

Title: Nautilus_Mainboard

Sheet: /STM/

Rev: 0

Author: Evan

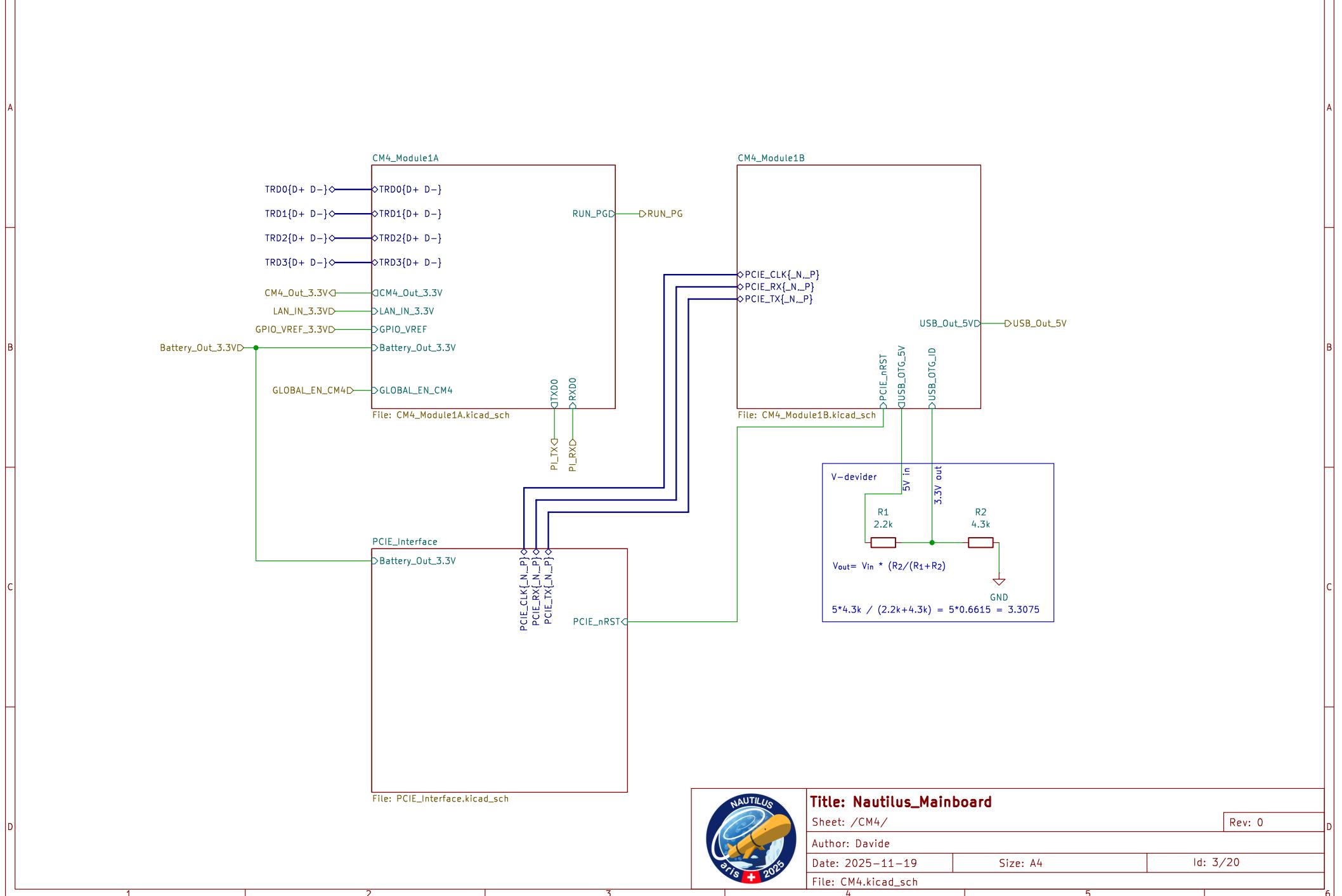
Date: 2025-11-19

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

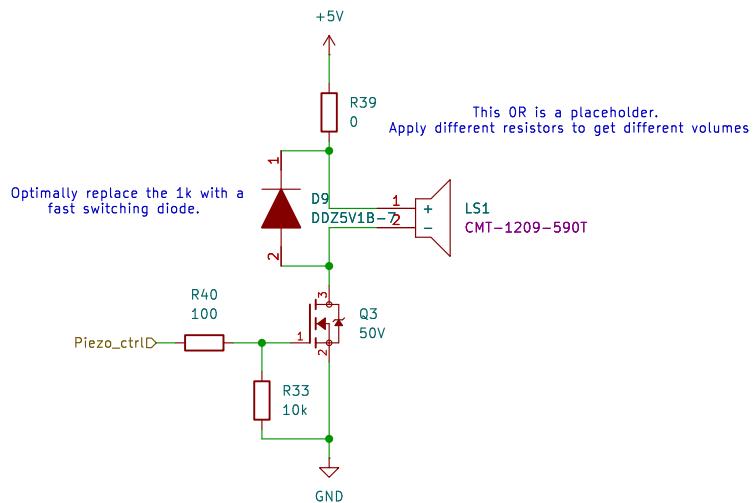
C

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

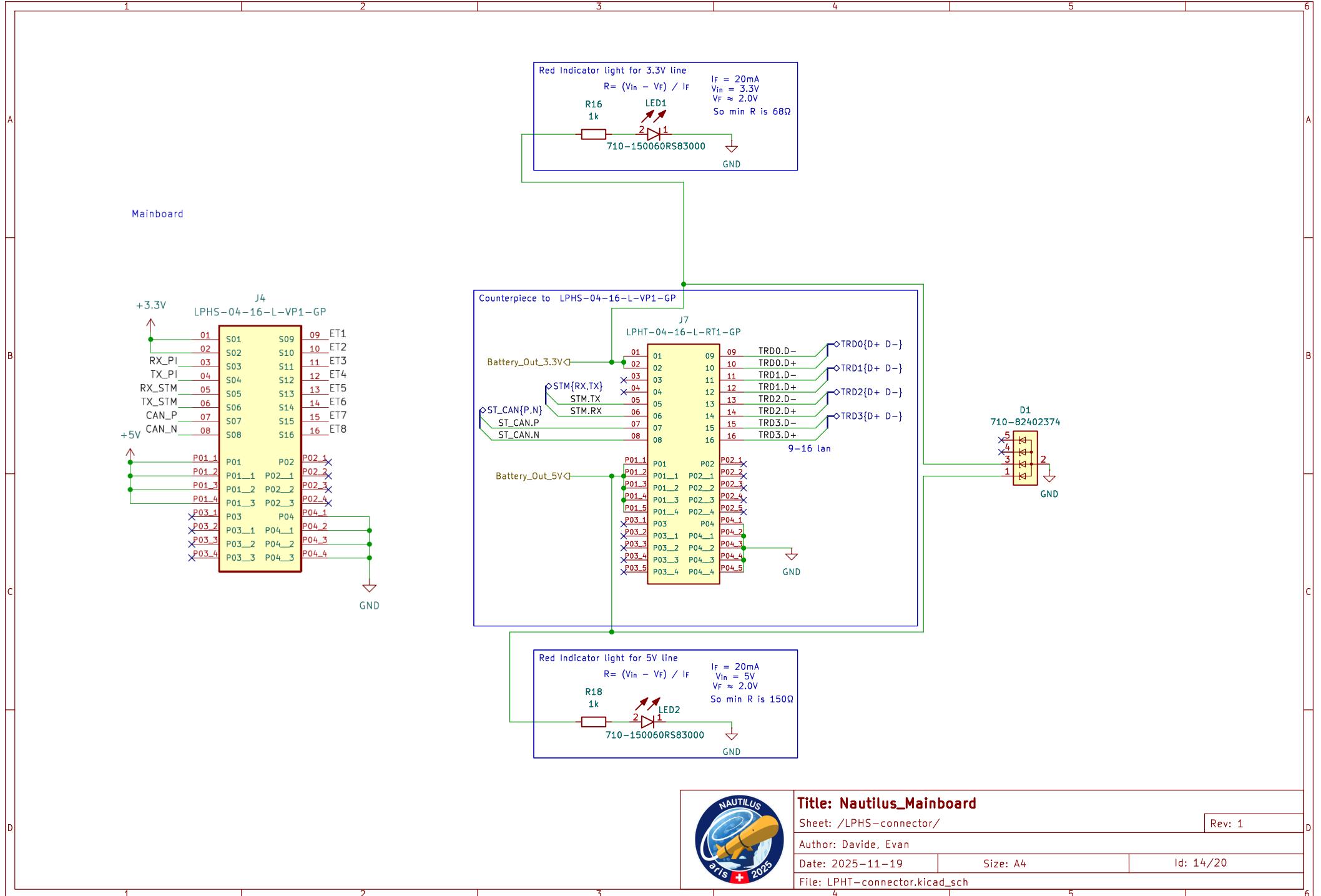
Date: 2025-11-19

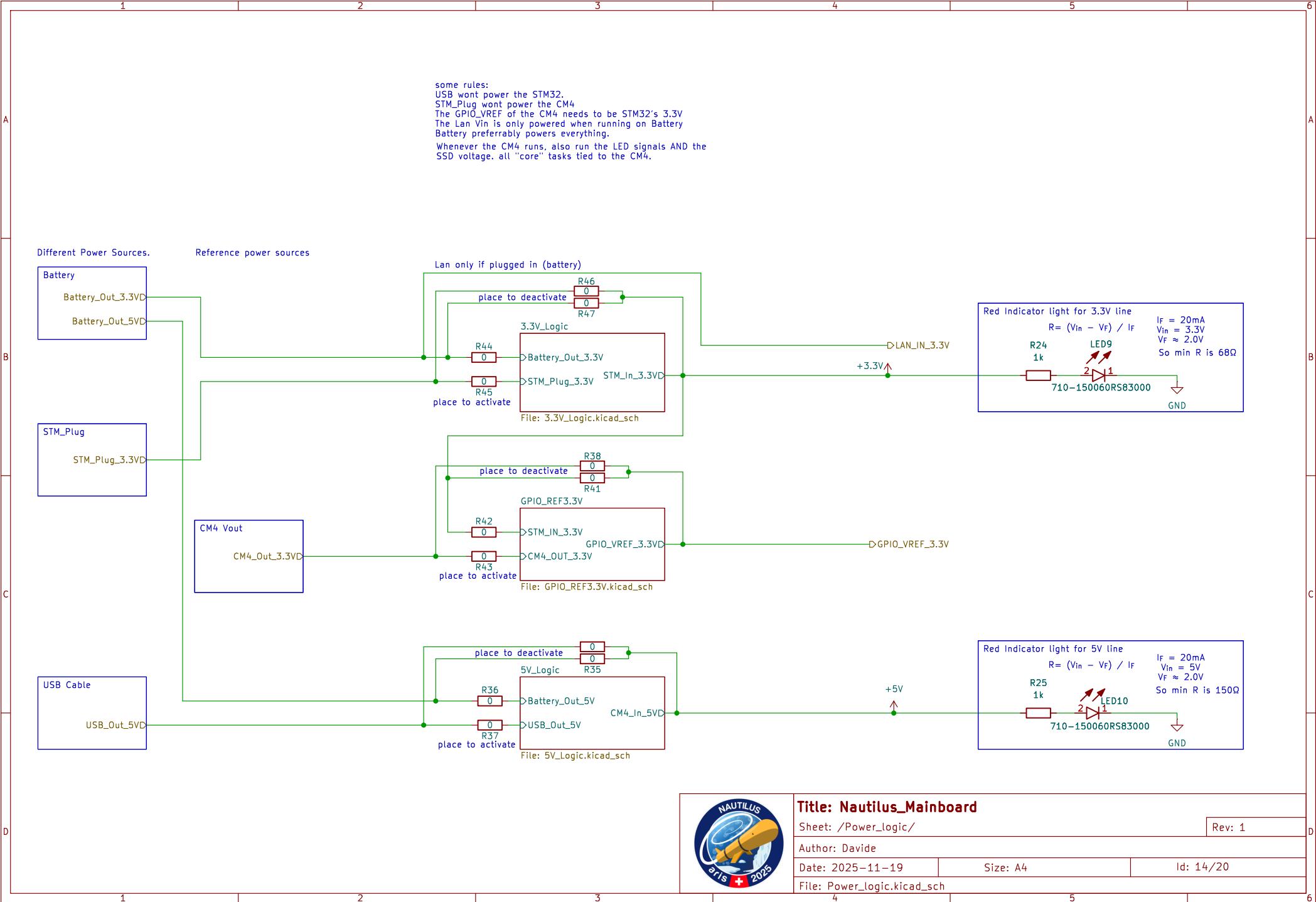
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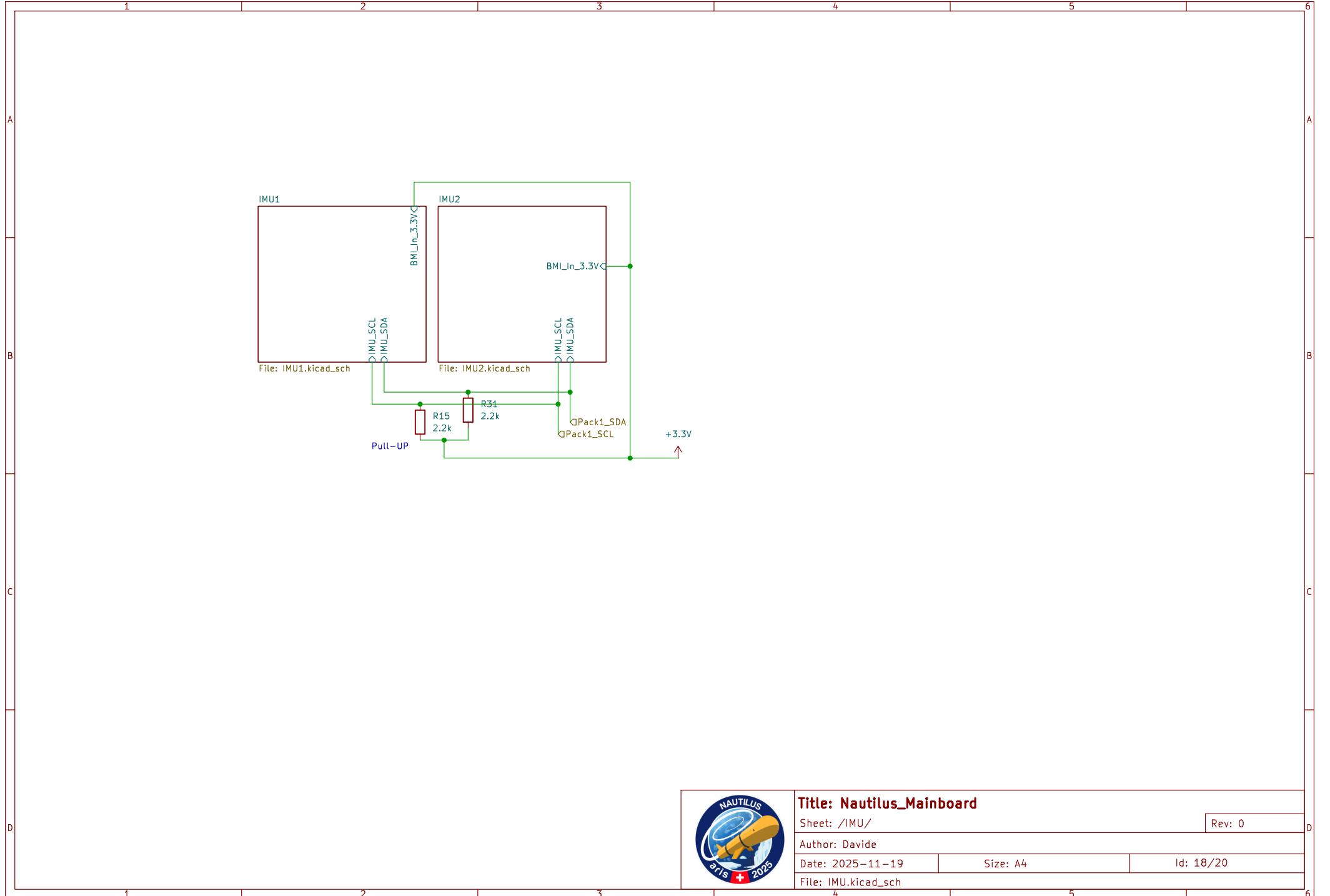
Id: 4/20

File: Piezzo.kicad_sch

1 2 3 4 5 6






Title: Nautilus_Mainboard

Sheet: /IMU/

Rev: 0

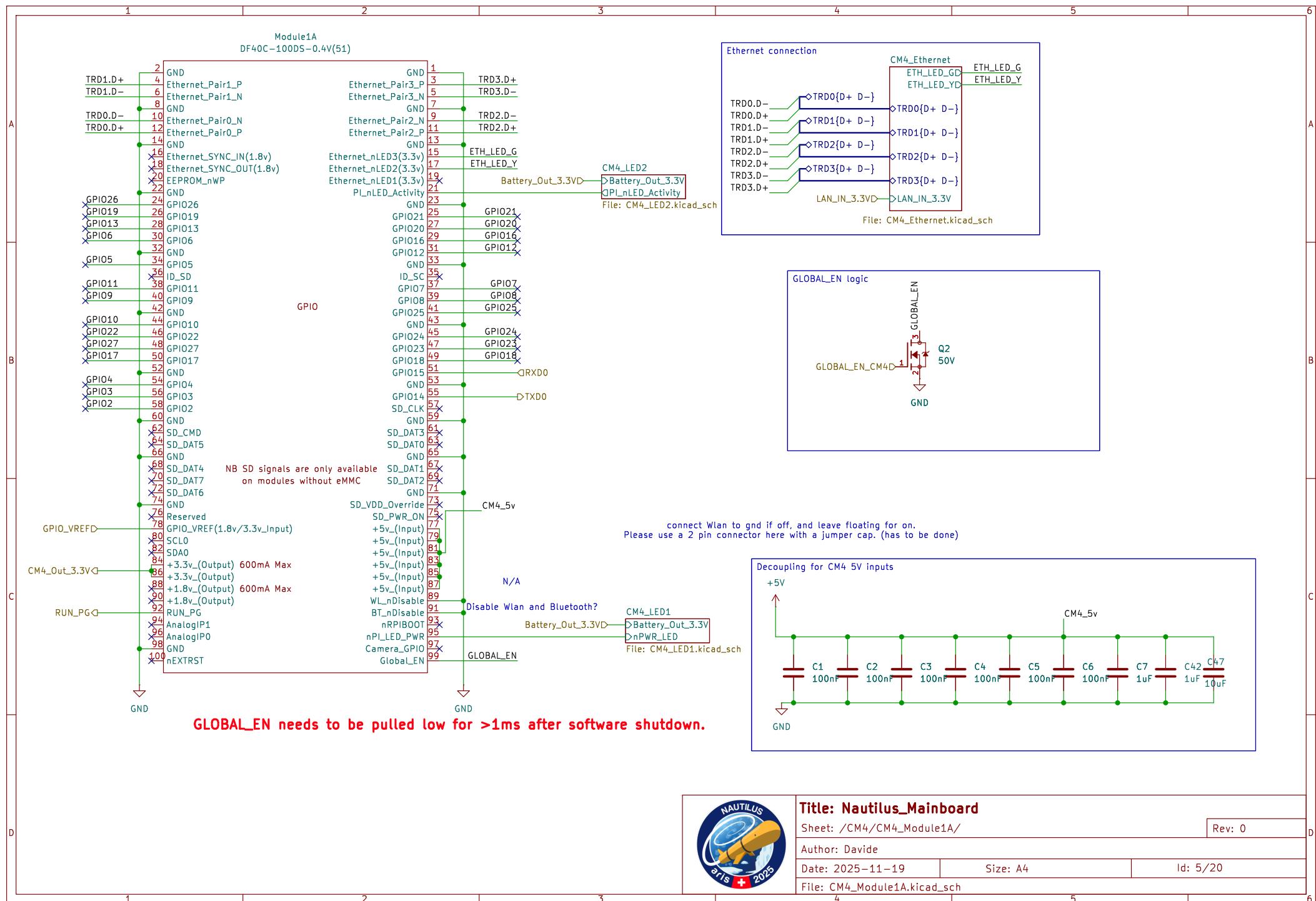
Author: Davide

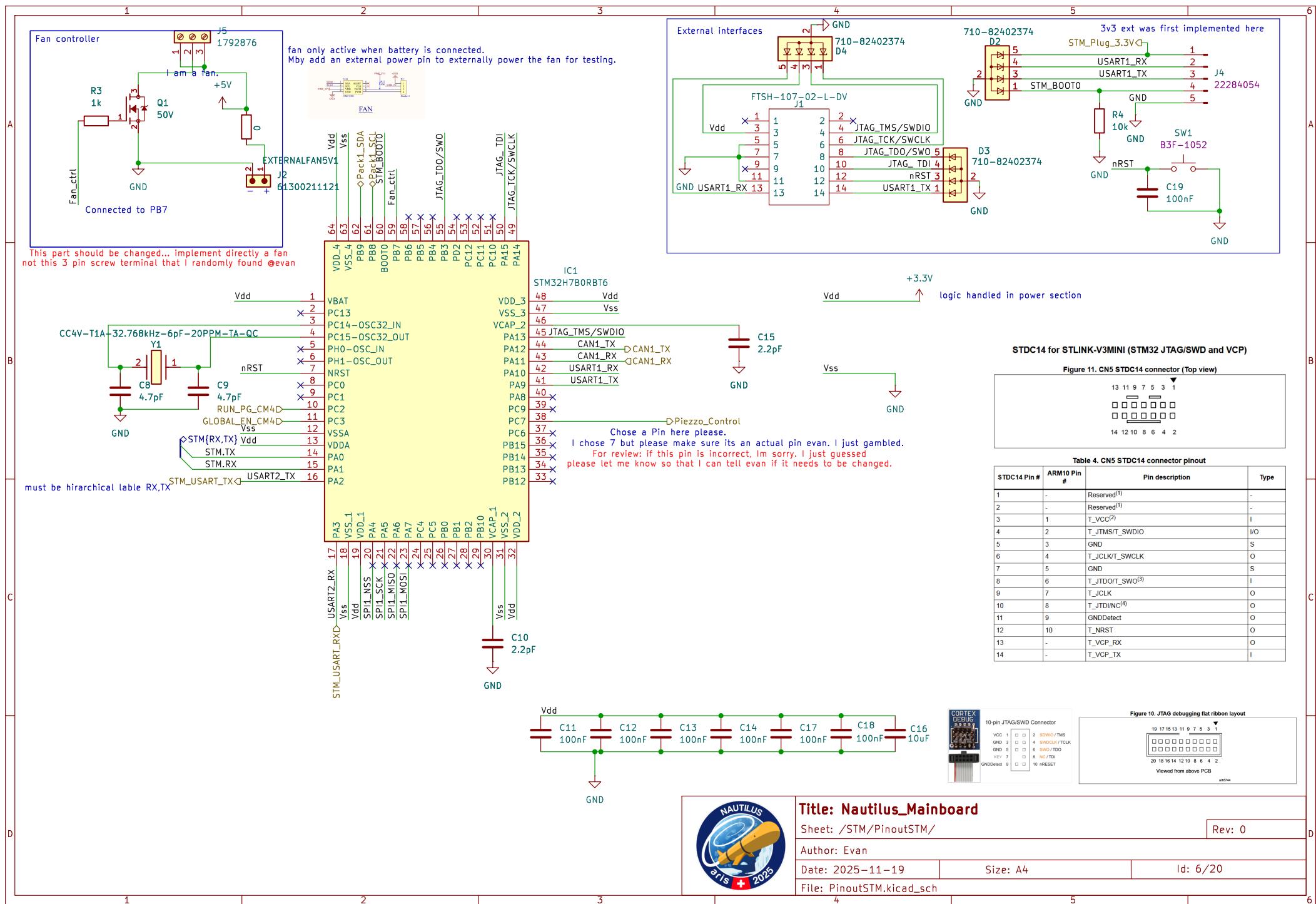
Date: 2025-11-19

Size: A4

Id: 18/20

File: IMU.kicad_sch





A

A

B

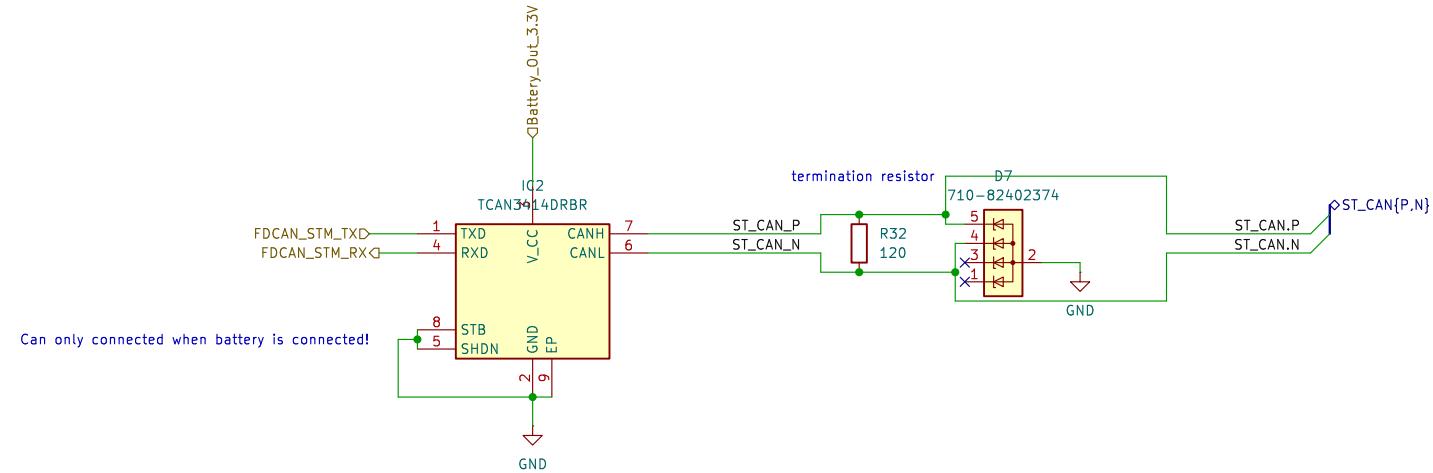
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /STM/CAN_Interface/

Rev: 1

Author: Evan & Davide

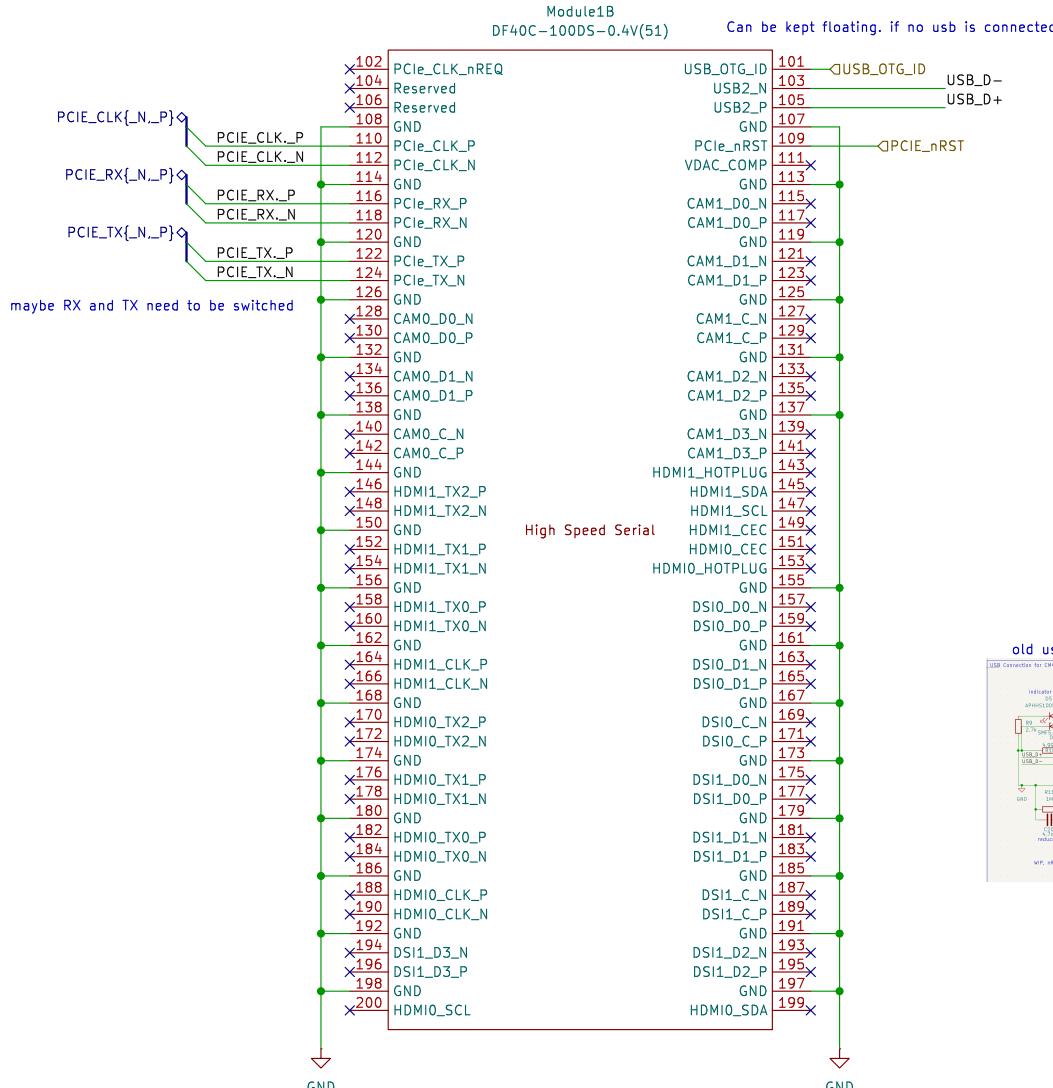
Date: 2025-11-19

Size: A4

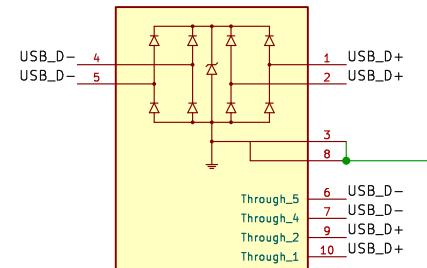
Id: 7/20

File: PowerSTM.kicad_sch

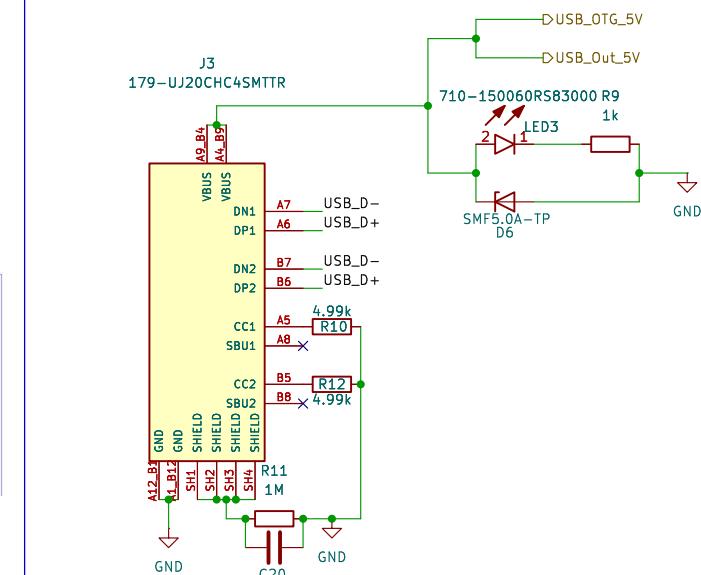
A



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



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1B/

Rev: 0

Author: Davide

Date: 2025-11-19

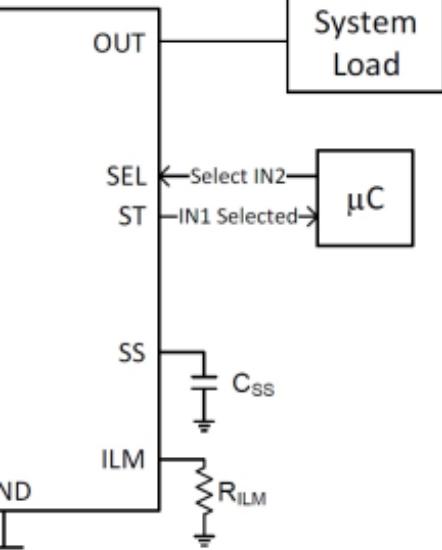
Size: A4

Id: 11/20

File: CM4_Module1B.kicad_sch



212x



for questions about wiring etc please consult the datasheet...
<https://www.ti.com/lit/ds/symlink/tps2120.pdf?ts=1761678178328>

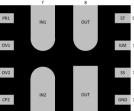
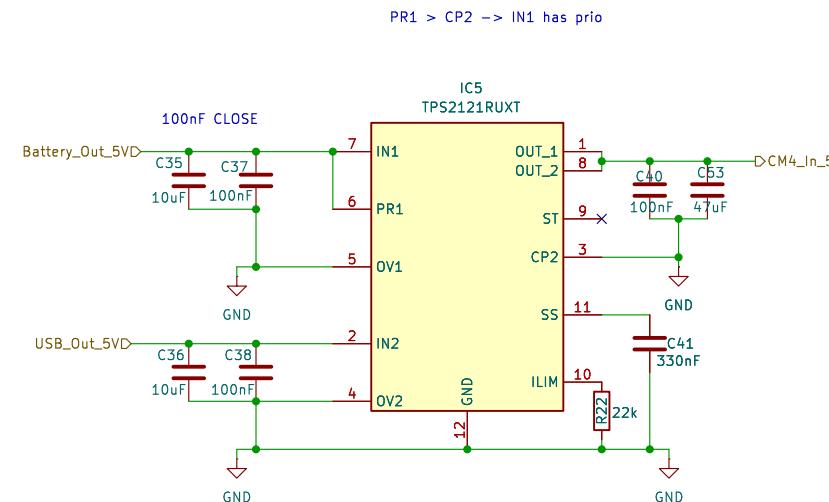


Figure 6-2. TPS2121 (RUX) Package 12-Pin VQFN-HR Bottom View

Pin Functions		
NAME	TPS2120	TPS2121
	WICSP	VQFN-HR
IN1	B1, B2, C1	7
IN2	B3, B4, C2	2
GND	C2, C3, D1, 1, 8	—
OUT	D2, D3, D4	1
ST	E1, E2	9
ILIM	E2	10
SS	E3	11
GND	E4	12
PR1	A1	6
OV1	A2	5
OV2	A3	4
SEL	A4	—

CP2 — 3 i Enables Comparator Operation and is compared to PR1 to set switchover voltage. Connect to GND if not required. TPS2120 only.

if the USB-only cold start "disconnects" we can try to bump SS to 470nF instead of 330nF.

Pins	MIN	MAX	UNIT
V _{IN1} , V _{IN2} , V _{OUT}	-0.3	24	V
V _{OV1} , V _{OV2}	-0.3	6	V
V _{PRI} , V _{SEL}	-0.3	6	V
V _{ST}	—	6	V
I _{OUT}	Internally Limited		
T _{J, MAX}	Internally Limited		
T _{STG}	-65	150	°C



Title: Nautilus_Mainboard

Sheet: /Power_logic/5V_Logic/

Rev: 0

Author: Davide

D

Date: 2025-11-19

Size: A4

Id: 12/20

File: 5V_Logic.kicad_sch

2

3

4

5

6

1 2 3 4 5 6

A

A

B

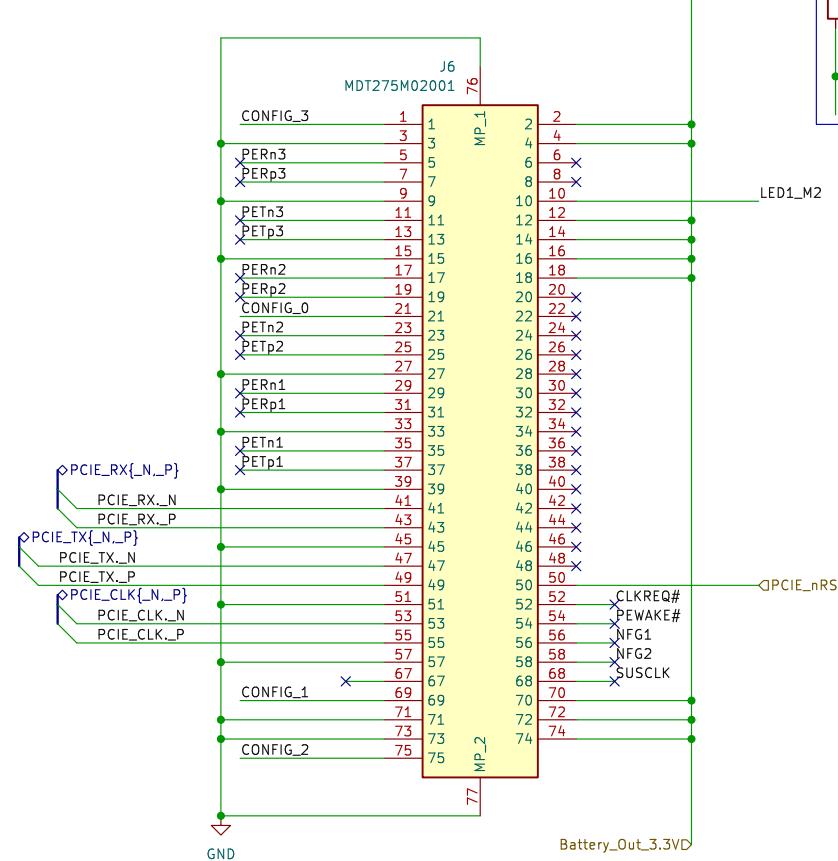
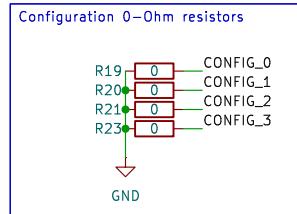
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /CM4/PCIE_Interface/

Rev: 0

Author: Davide

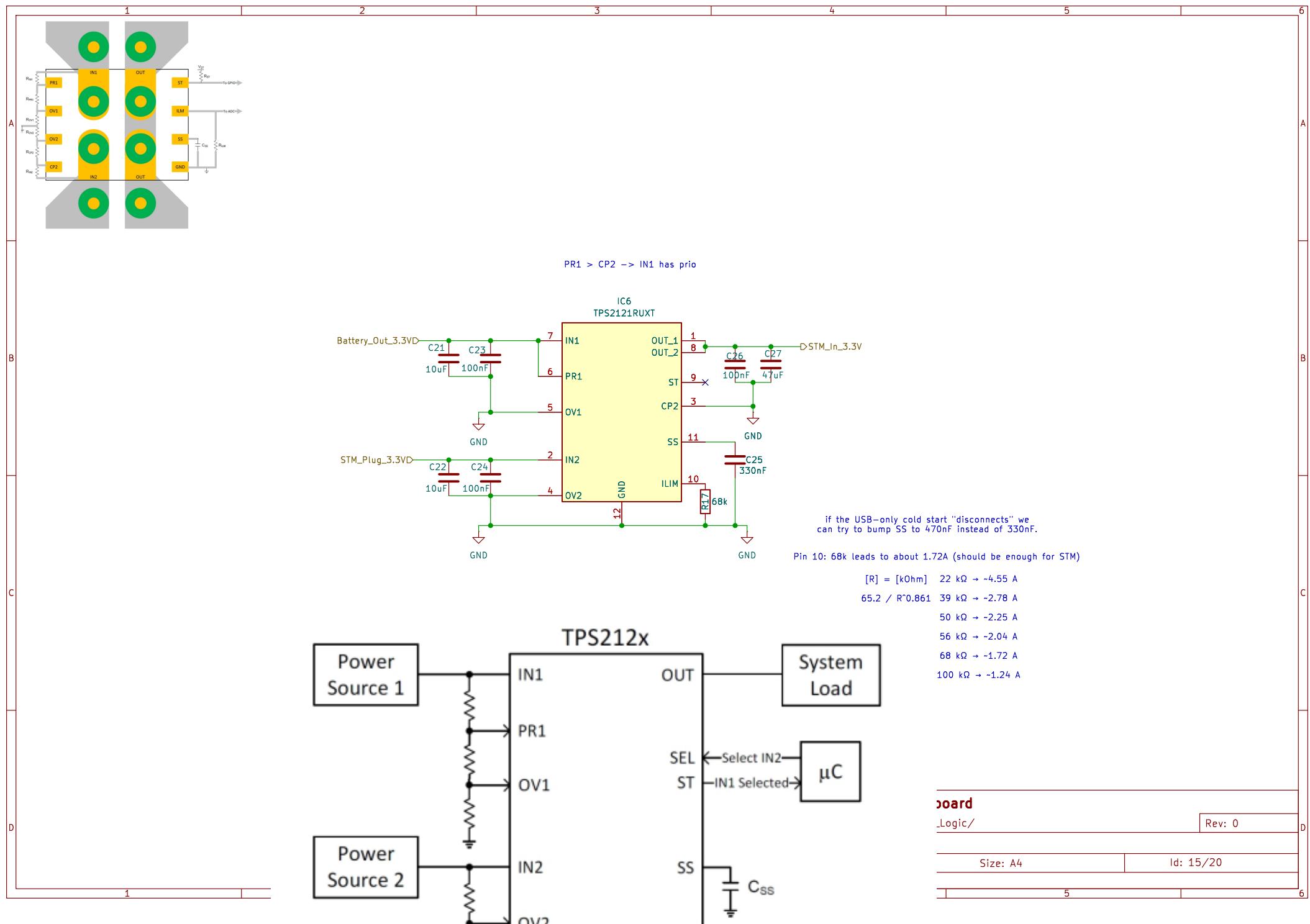
Date: 2025-11-19

Size: A4

Id: 13/20

File: PCIE_Interface.kicad_sch

1 2 3 4 5 6



1 2 3 4 5 6

A

A

B

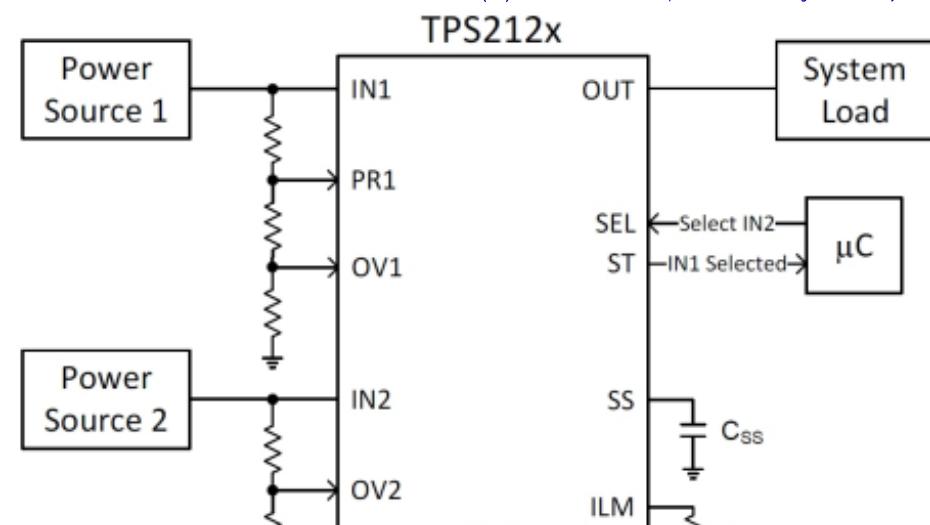
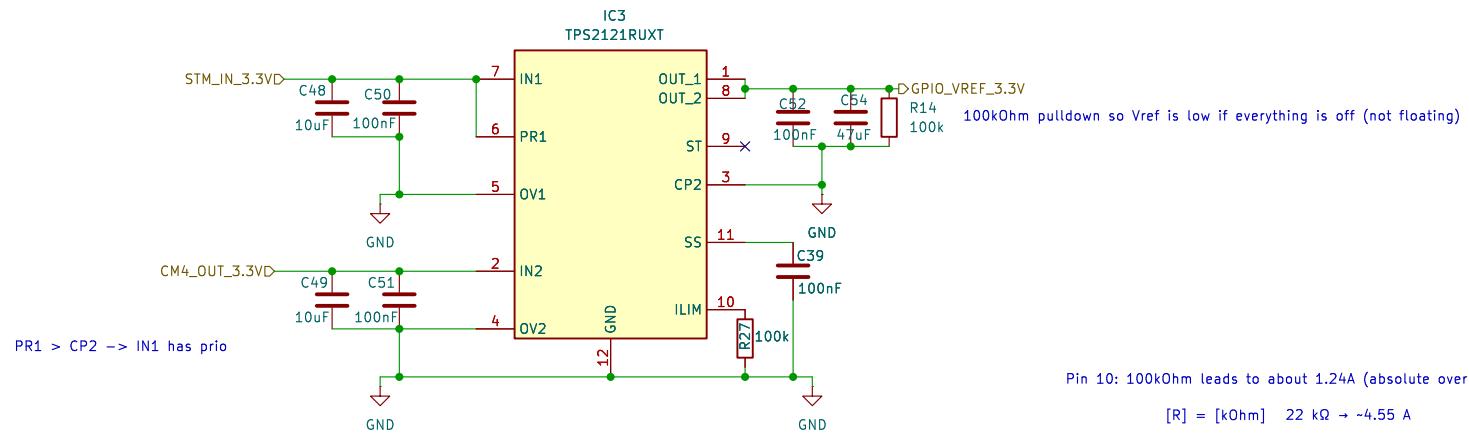
B

C

C

D

D



3V/

Rev: 0

Size: A4

Id: 16/20

5

6

1 2 3 4 5 6

A

A

B

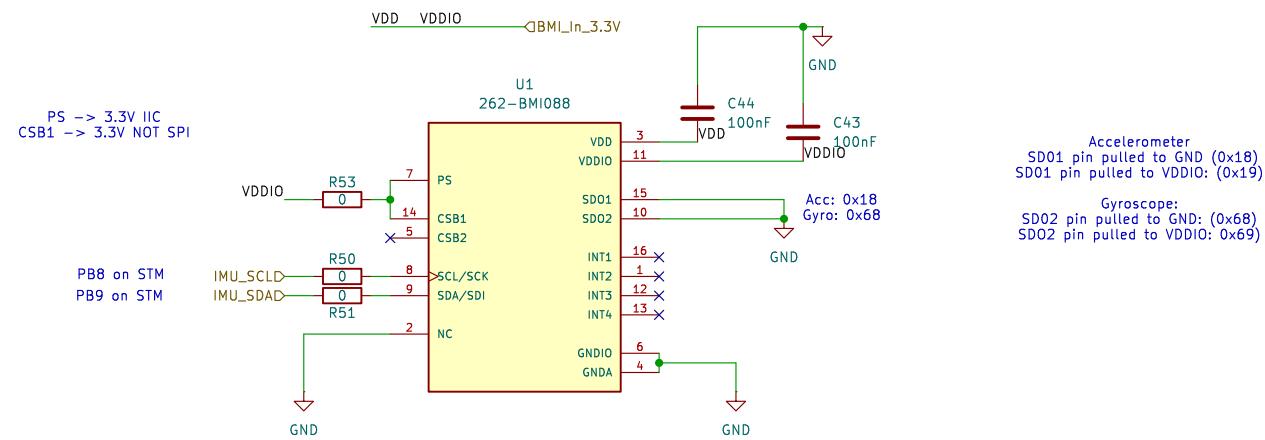
B

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

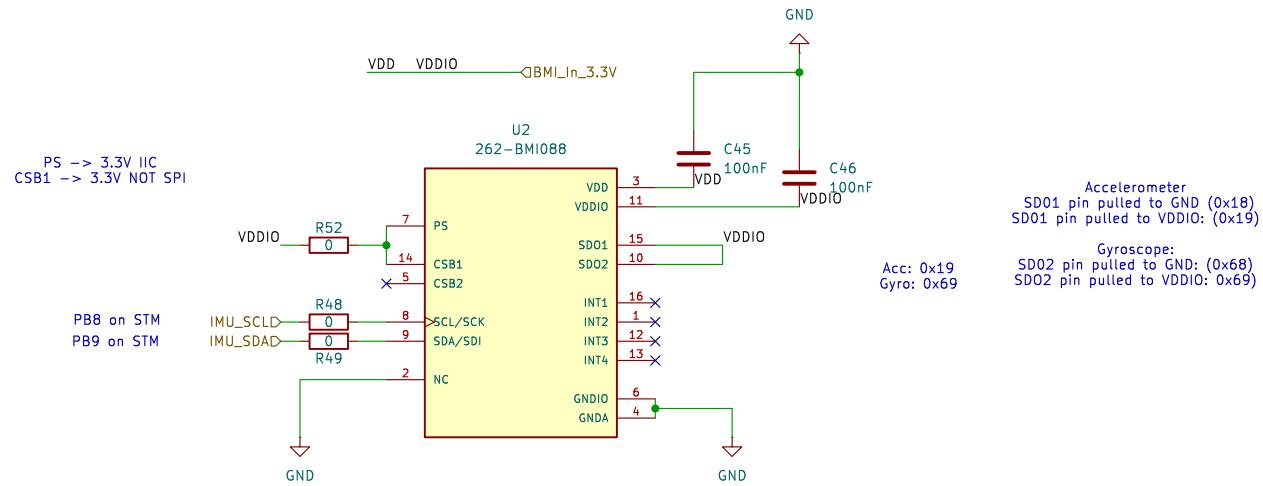
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /IMU/IMU2/

Rev: 0

Author: Davide

Date: 2025-11-19

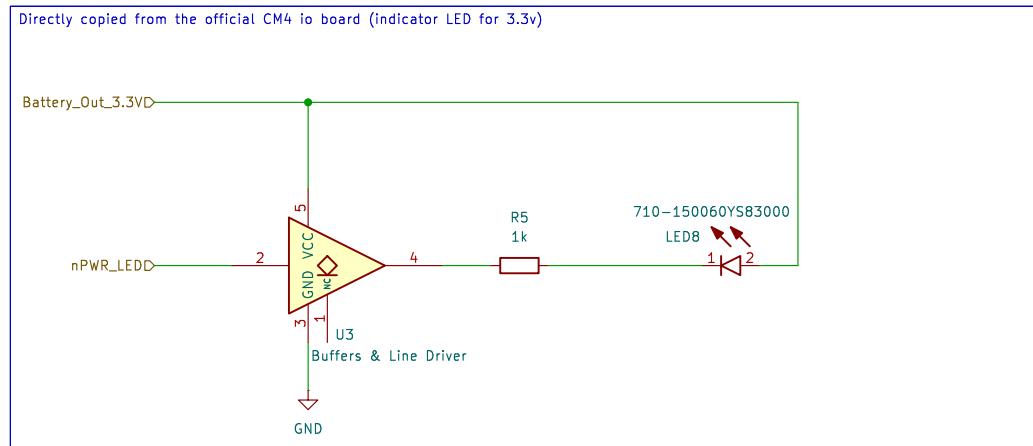
Size: A4

Id: 20/20

File: IMU2.kicad_sch

A

A



B

B

Screenshot
From the CM4 io board

C

C



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1A/CM4_LED1/

Rev: 0

Author: Davide

Date: 2025-11-19

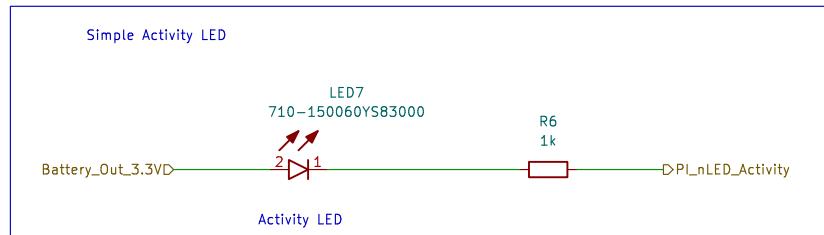
Size: A4

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

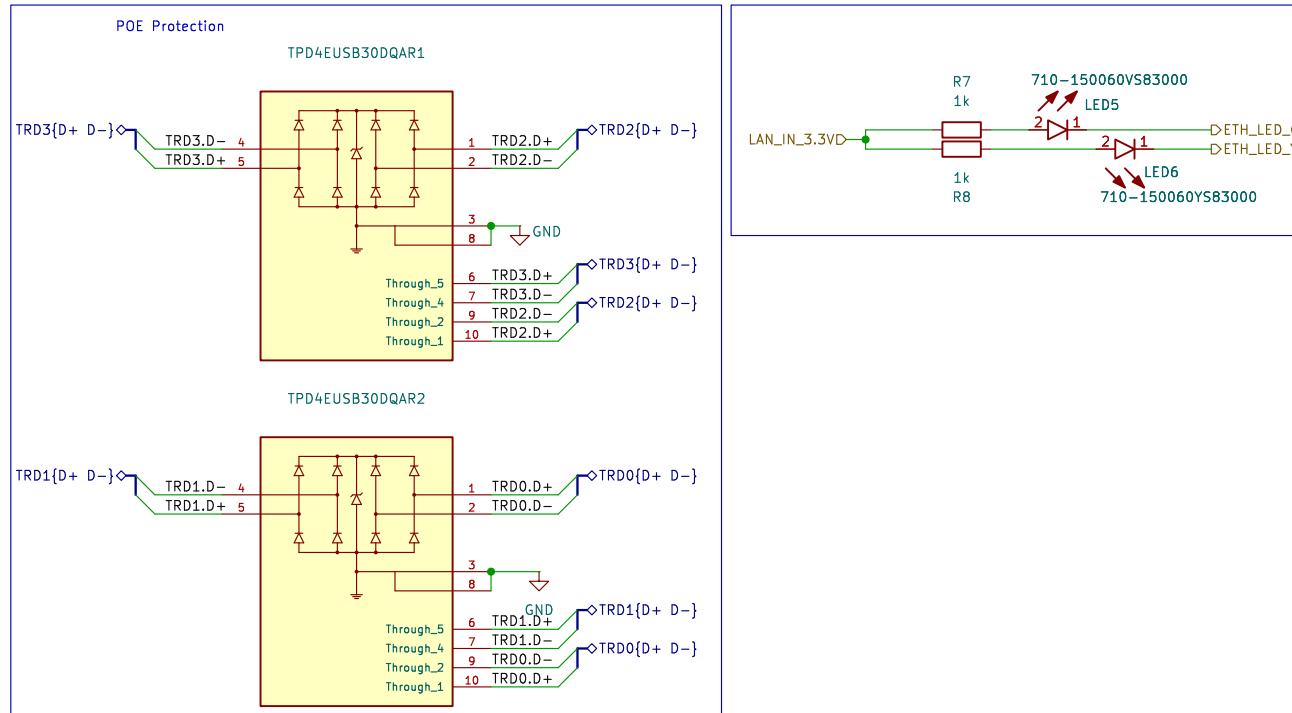
Size: A4

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