

We should consider that we NEVER want the CM4 to power the unpowered STM over the TX pin. Found a neat part for that:

<https://www.mouser.ch/ProductDetail/Texas-Instruments/SN74LVC1G126DBVR?qs=pajglaoyDUI3T2WgNNfd3w%3D%3D>

connections:

Pin 5: VCC → CM4_3V3

Pin 2: A → CM4 TX (PLTX)

Pin 4: Y → STM_UART_RX

Pin 1: OE → STM_IN_3.3V

Pin 3: GND

0.1uF decoupling cap VCC-GND



Title:

Sheet: /

Rev: /

Author: /

Date: /

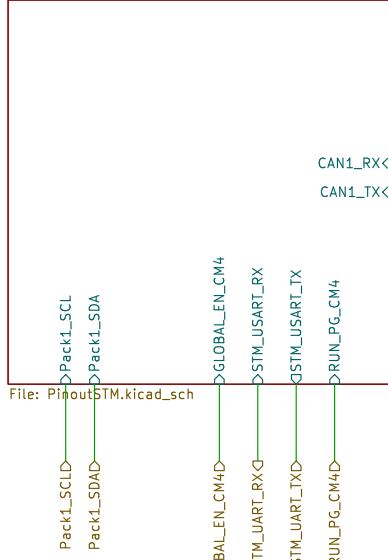
Size: A4

Id: 1/20

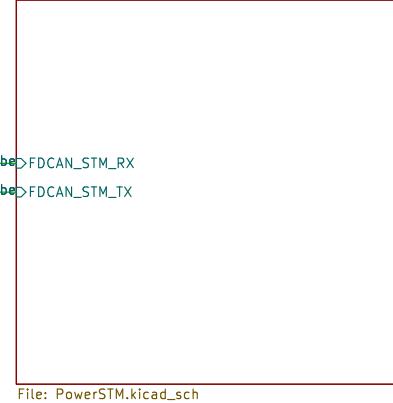
File: nautilus_mainboard.kicad_sch

220 Ohm series at Y (to STM). (current limiting)

PinoutSTM



CAN_Interface



A

A

B

B

C

C

D

D

**Title:**

Sheet: /STM/

Rev:

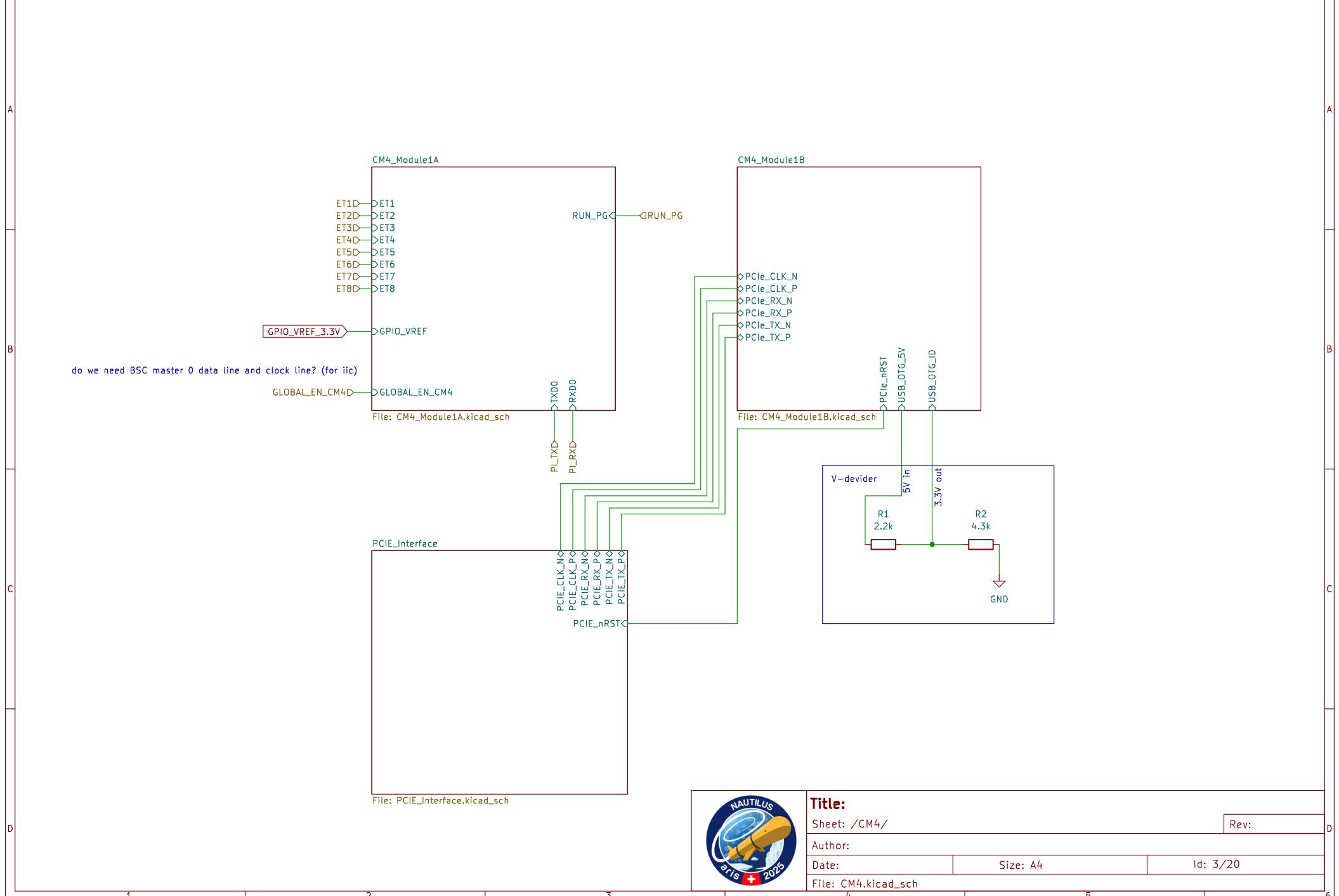
Author:

Date:

Size: A4

Id: 2/20

File: STM.kicad_sch



A

A

B

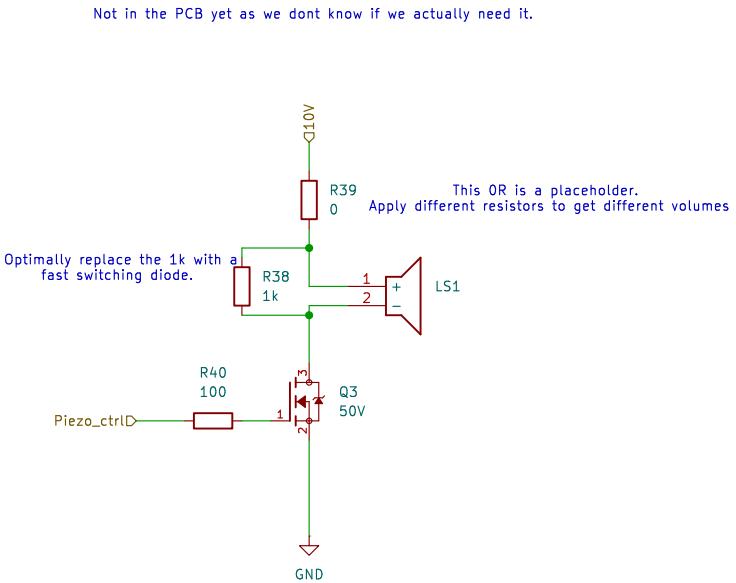
B

C

C

D

D

**Title:**

Sheet: /Piezzo/

Rev:

Author:

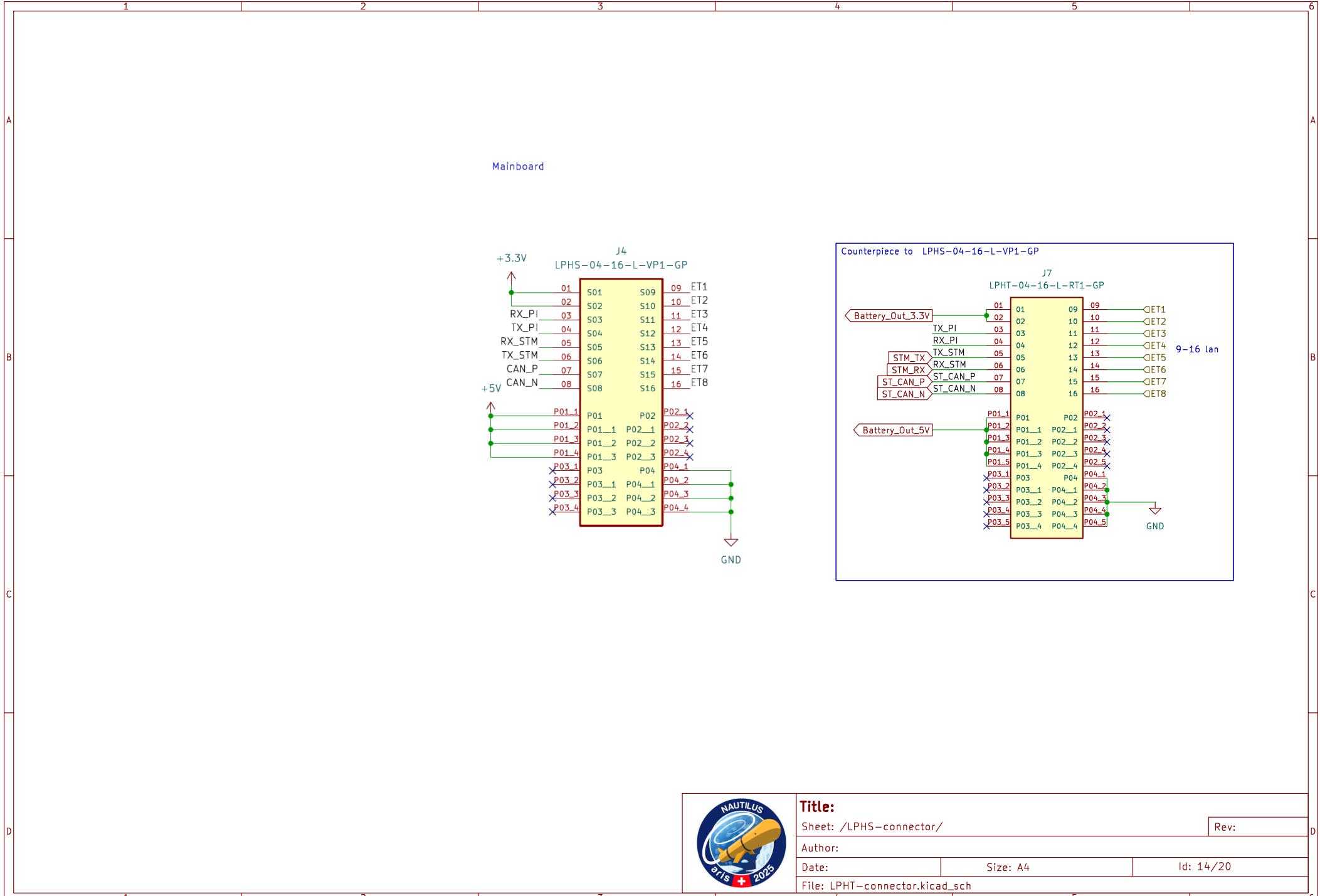
Date:

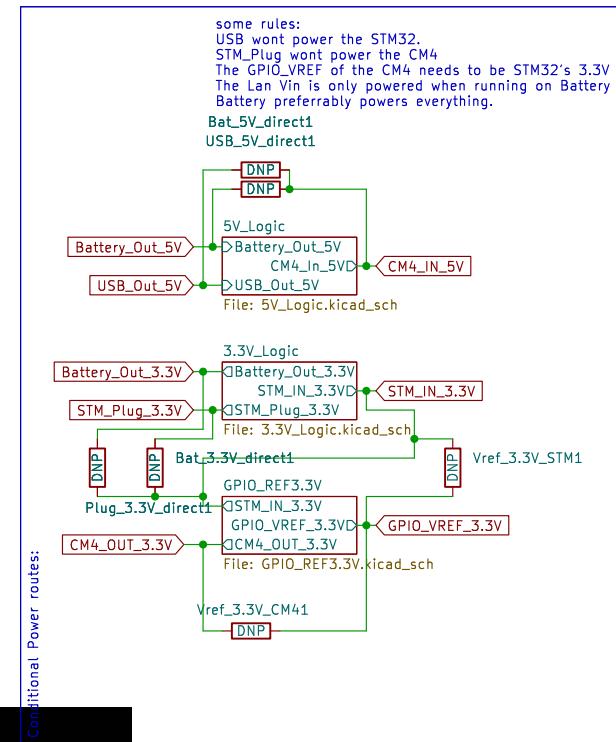
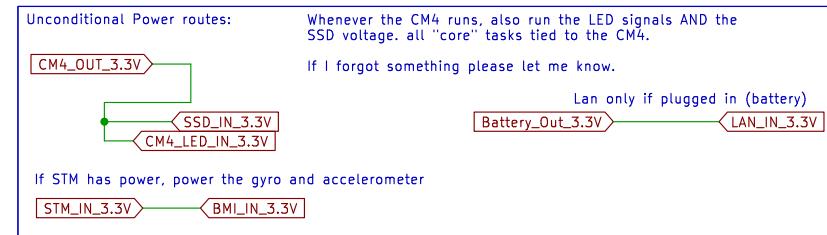
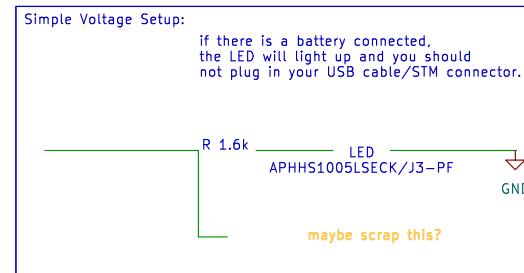
Size:

A4

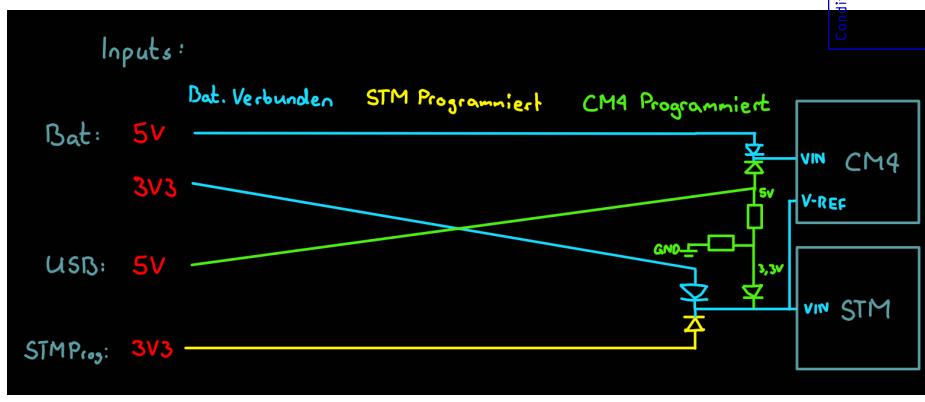
Id: 4/20

File: Piezzo.kicad_sch





Wont work... diodes are not perfect...



Title:

Sheet: /Power_logic/

Author:

Date:

Size: A4

Rev:

Id: 14/20

File: Power_logic.kicad_sch

A

A

B

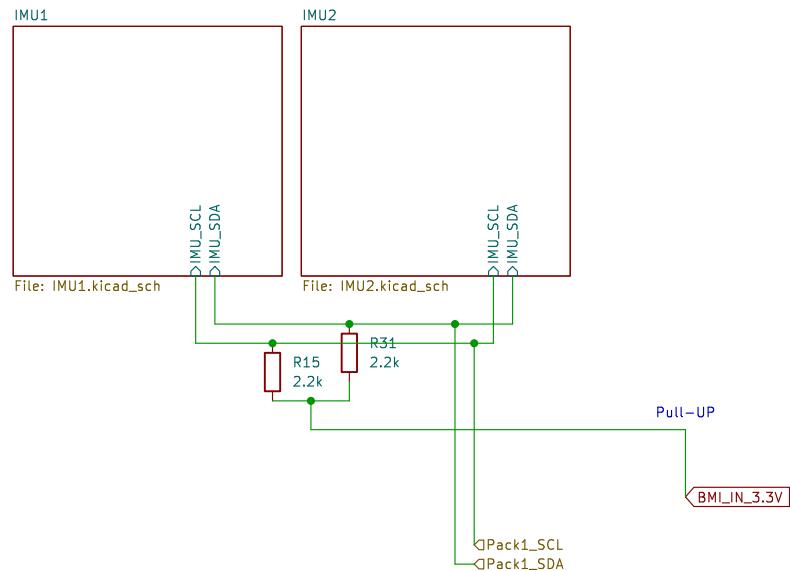
B

C

C

D

D

**Title:**

Sheet: /IMU/

Rev:

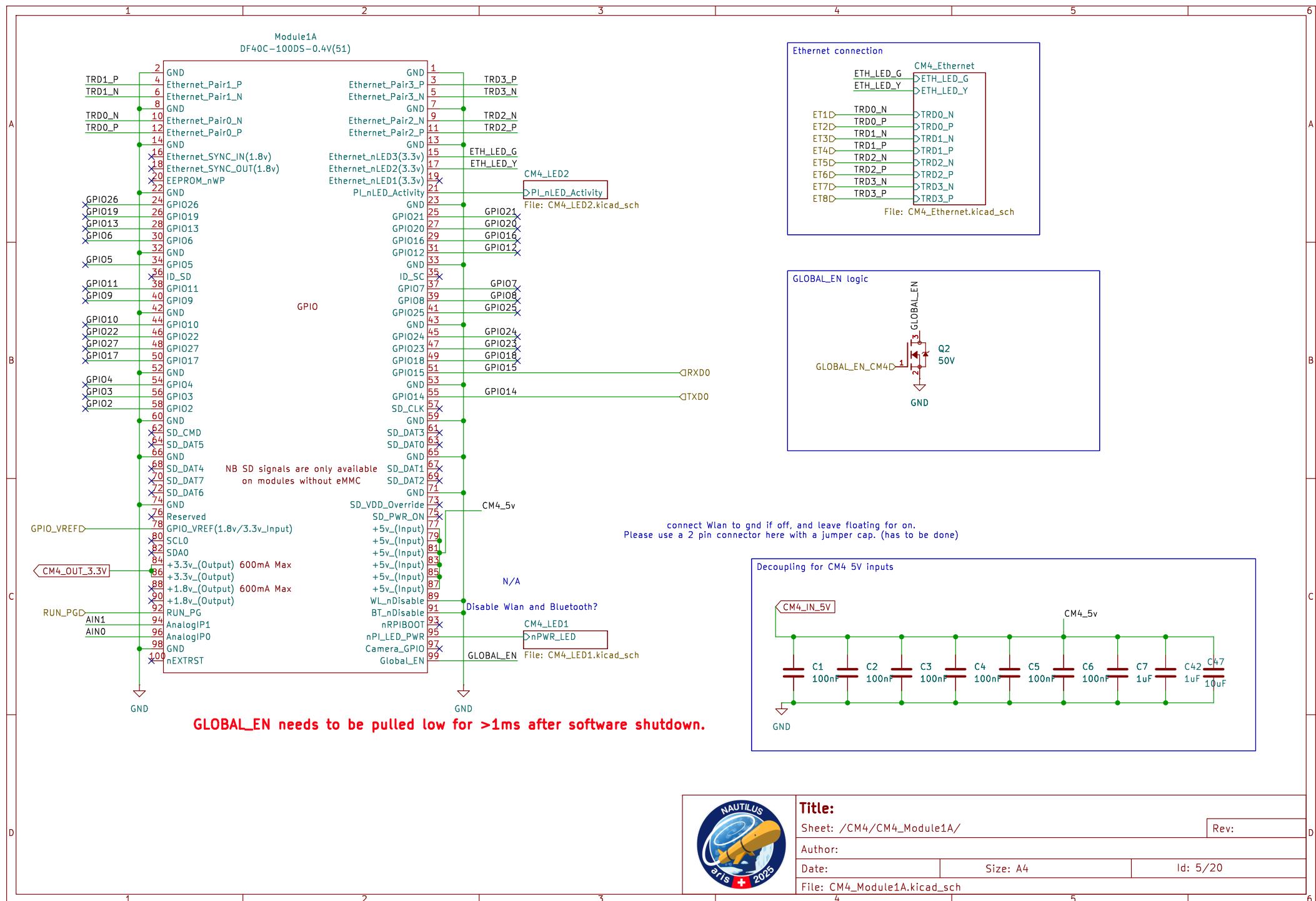
Author:

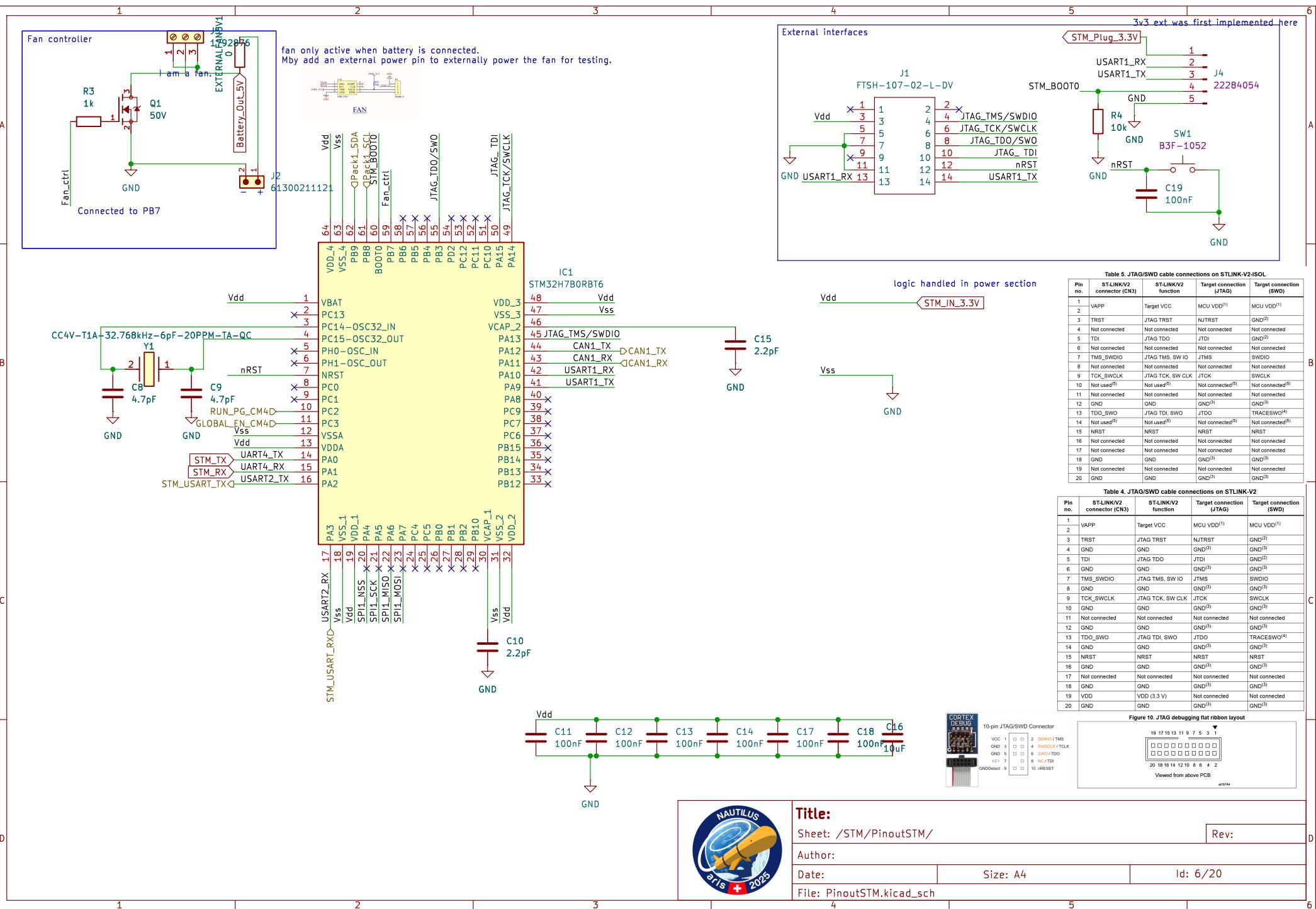
Date:

Size: A4

Id: 18/20

File: IMU.kicad_sch





A

A

B

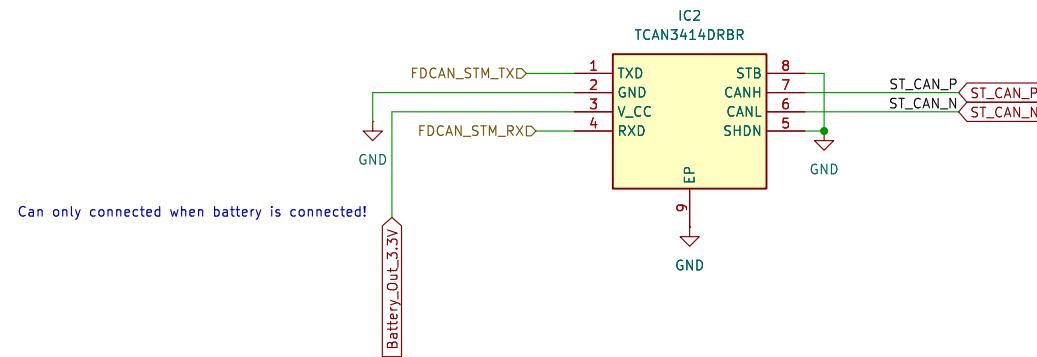
B

C

C

D

D

**Title:**

Sheet: /STM/CAN_Interface/

Rev:

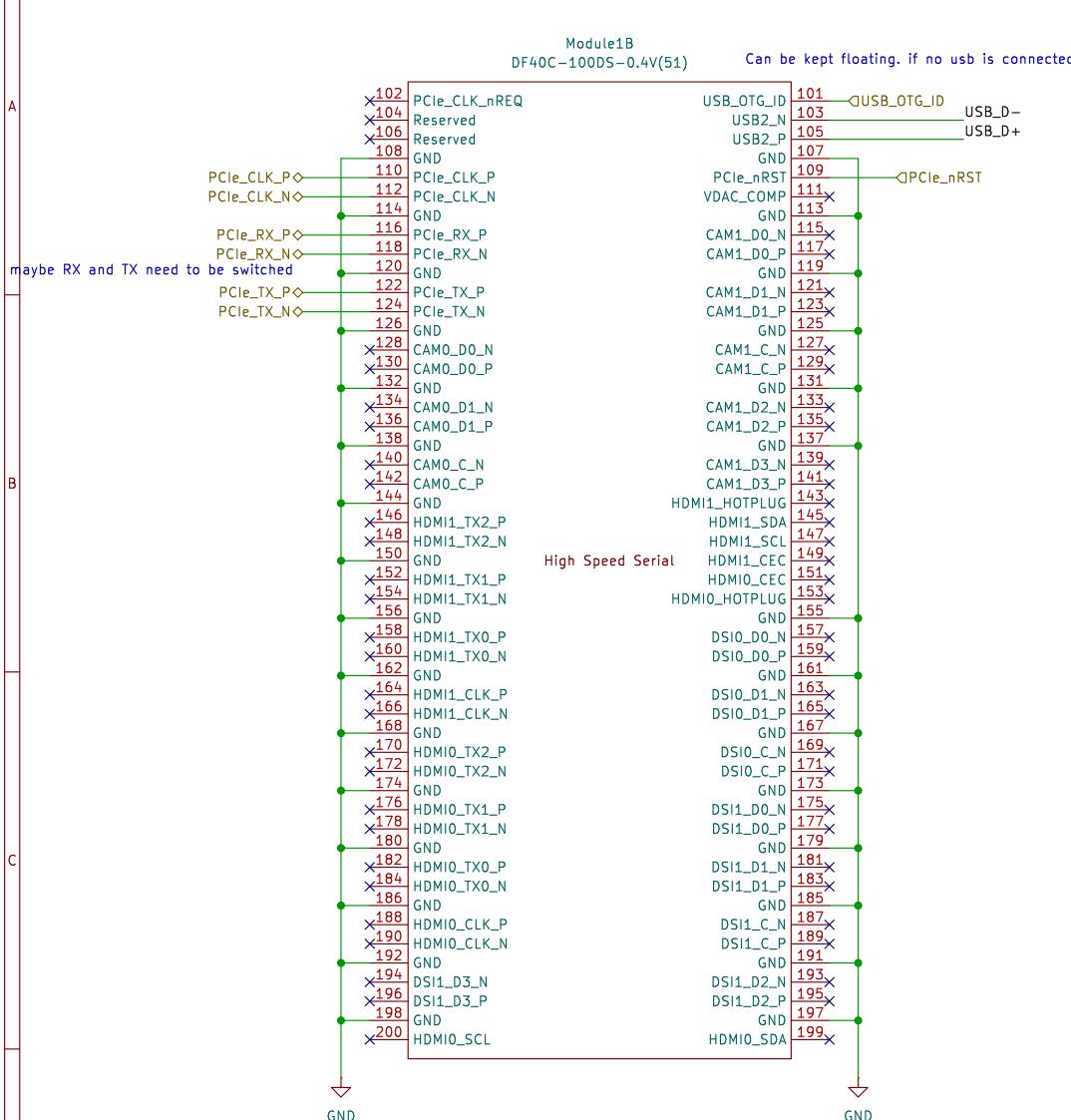
Author:

Date:

Size: A4

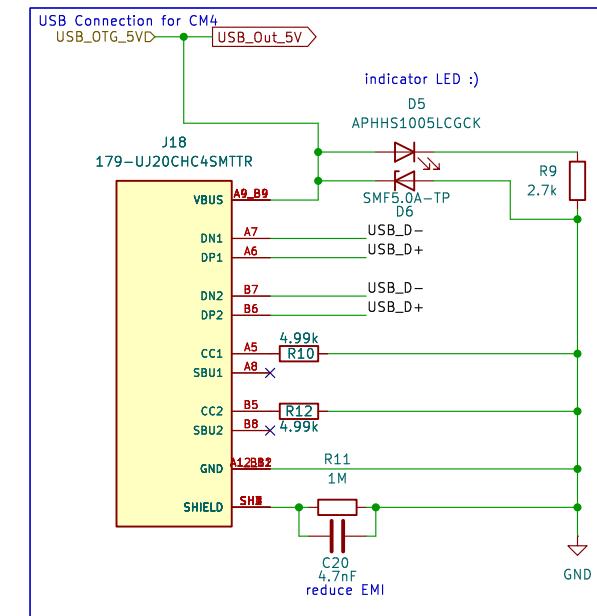
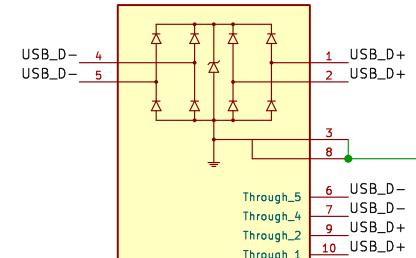
Id: 7/20

File: PowerSTM.kicad_sch



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

**Title:**

Sheet: /CM4/CM4_Module1B/

Rev:

Author:

Date: Size: A4

Id: 11/20

File: CM4_Module1B.kicad_sch

1 2 3 4 5 6

A

A

B

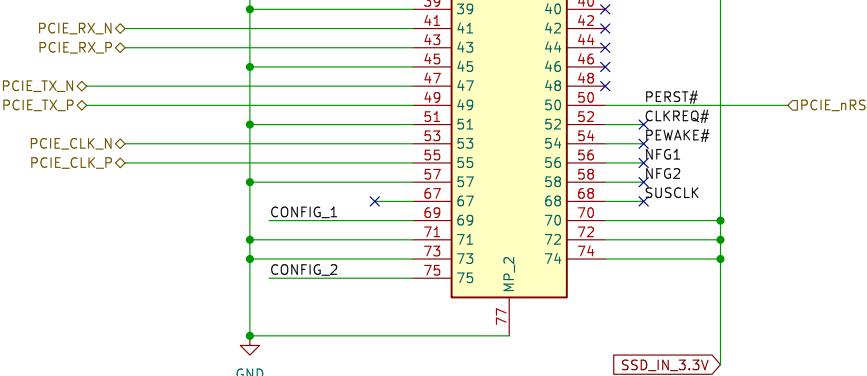
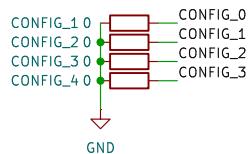
B

C

C

D

D

**Title:**

Sheet: /CM4/PCIE_Interface/

Rev:

Author:

Date: Size: A4

Id: 13/20

File: PCIE_Interface.kicad_sch



1 2 3 4 5 6

A

A

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

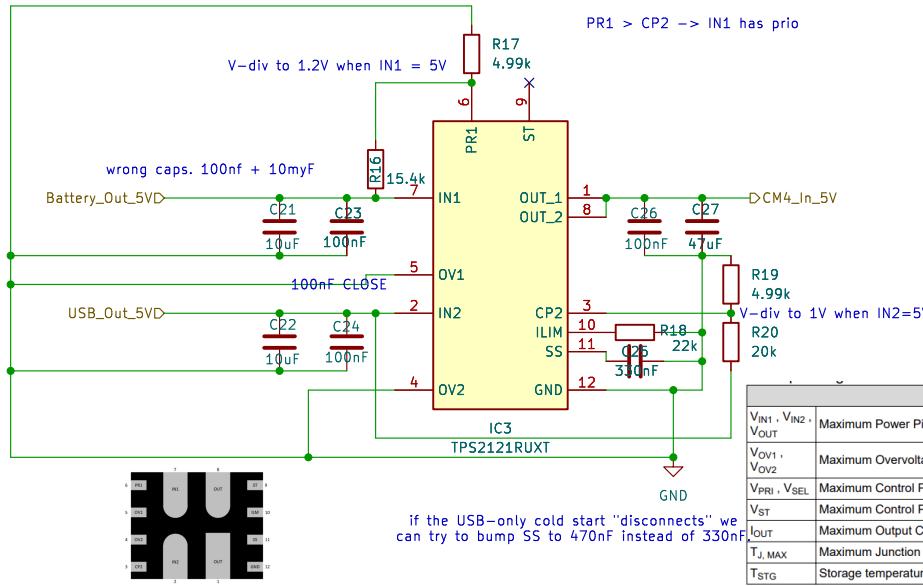


Figure 6-2. TPS2121 (RUX) Package 12-Pin VQFN-HR Bottom View

Pin Functions				
NAME	TPS2120	TPS2121	I/O	DESCRIPTION
V _{IN1}	B1, B2, C1	C1	I	Power Input for Source 1
V _{IN2}	B3, B4, C4	C2	I	Power Input for Source 2
V _{OUT}	C2, C3, D1, D2	D1, D2	I	Power Output
ST	E1	9	O	Status output indicating which channel is selected. Connect to GND if not required.
ILIM	E2	10	O	Output Current Limiting for both channels.
SS	E3	11	O	Adjusts Input Setting Delay Time and Output Soft Start Time
GND	E4	12	—	Ground Reference
PR1	A1	6	I	Enables Priority Operation. Connect to IN1 to set switchover voltage. Connect to GND if not required.
OV1	A2	5	I	Active Low Enable Supervisor for IN1 Overvoltage Protection. Connect to GND if not required.
OV2	A3	4	I	Active Low Enable Supervisor for IN2 Overvoltage Protection. Connect to GND if not required.
SEL	A4	—	I	Active Low Enable for IN1. Allows GPIO to override priority operation and manually select IN2. TPS2120 only.
CP2	—	3	I	Enables Comparator Operation and is compared to PR1 to set switchover voltage. Connect to GND if not required. TPS2121 only.

**Title:**

Sheet: /Power_logic/5V_Logic/

Rev:

Author:

Date:

Size: A4

Id: 15/20

File: 5V_Logic.kicad_sch

A

A

B

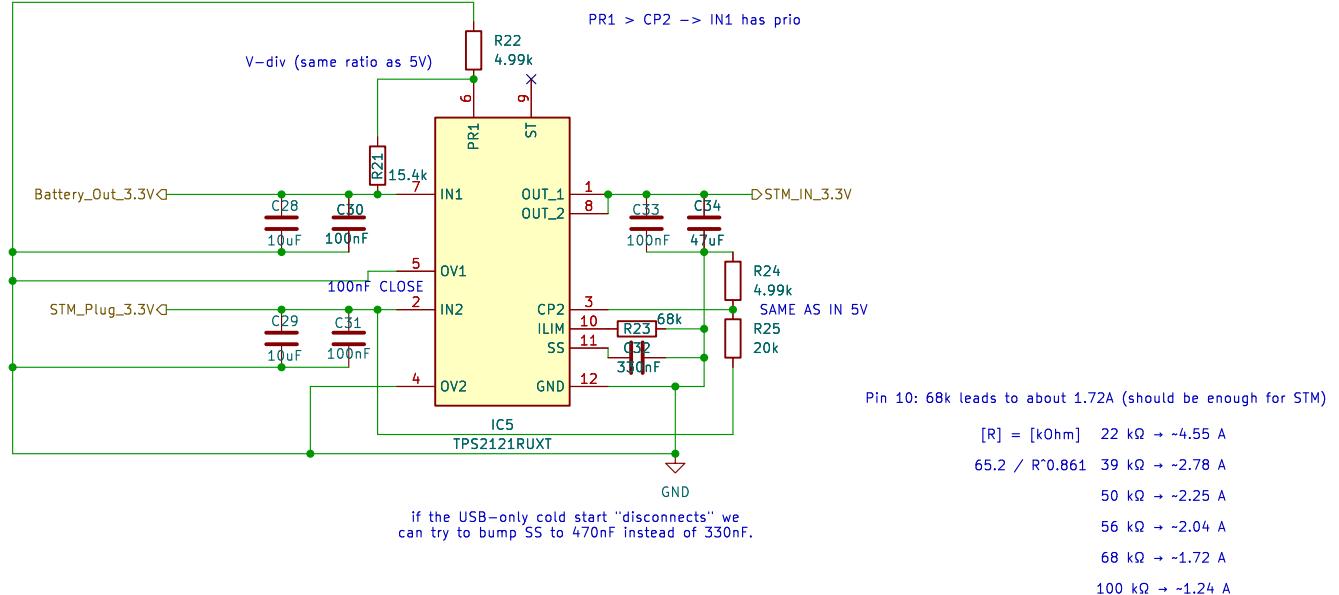
B

C

C

D

D

**Title:**

Sheet: /Power_logic/3.3V_Lo

Rev:

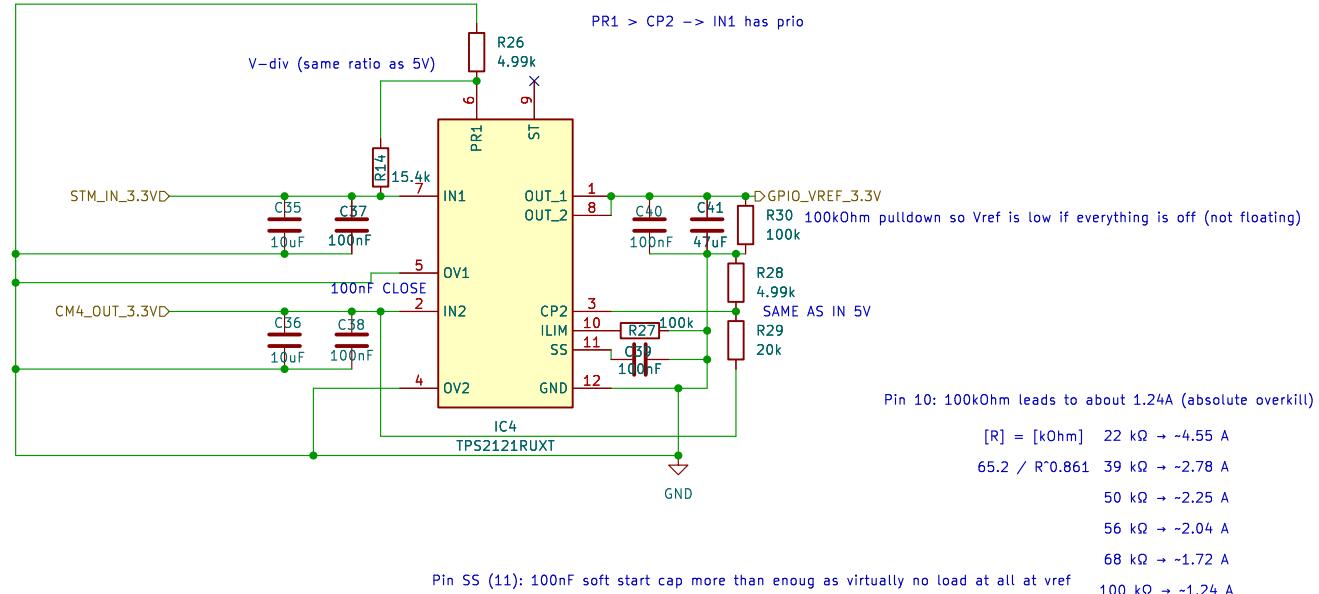
Author:

Date:

Size: A4

Id: 16/20

File: 3.3V_Lo



Title

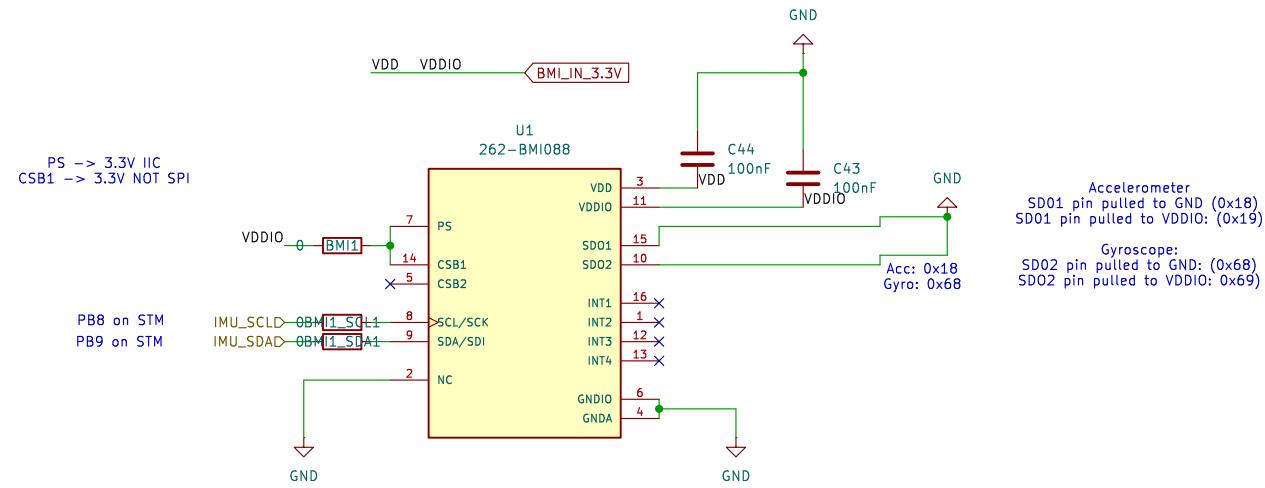
Sheet: /Power_logic/GPIO_REF3.3V/

Rev:

Author:

Date: Size: A4

Id: 17/20



Title

Sheet: /IMU/IMU1/

Author:

Date:

File: IMU1.kicad_sch

Rev:

D

A

A

B

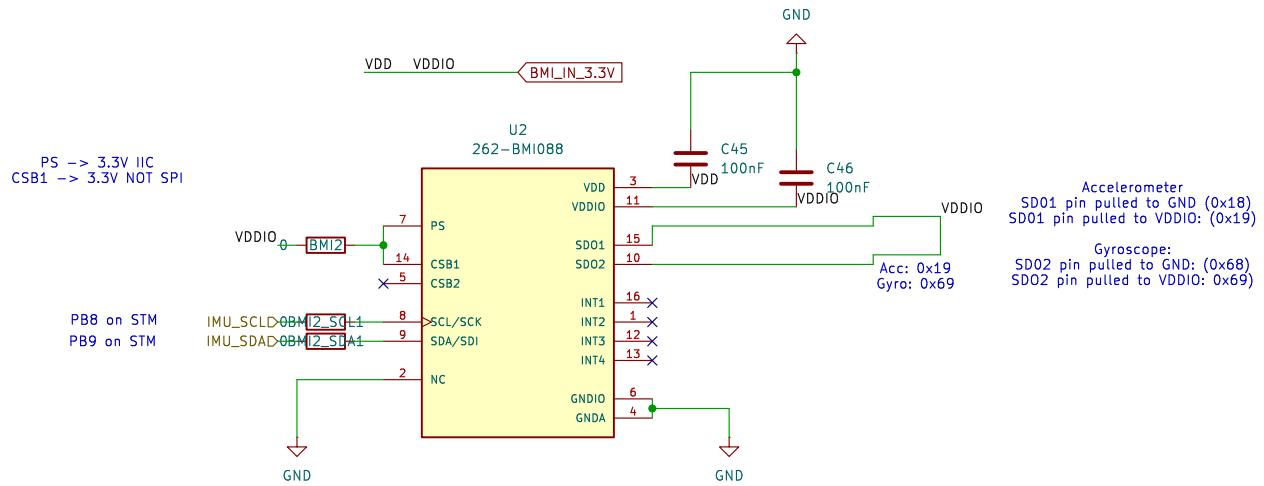
B

C

C

D

D

**Title:**

Sheet: /IMU/IMU2/

Rev:

Author:

Date:

Size: A4

Id: 20/20

File: IMU2.kicad_sch

A

A

B

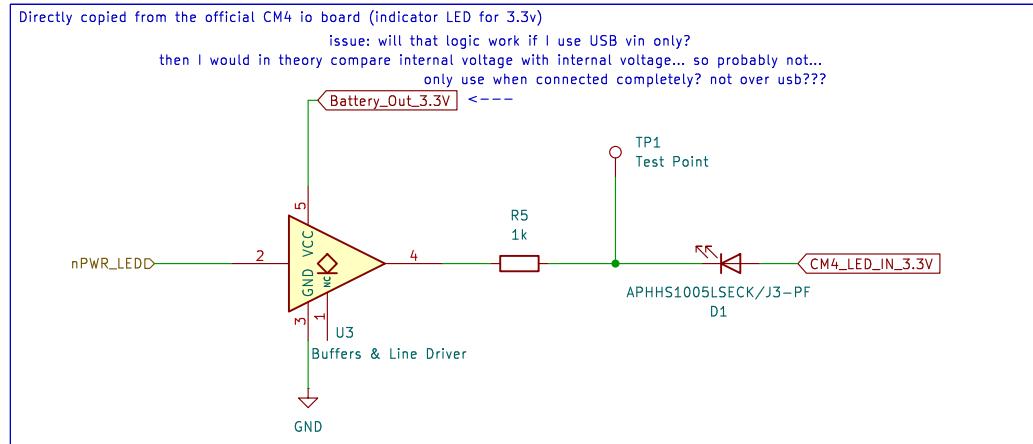
B

C

C

D

D

**Title:**

Sheet: /CM4/CM4_Module1A/CM4_LED1/

Rev:

Author:

Date:

Size: A4

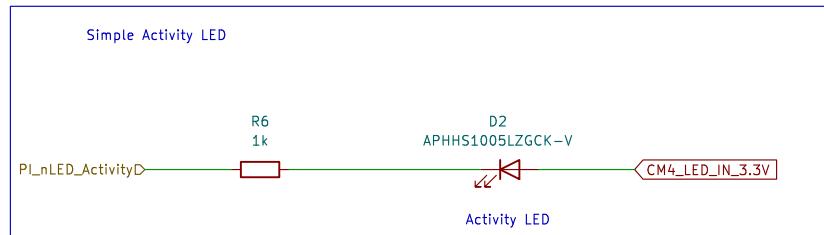
Id: 8/20

File: CM4_LED1.kicad_sch

1 2 3 4 5 6

A

A



B

B

C

C

D

D



Title:

Sheet: /CM4/CM4_Module1A/CM4_LED2/

Rev:

Author:

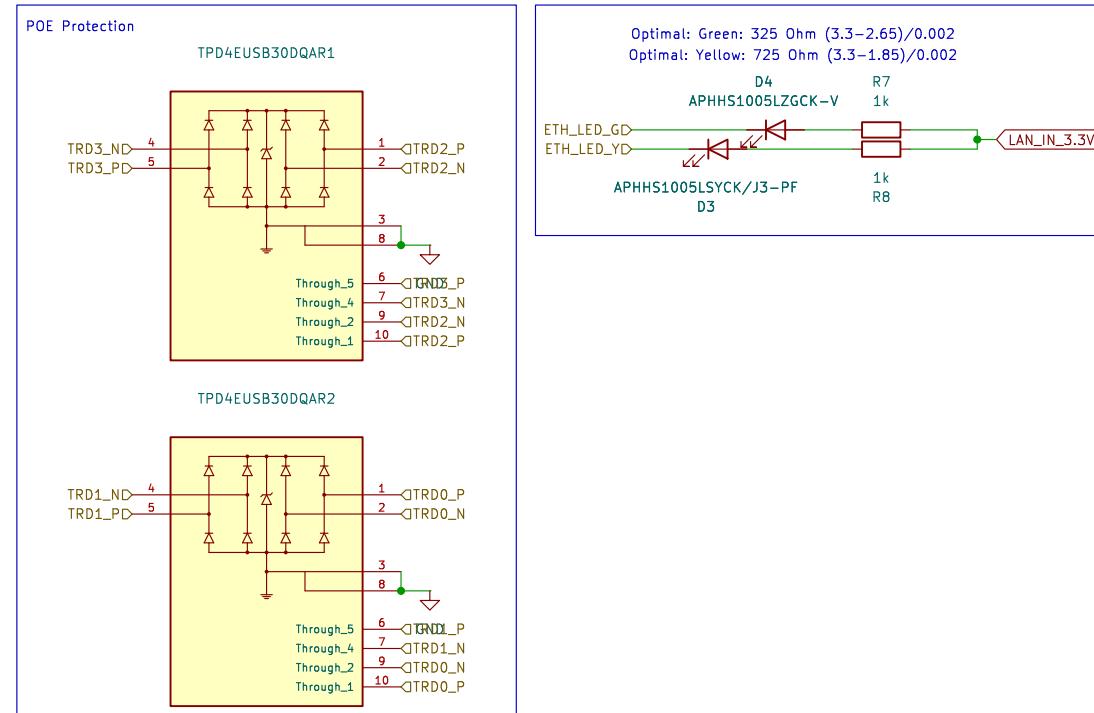
Date: Size: A4 Id: 9/20

File: CM4_LED2.kicad_sch

1 2 3 4 5 6

A

A



B

B

C

C

D

D

**Title:**

Sheet: /CM4/CM4_Module1A/CM4_Ethernet/

Rev:

Author:

Date:

Size: A4

Id: 10/20

File: CM4_Ethernet.kicad_sch