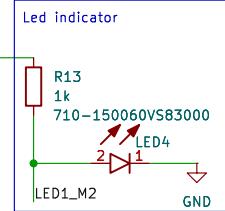
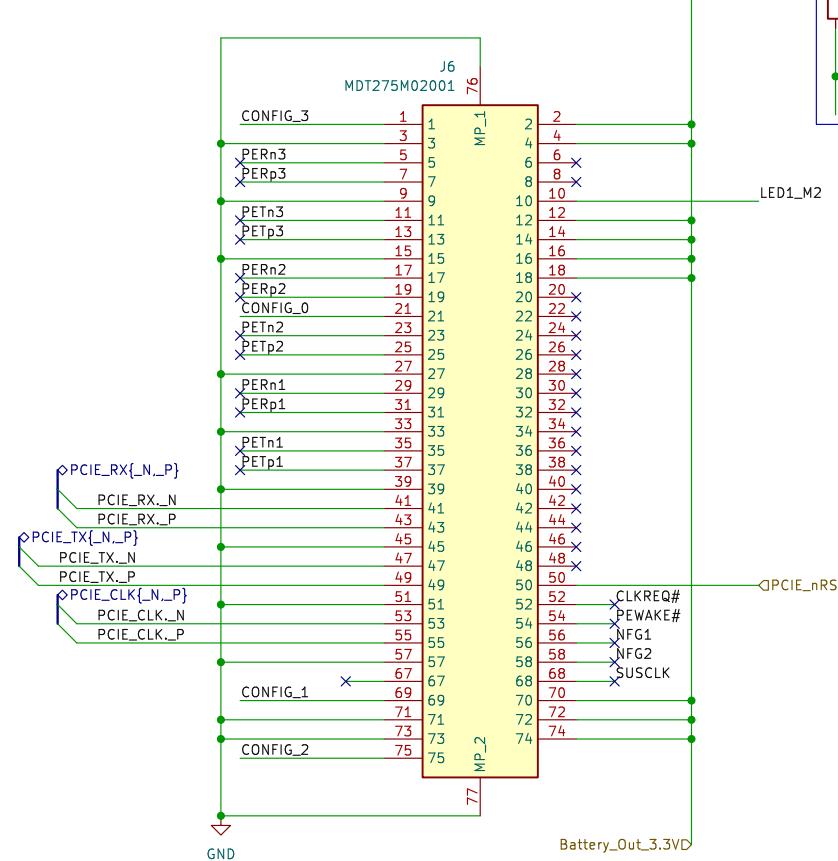
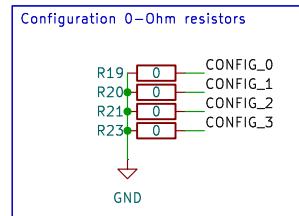
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C

C

D

D



Title: Nautilus_Mainboard

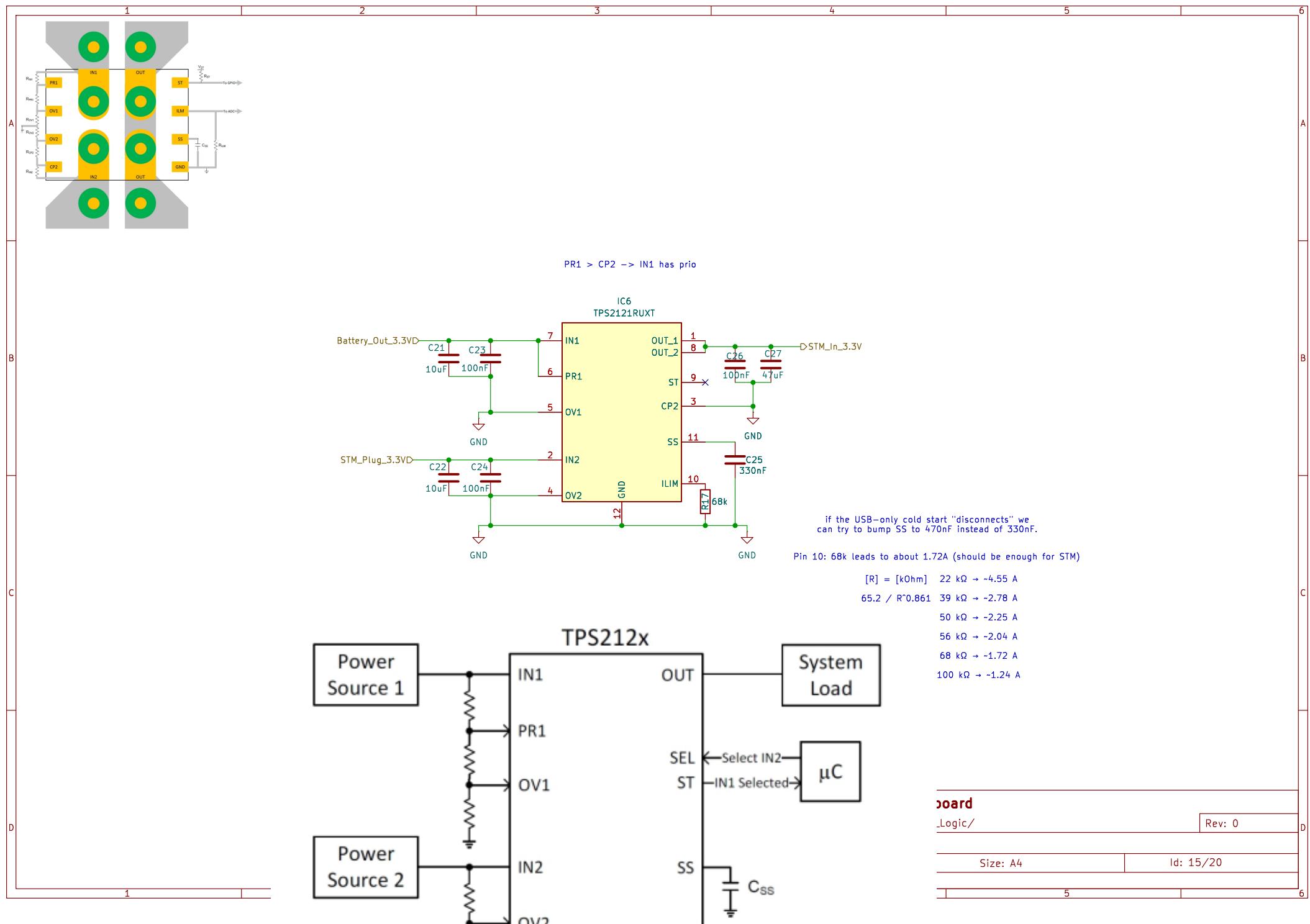
Sheet: /CM4/PCIE_Interface/
Rev: 0

Author: Davide

Date: 2025-11-19 | Size: A4 | Id: 13/20

File: PCIE_Interface.kicad_sch

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1 2 3 4 5 6

A

A

B

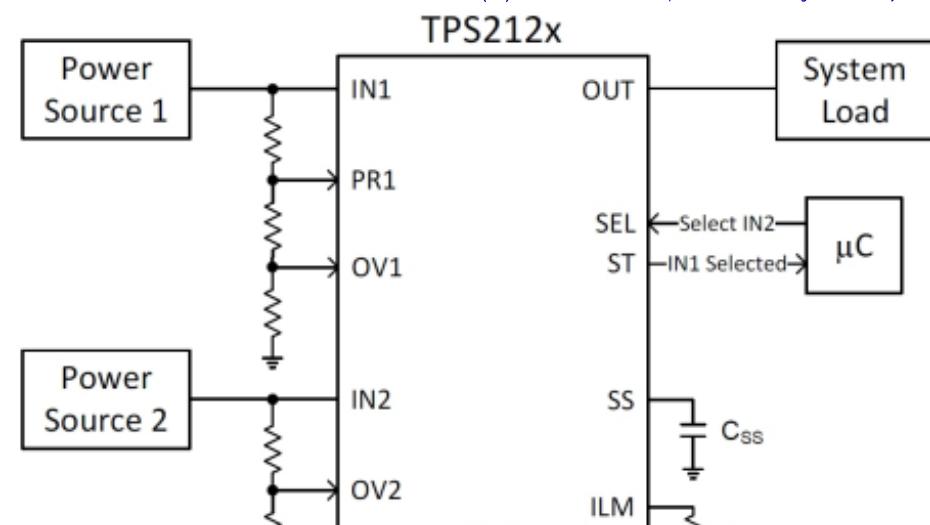
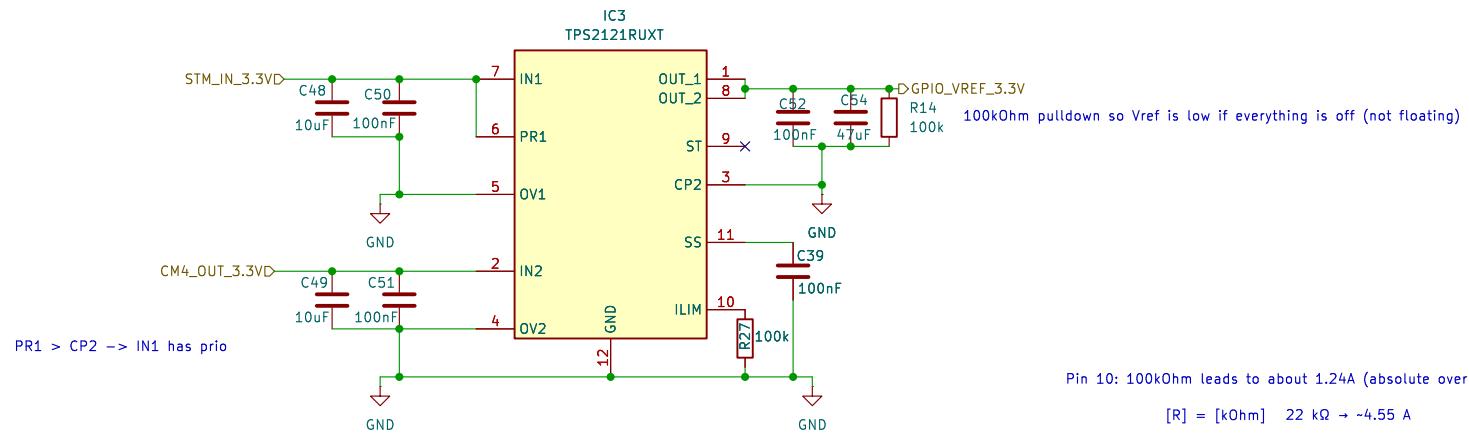
B

C

C

D

D



3V/

Rev: 0

Size: A4

Id: 16/20

5

6

1 2 3 4 5 6

A

A

B

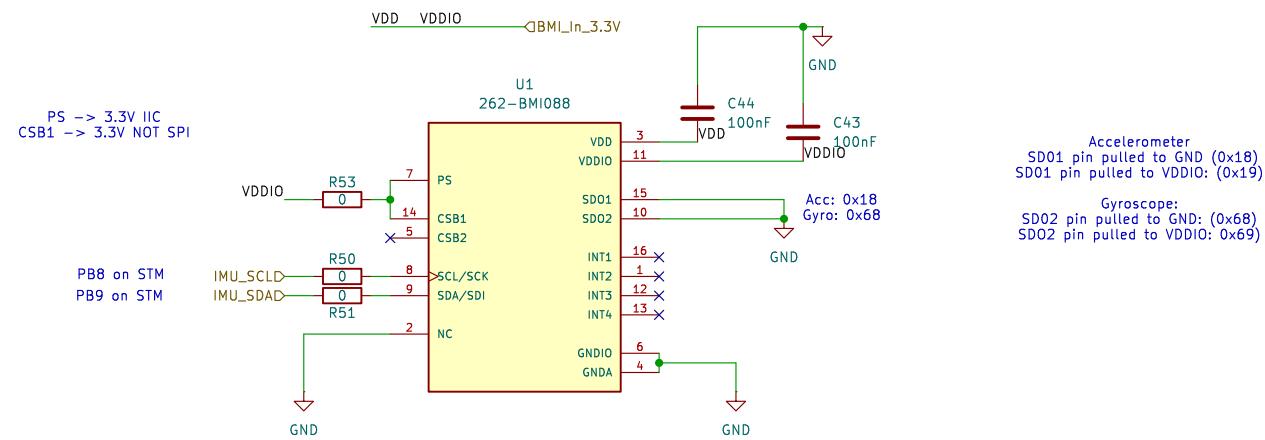
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /IMU/IMU1/

Rev: 0

Author: Davide

Date: 2025-11-19

Size: A4

Id: 19/20

File: IMU1.kicad_sch

1 2 3 4 5 6

A

A

B

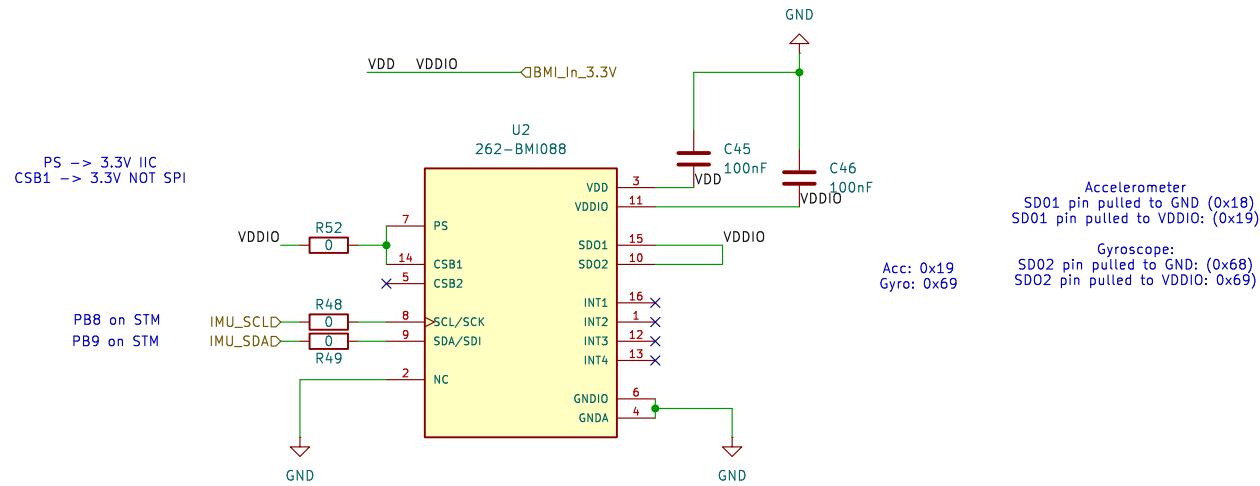
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /IMU/IMU2/
Rev: 0

Author: Davide

Date: 2025-11-19

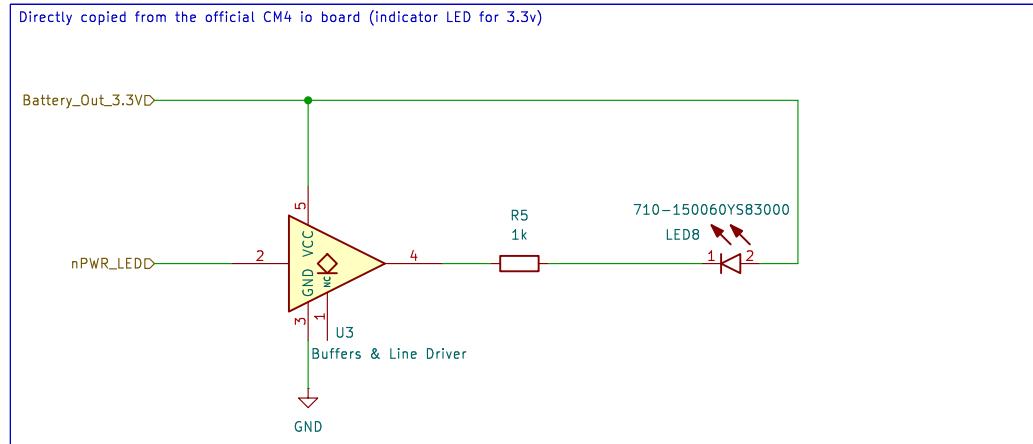
Size: A4

Id: 20/20

File: IMU2.kicad_sch

A

A



B

B

Screenshot
From the CM4 io board

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1A/CM4_LED1/

Rev: 0

Author: Davide

Date: 2025-11-19

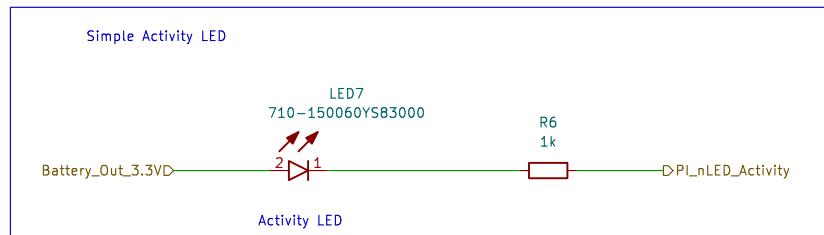
Size: A4

Id: 8/20

File: CM4_LED1.kicad_sch

A

A



B

B

C

C

D

D

**Title: Nautilus_Mainboard**

Sheet: /CM4/CM4_Module1A/CM4_LED2/

Rev: 0

Author: Davide

Date: 2025-11-19

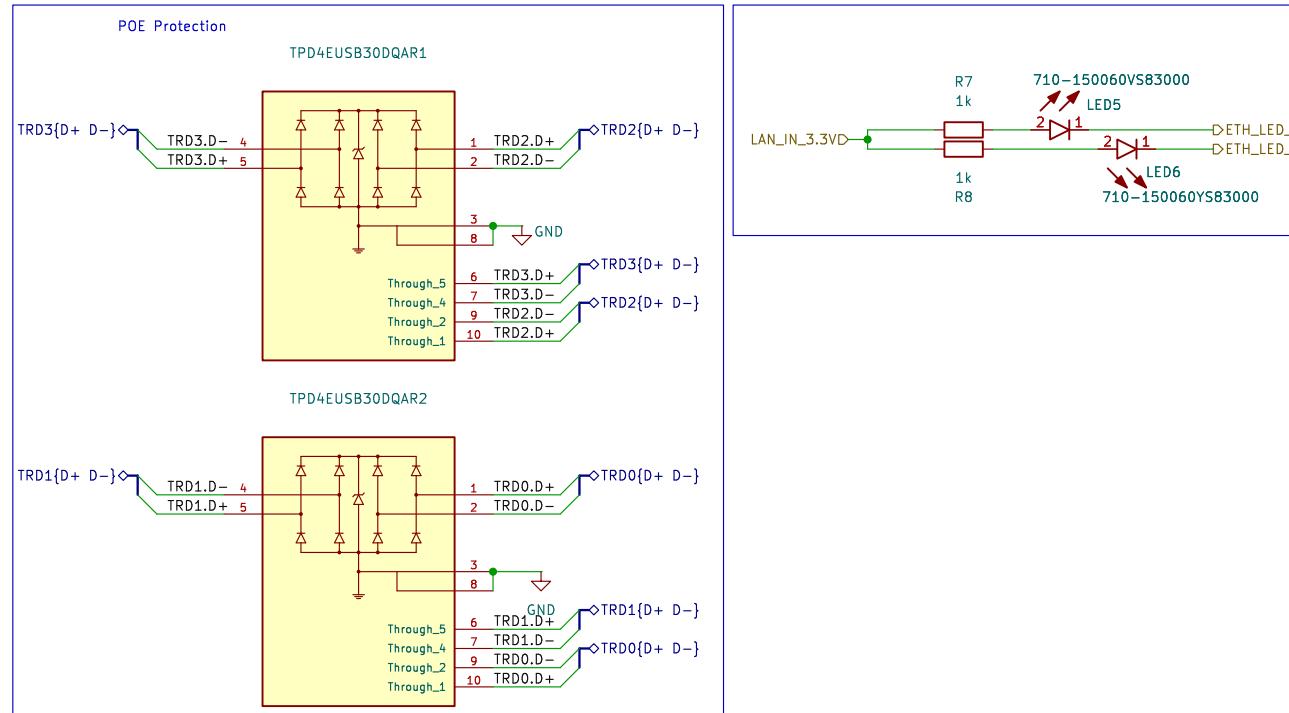
Size: A4

Id: 9/20

File: CM4_LED2.kicad_sch

A

A



B

B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1A/CM4_Ethernet/

Rev: 0

Author: Davide

Date: 2025-11-19

Size: A4

Id: 10/20

File: CM4_Ethernet.kicad_sch