

Title: Nautilus_Mainboard

Sheet: /STM/

Rev: 0

Author: Evan

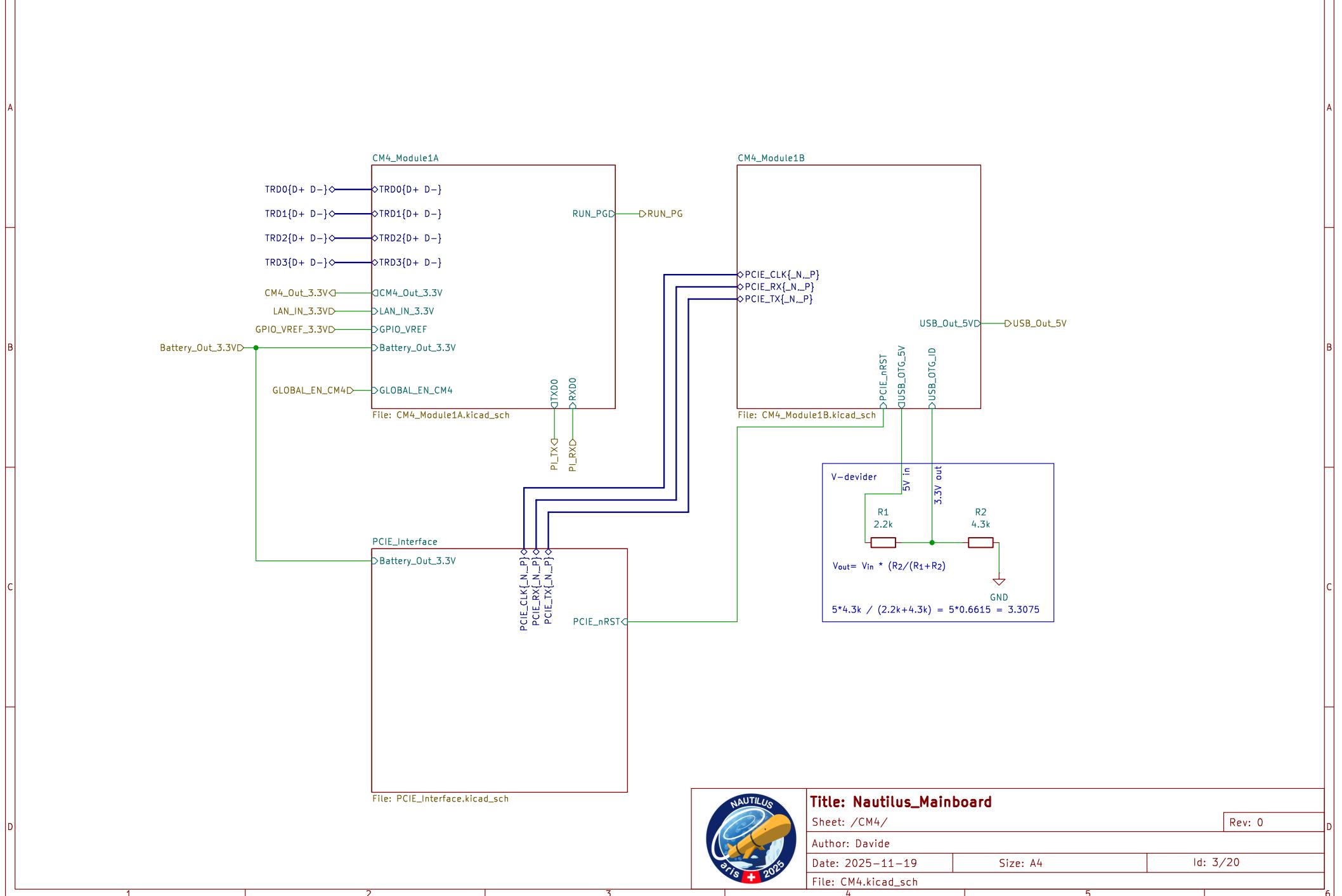
Date: 2025-11-19

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

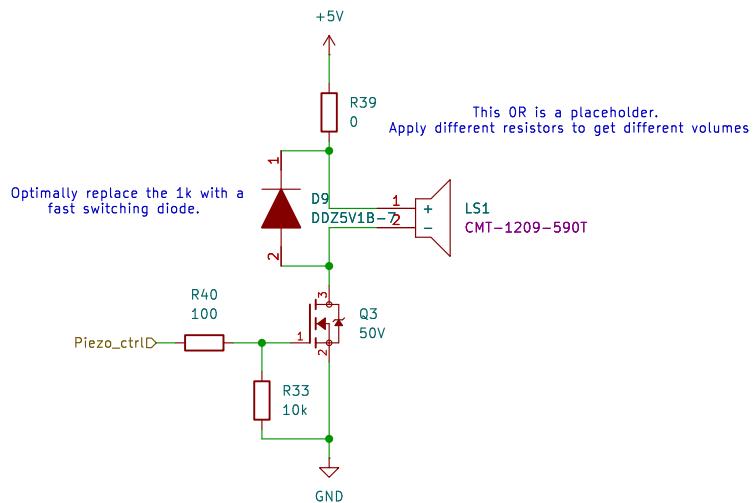
C

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

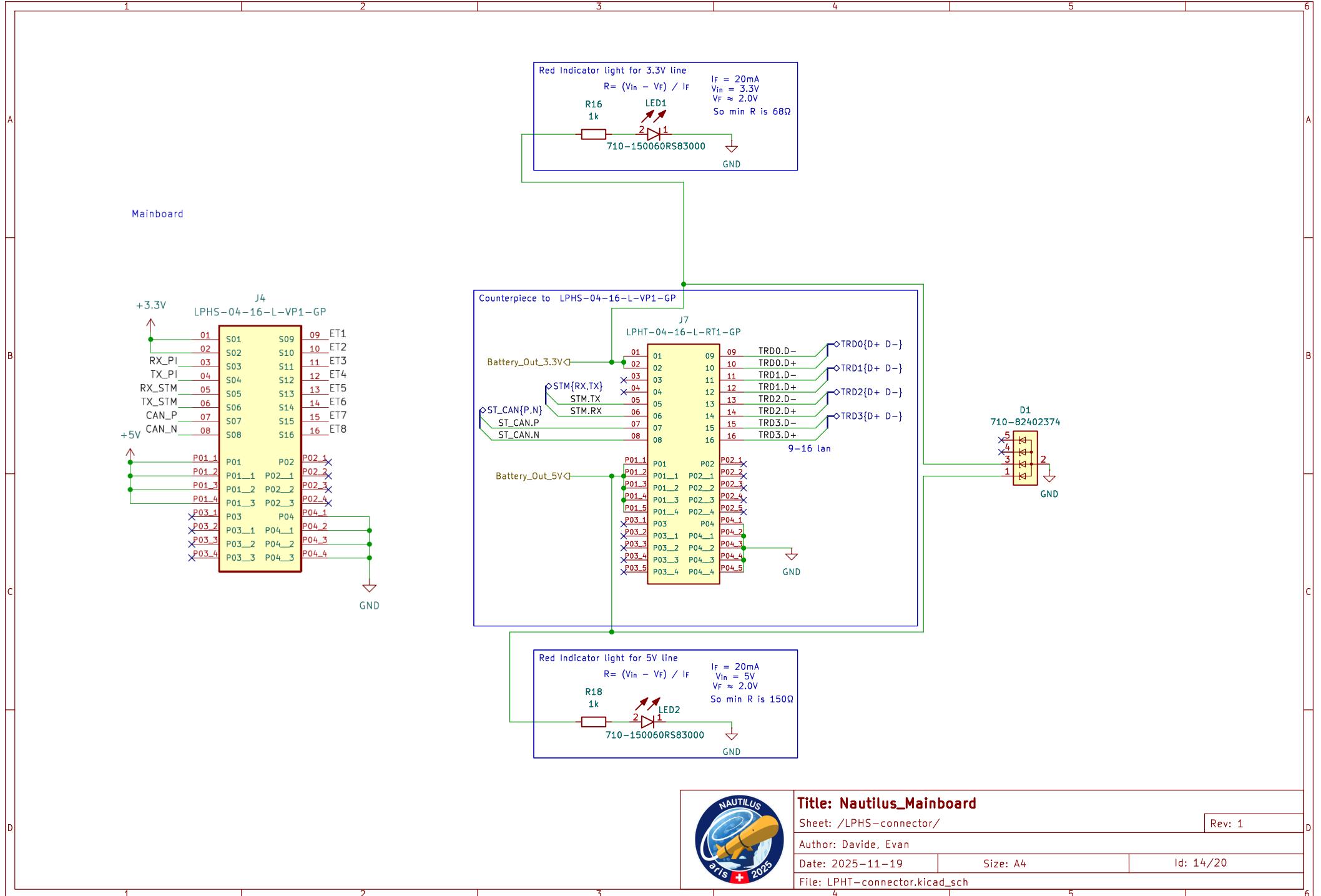
Date: 2025-11-19

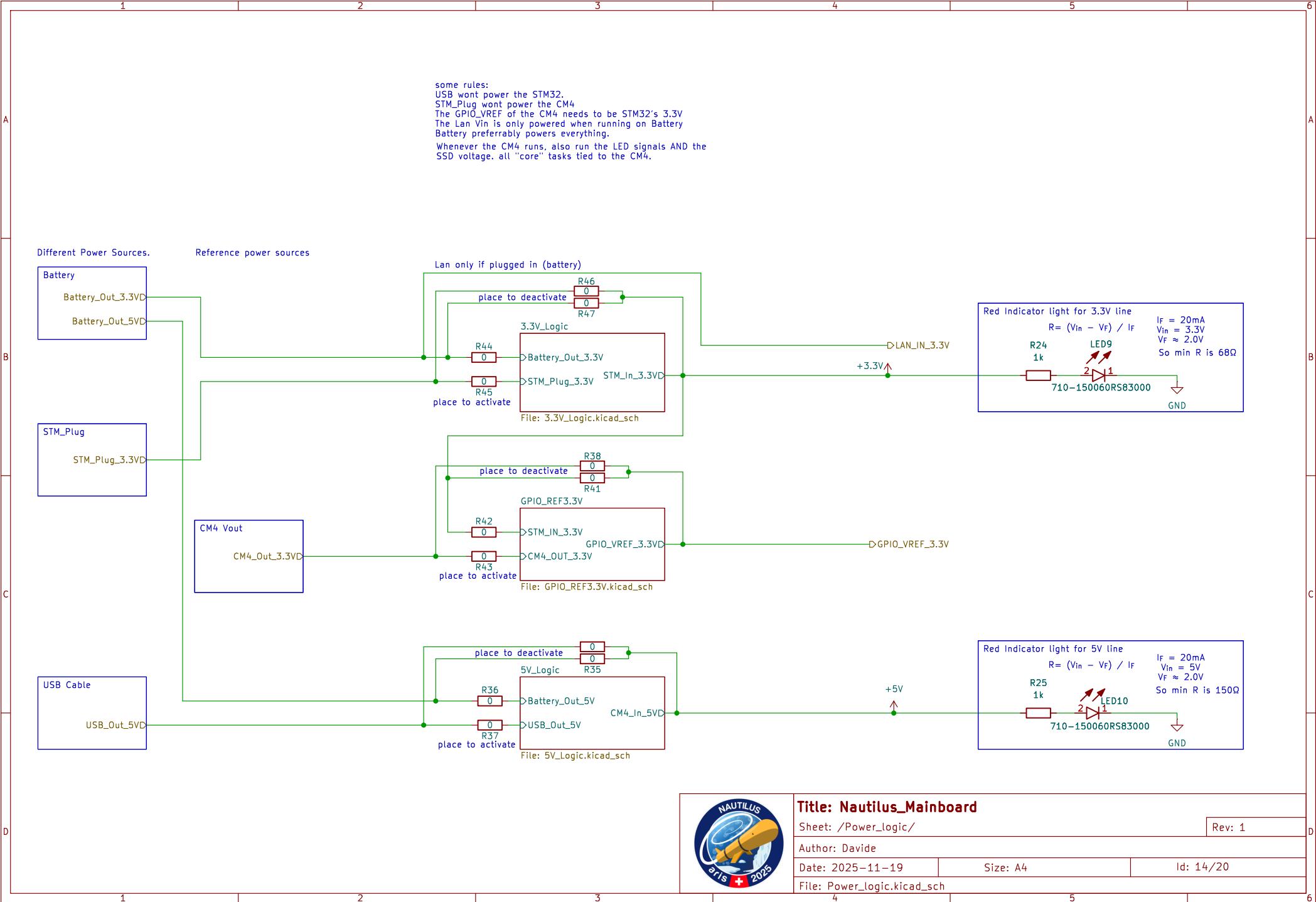
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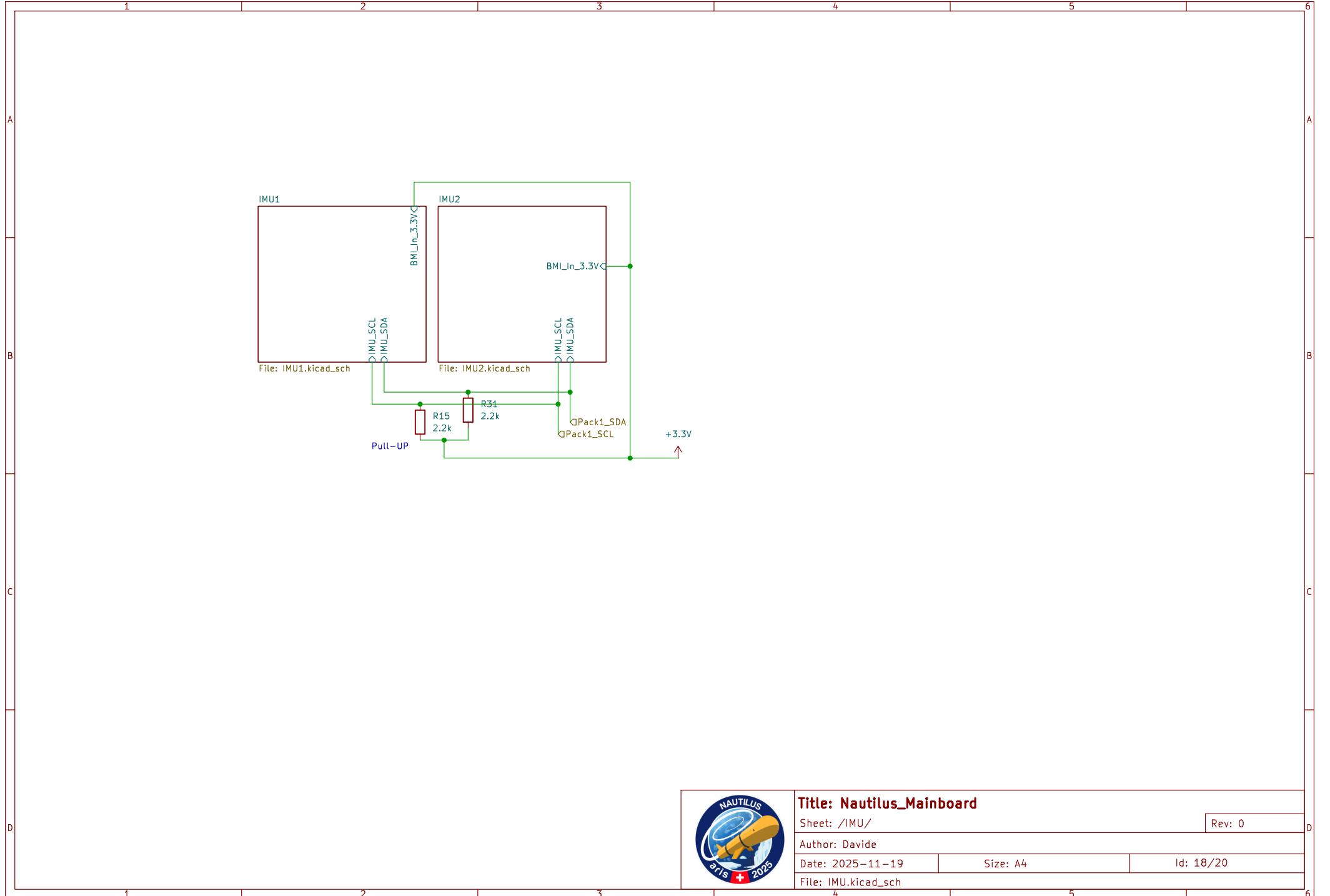
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File: Piezzo.kicad_sch

1 2 3 4 5 6







Title: Nautilus_Mainboard

Sheet: /IMU/

Rev: 0

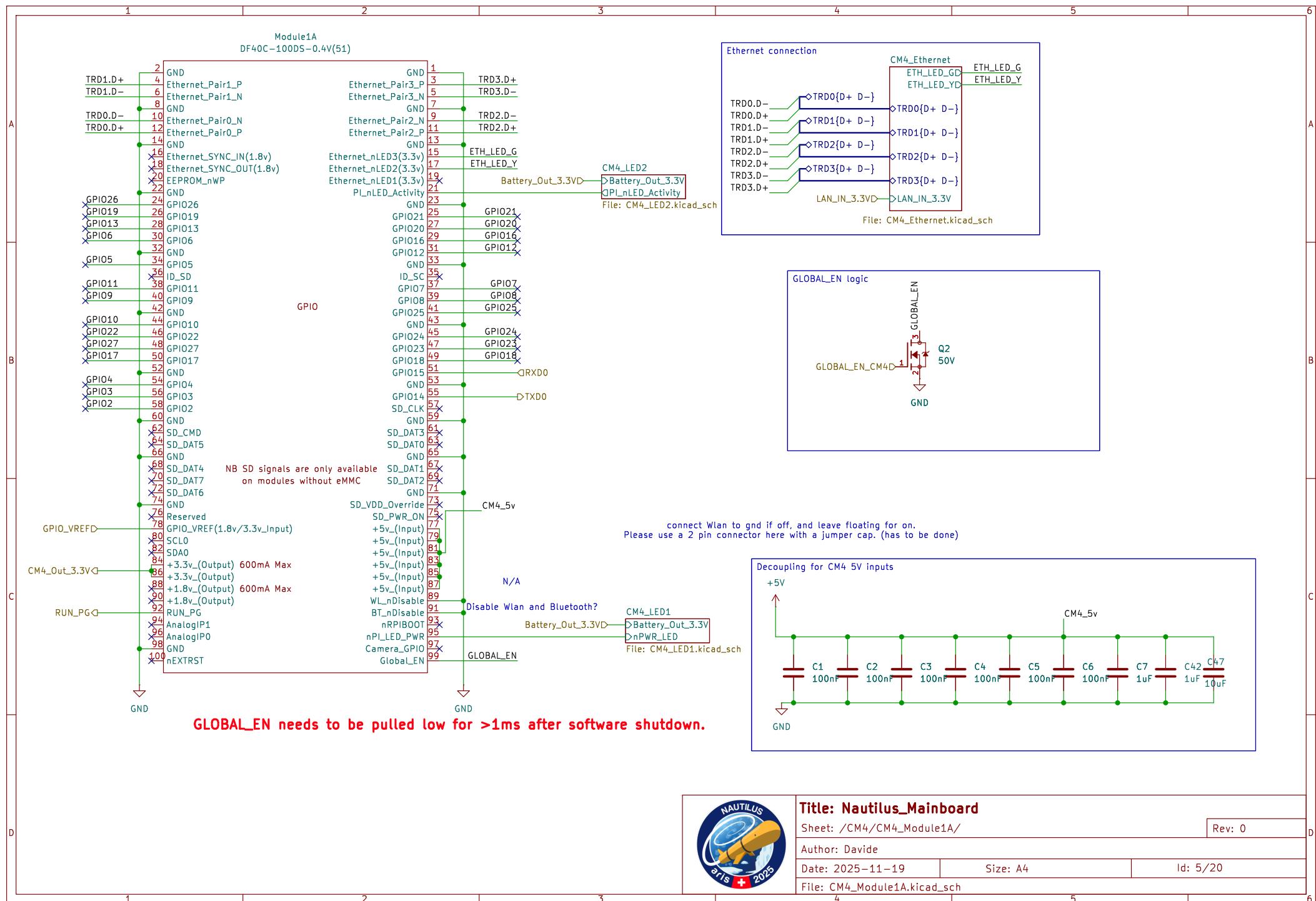
Author: Davide

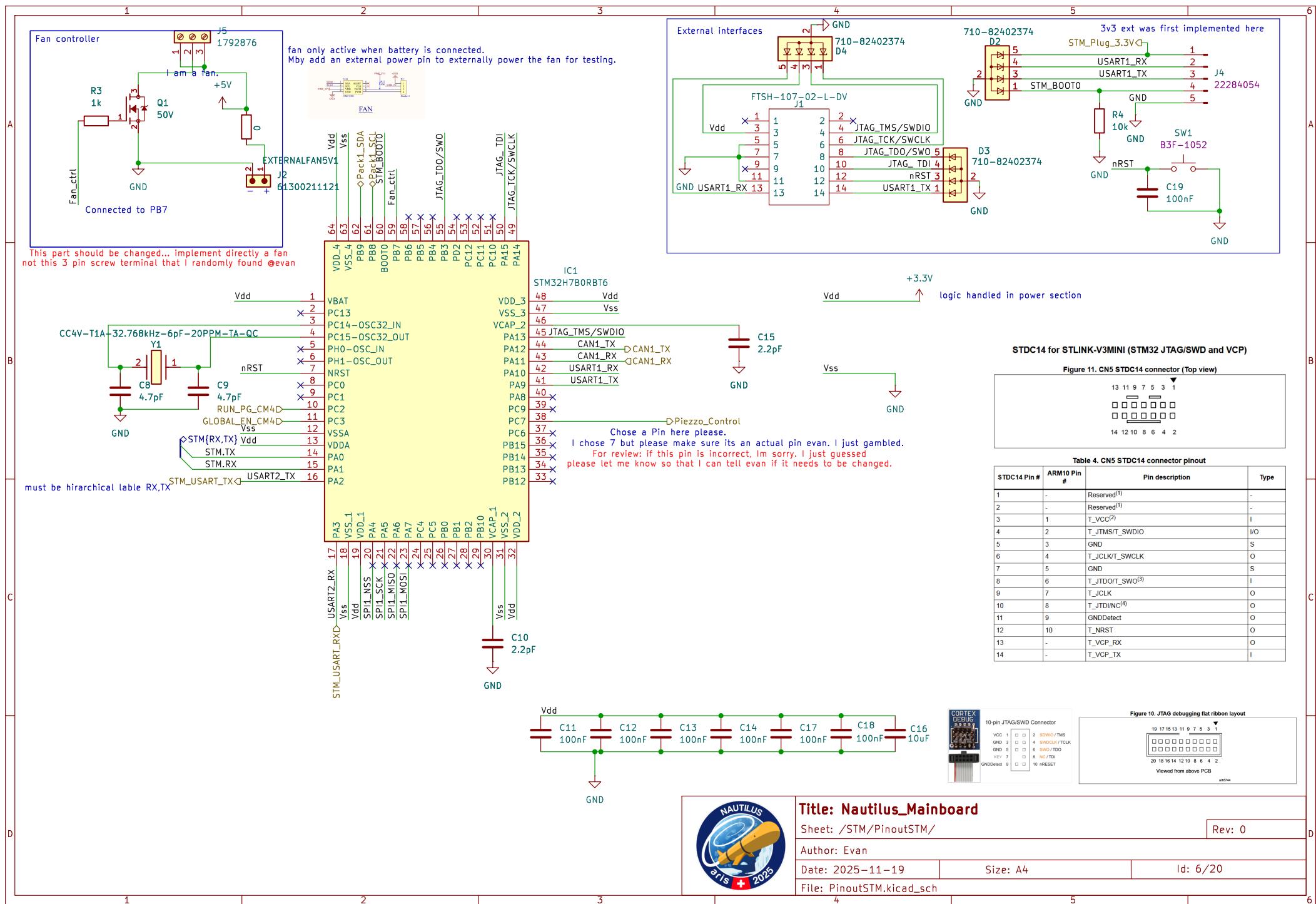
Date: 2025-11-19

Size: A4

Id: 18/20

File: IMU.kicad_sch





A

A

B

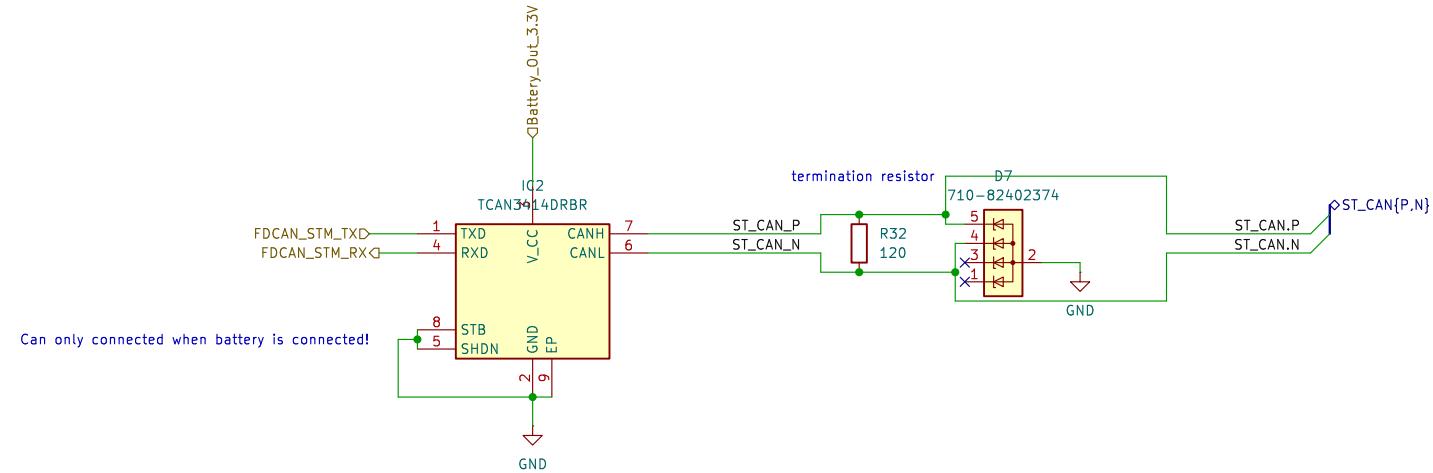
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /STM/CAN_Interface/

Rev: 1

Author: Evan & Davide

Date: 2025-11-19

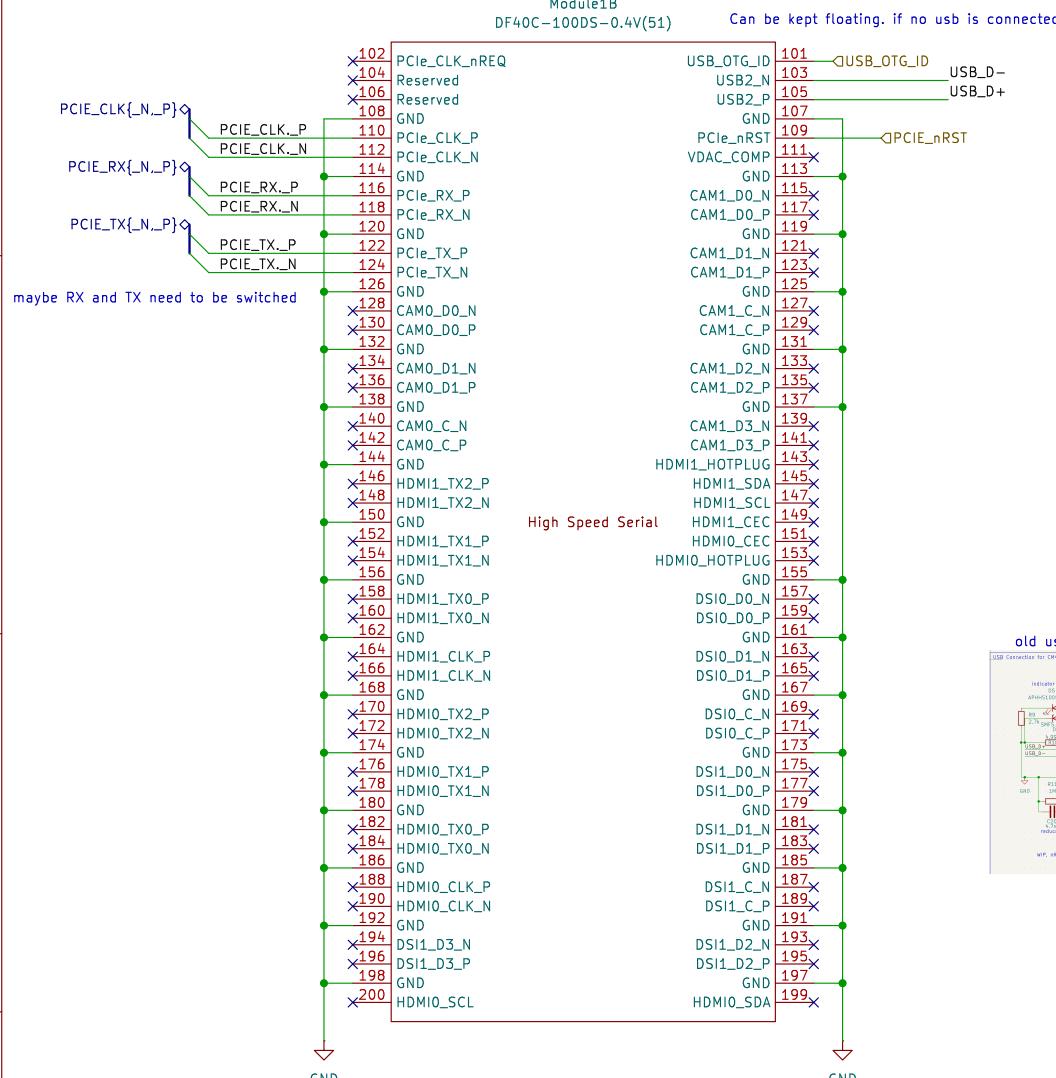
Size: A4

Id: 7/20

File: PowerSTM.kicad_sch

1 2 3 4 5 6

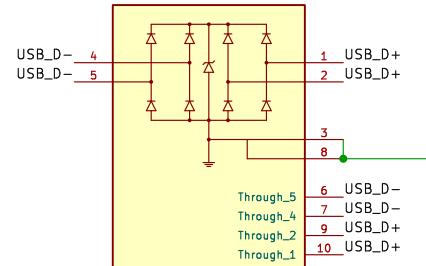
A



Can be kept floating. if no usb is connected

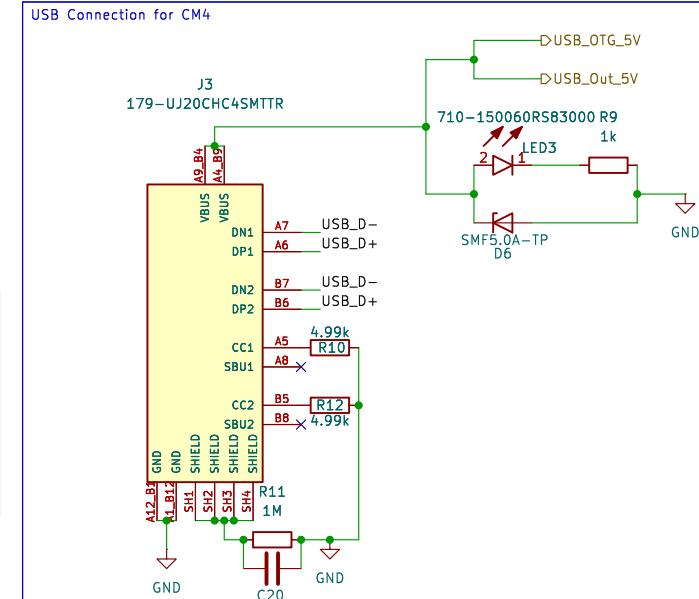
ESD/EMP protection for the USB
Super important to not differ lengths or curve a lot with D+ and D-.
Also should have same hole counts (vias) and same length.

TPD4EUSB30DQAR3



USB Connection for CM4

J3 179-UJ20CHC4SMTR



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

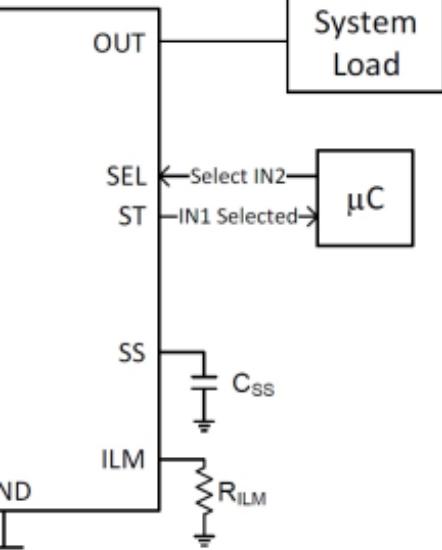
Size: A4

Id: 11/20

File: CM4_Module1B.kicad_sch

1 2 3 4 5 6

212x



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

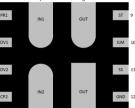
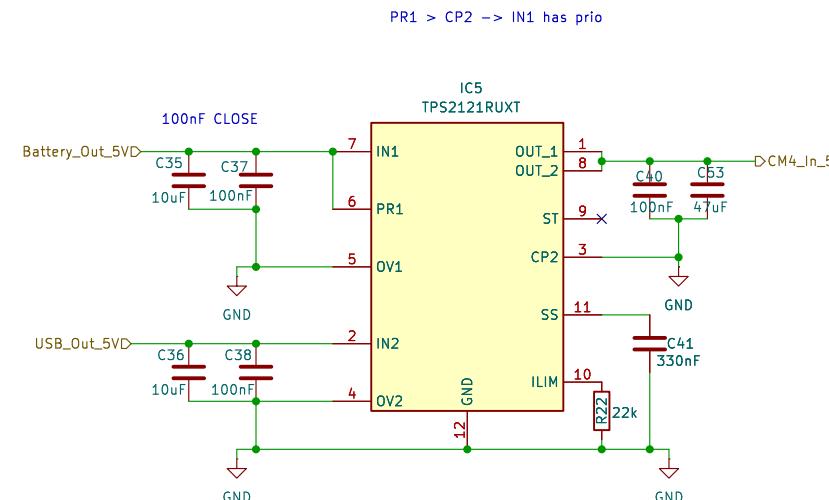


Figure 6-2. TPS2121 (RUX) Package 12-Pin VQFN-HR Bottom View

| Pin Functions | | |
|---------------|------------------|---------|
| NAME | TPS2120 | TPS2121 |
| | WICSP | VQFN-HR |
| IN1 | B1, B2, C1 | 7 |
| IN2 | B3, B4, C2 | 2 |
| OUT | C2, C3, D1, 1, 8 | 1 |
| ST | E1, E2 | 9 |
| ILM | 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} | ST | -0.3 | 6 |
| 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

1 2 3 4 5 6

A

A

B

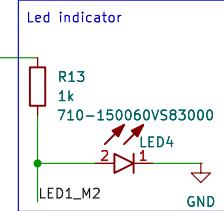
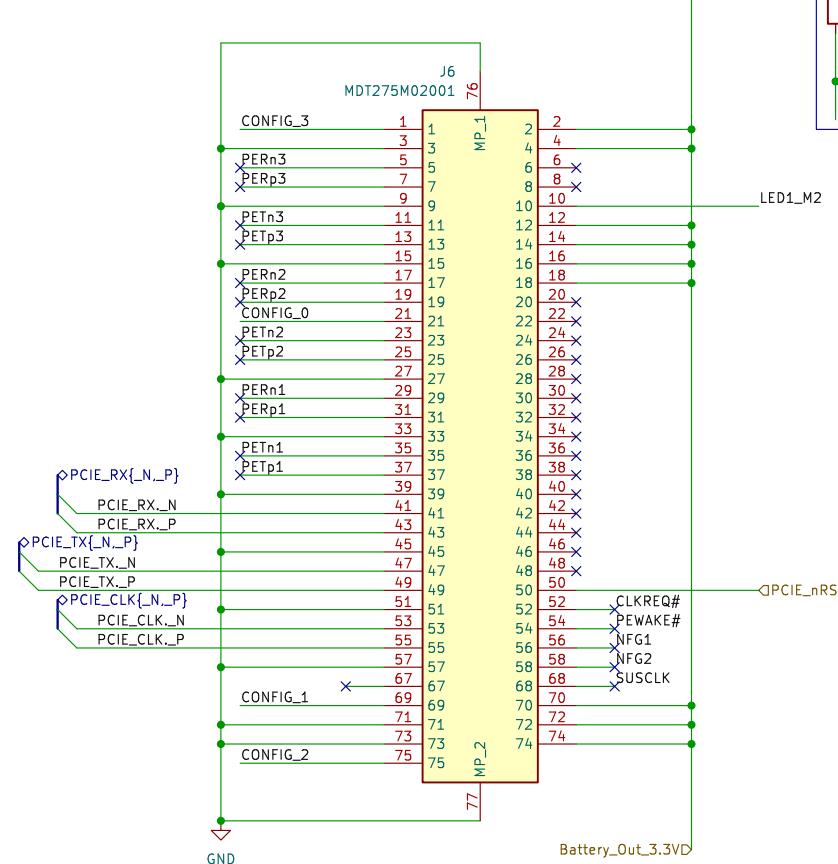
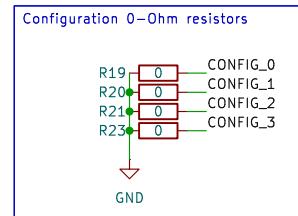
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /CM4/PCIE_Interface/
Rev: 0

Author: Davide

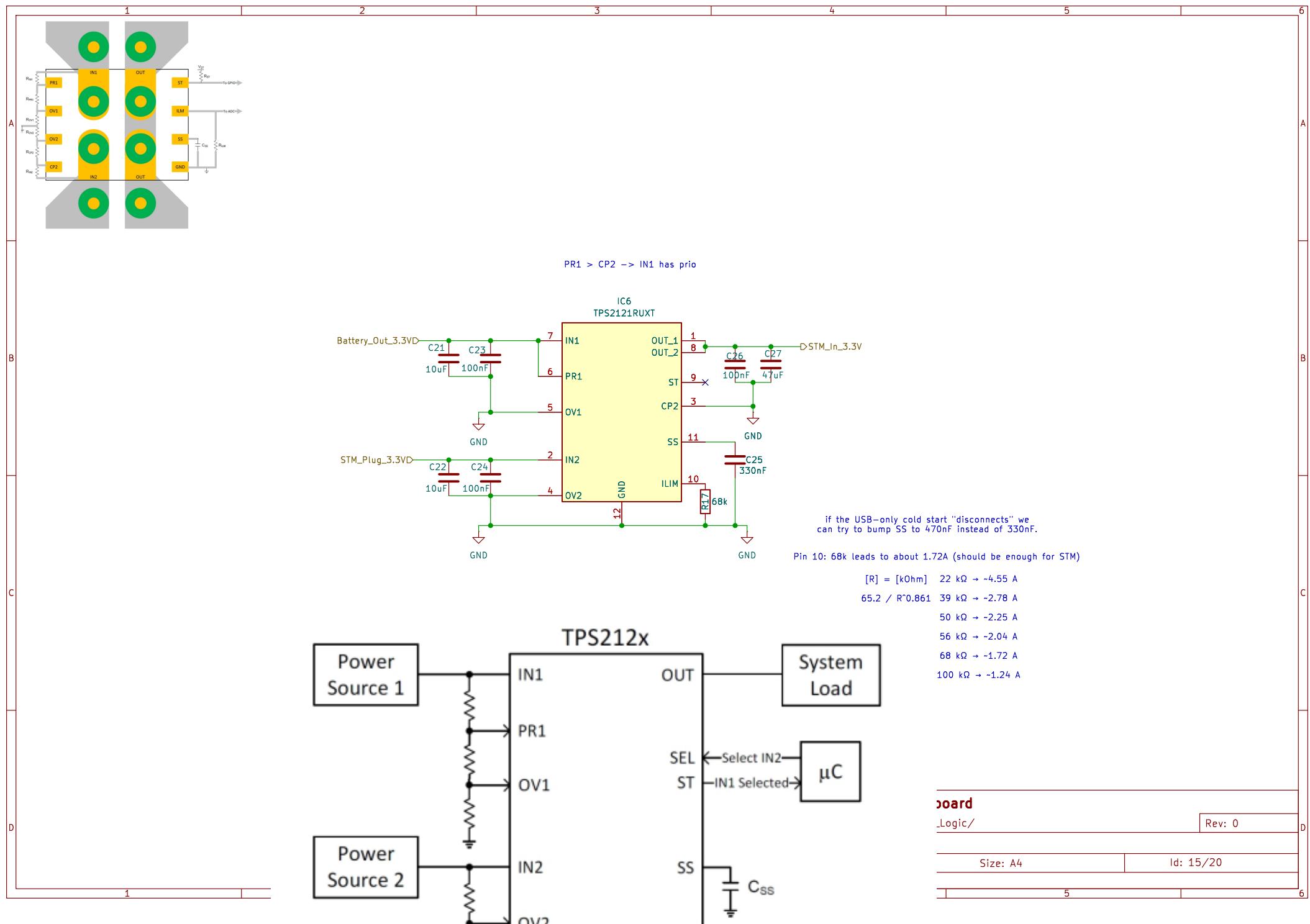
Date: 2025-11-19

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

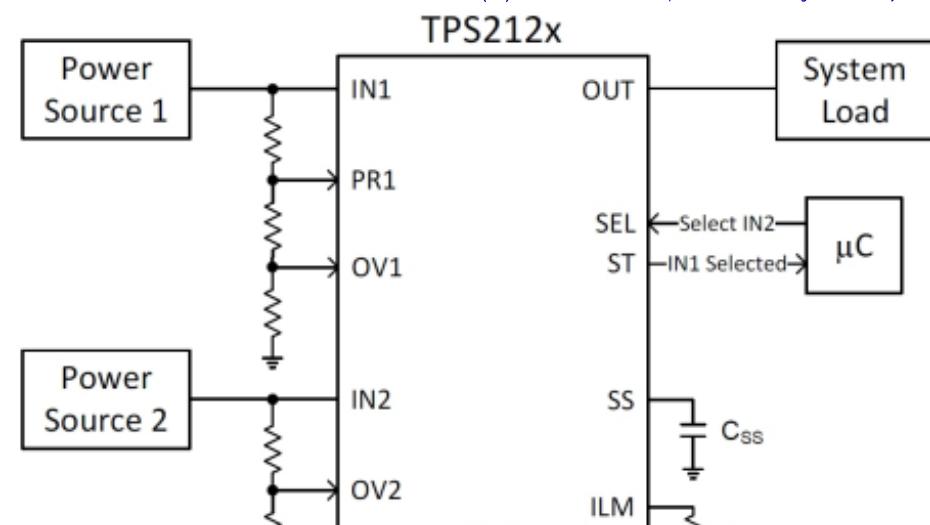
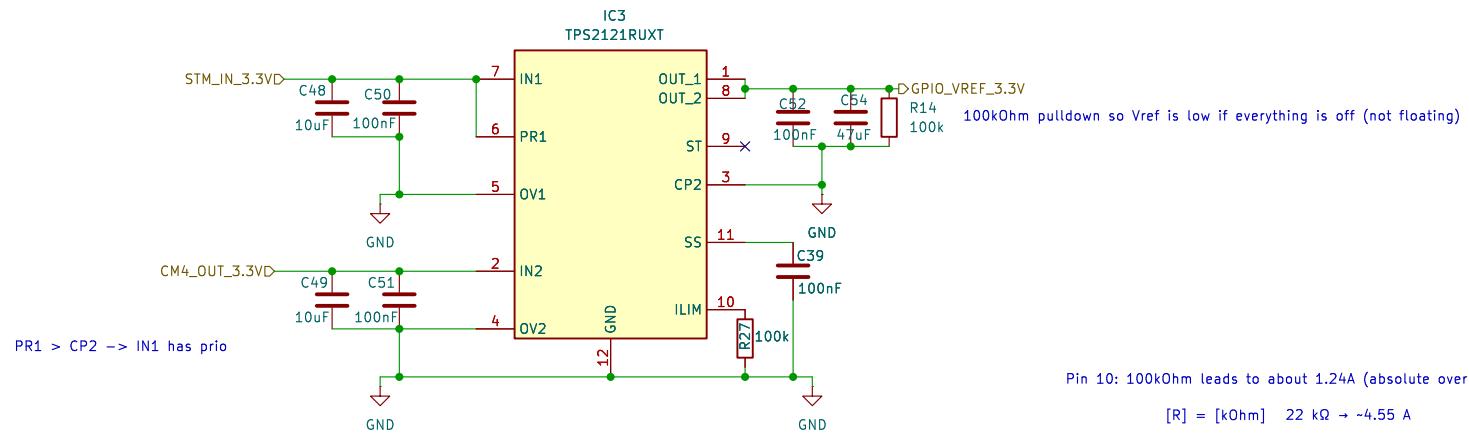
B

C

C

D

D



1 2 3 4 5 6

A

A

B

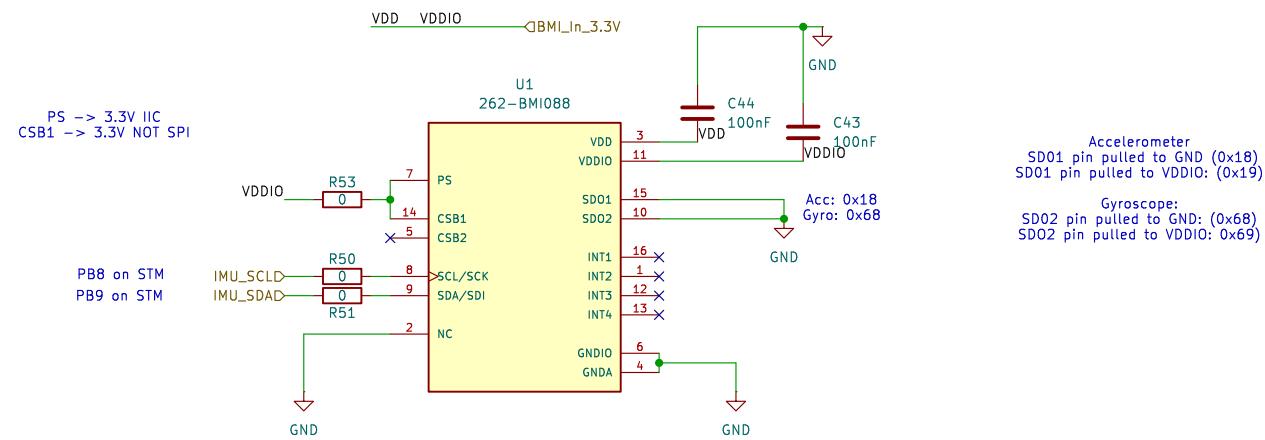
B

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

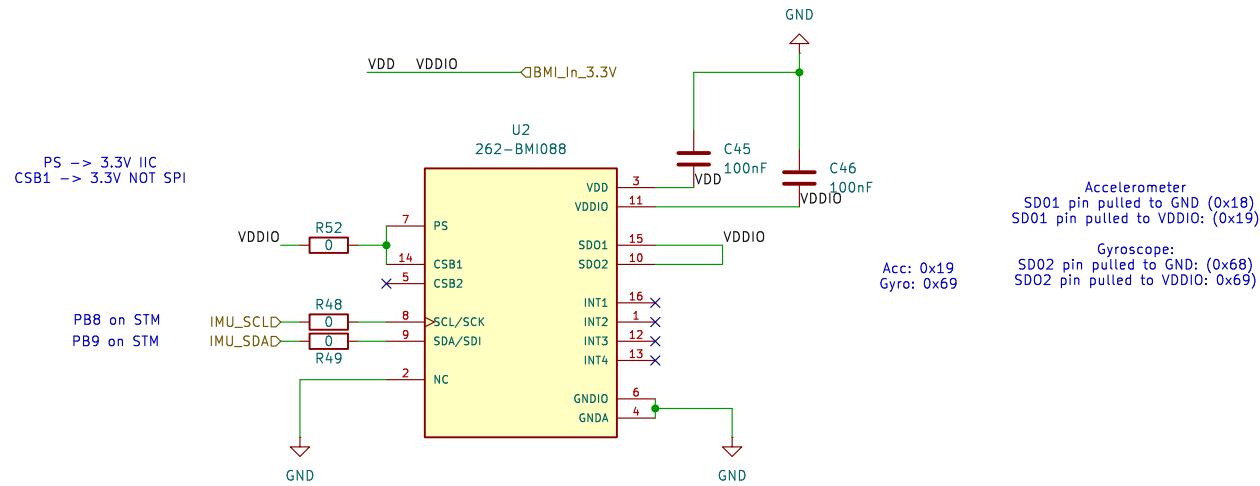
B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /IMU/IMU2/

Rev: 0

Author: Davide

Date: 2025-11-19

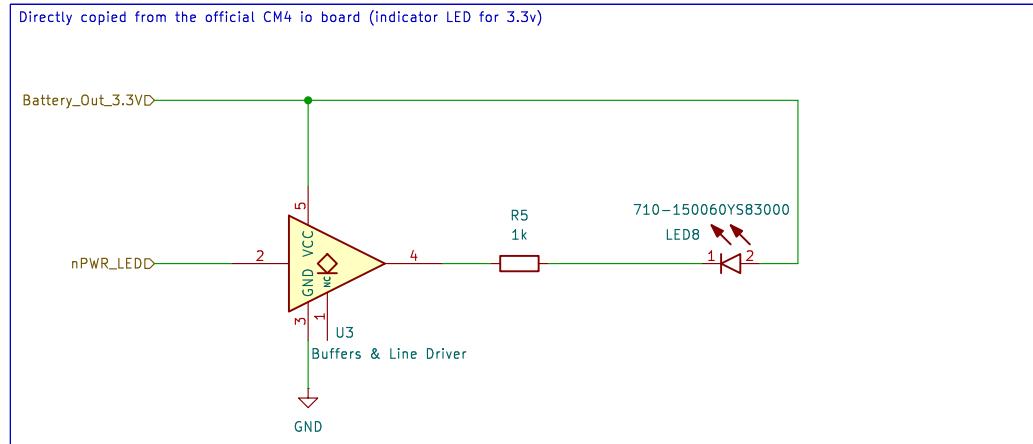
Size: A4

Id: 20/20

File: IMU2.kicad_sch

A

A



Screenshot
From the CM4 io board

B

B

C

C

D

D



Title: Nautilus_Mainboard

Sheet: /CM4/CM4_Module1A/CM4_LED1/

Rev: 0

Author: Davide

Date: 2025-11-19

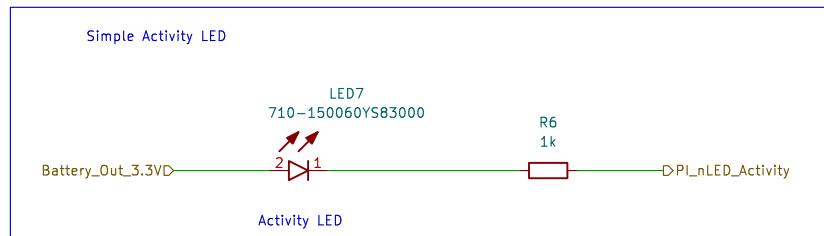
Size: A4

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

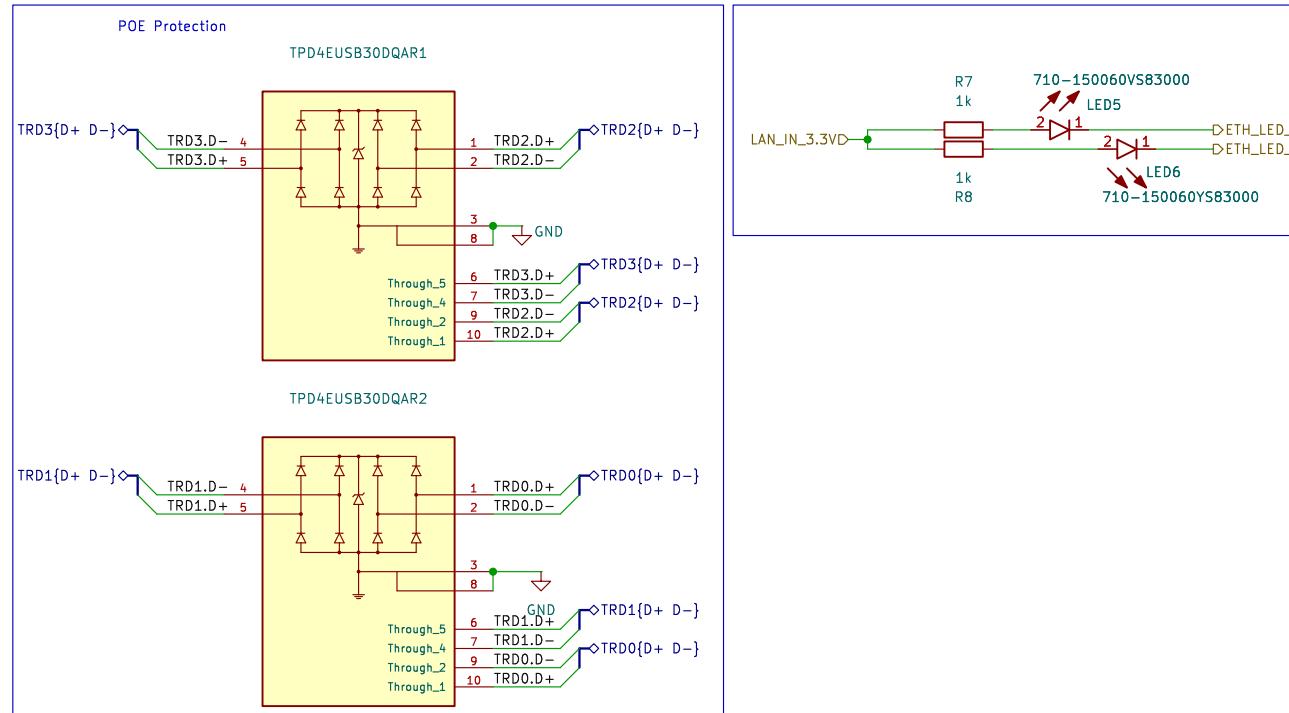
Size: A4

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