

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



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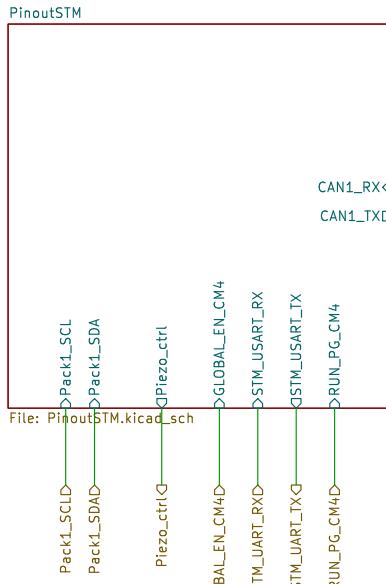
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220 Ohm series at Y (to STM). (current limiting)

1 2 3 4 5 6



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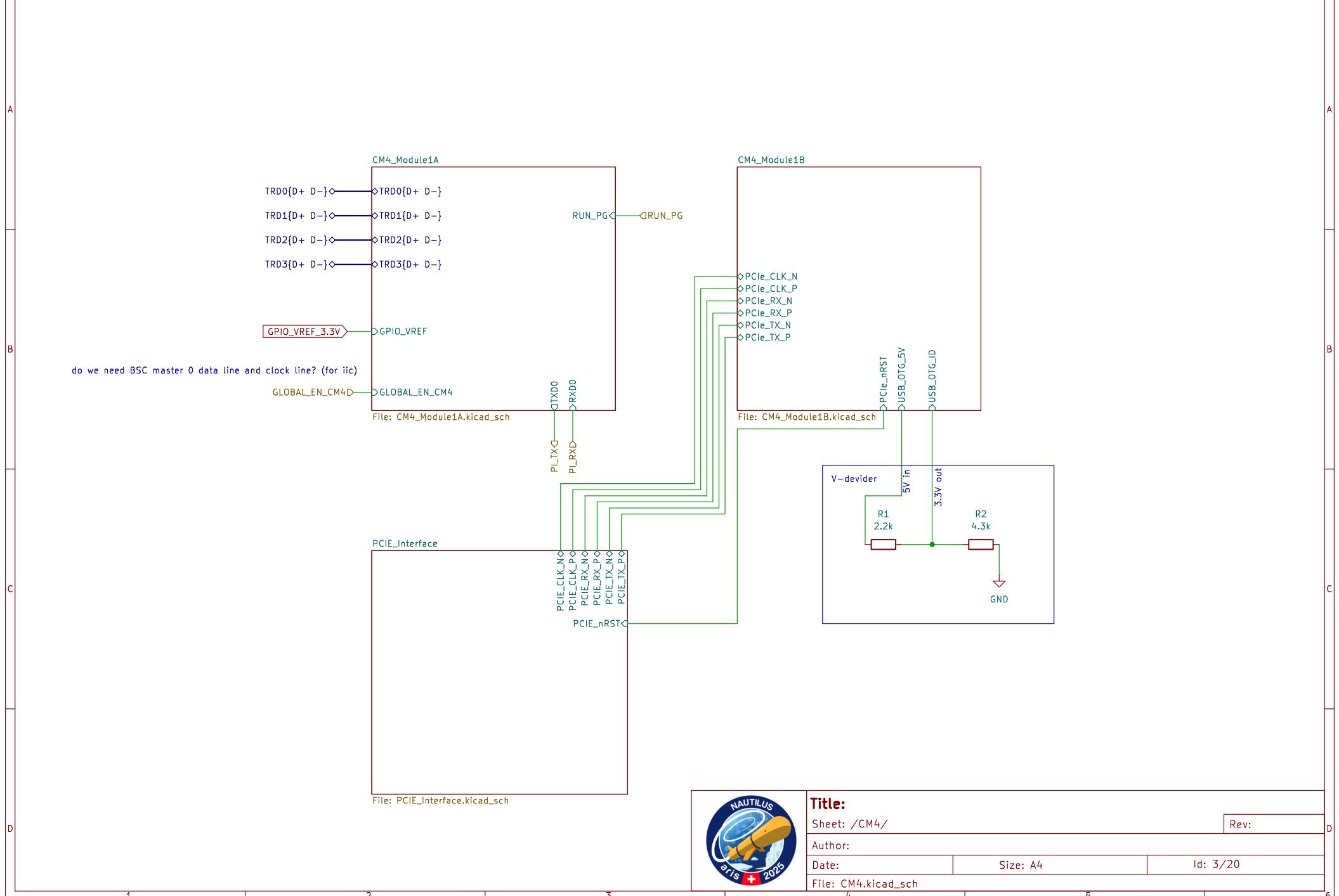
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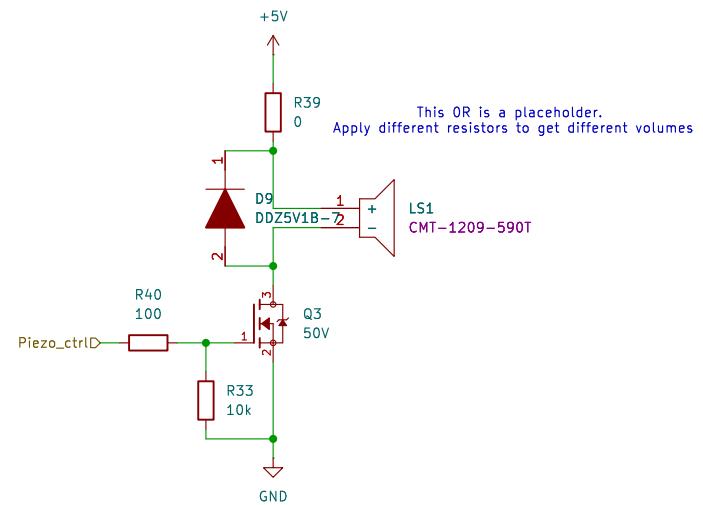
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Not in the PCB yet as we dont know if we actually need it.


Title:

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Rev:

Author:

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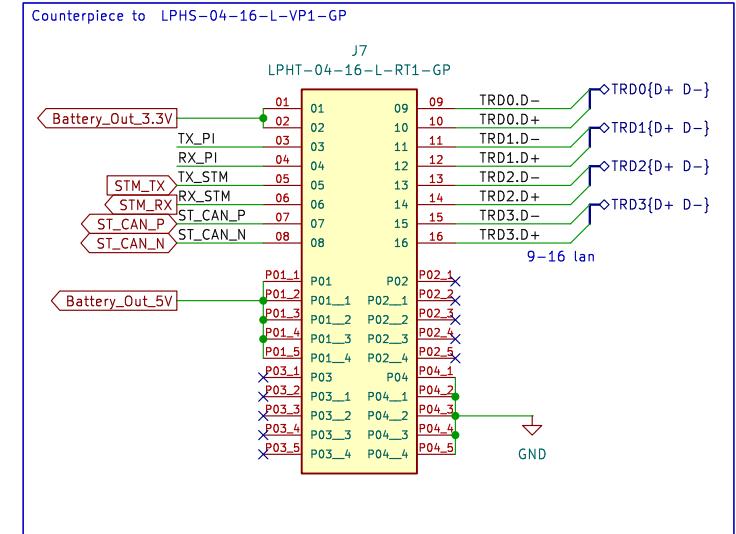
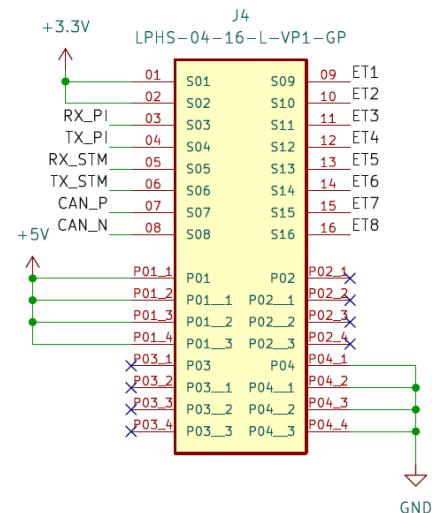
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Mainboard

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Author:

Date: Size: A4

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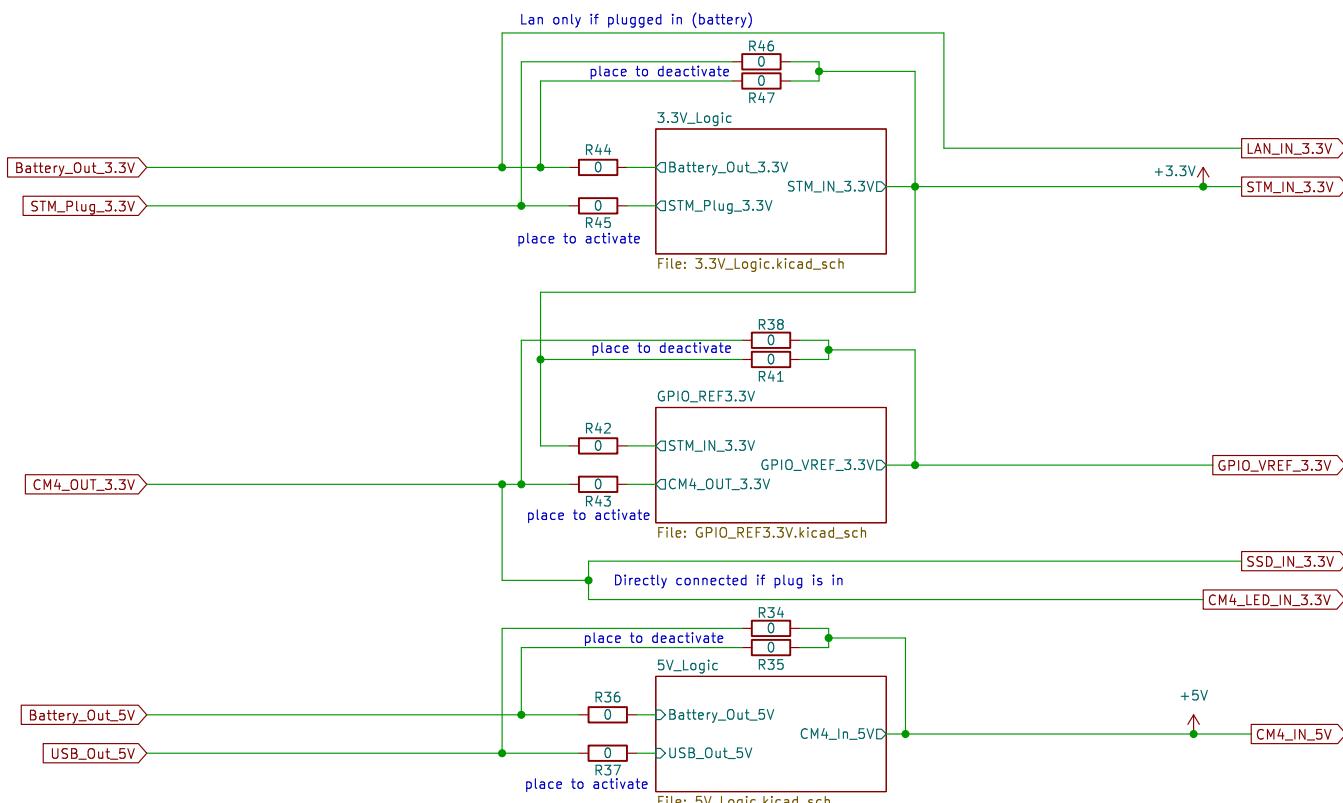
Unconditional Power routes:

Whenever the CM4 runs, also run the LED signals AND the SSD voltage, all "core" tasks tied to the CM4.

If I forgot something please let me know.

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some rules:
 USB wont power the STM32.
 STM_Plug wont power the CM4
 The GPIO_VREF of the CM4 needs to be STM32's 3.3V
 The Lan Vin is only powered when running on Battery
 Battery preferably powers everything.

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**Title:**

Sheet: /Power_logic/

Rev:

Author:

Date:

Size: A4

Id: 14/20

File: Power_logic.kicad_sch

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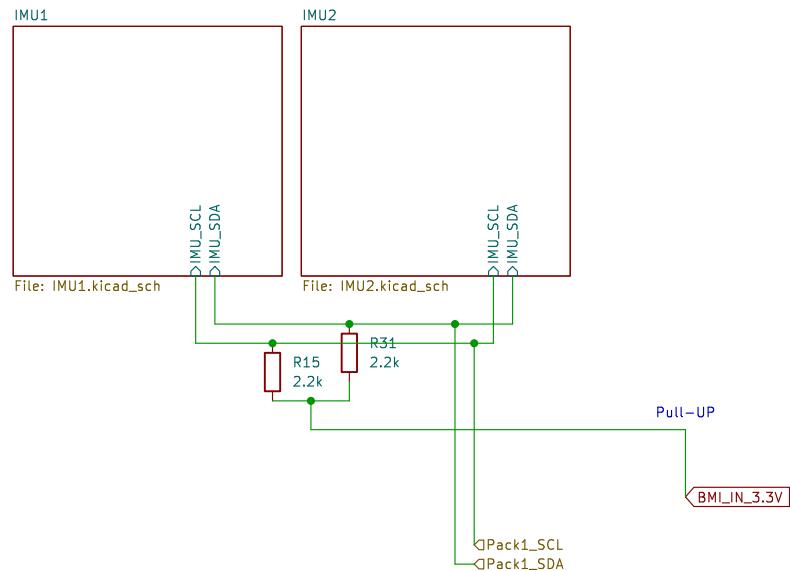
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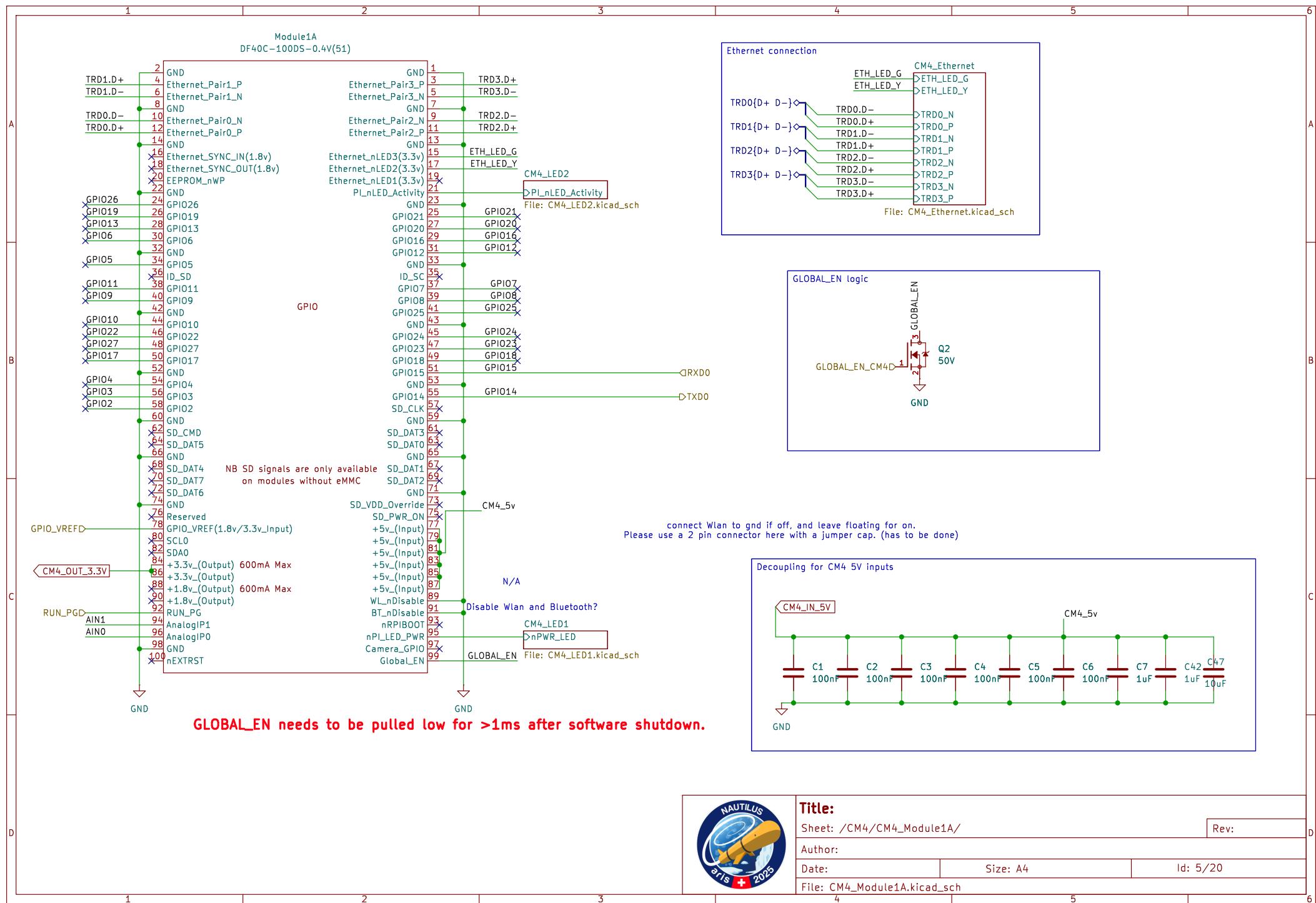
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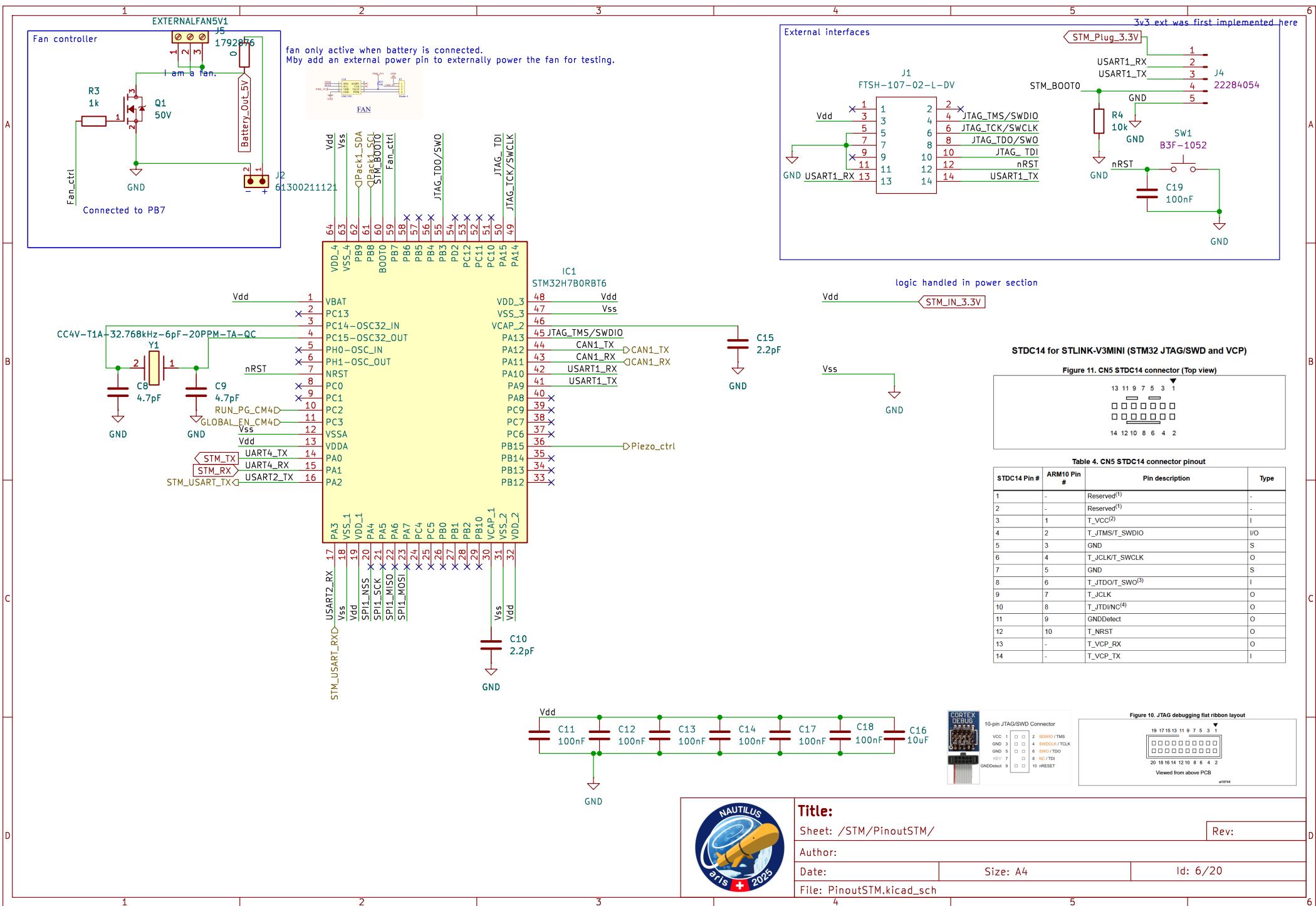
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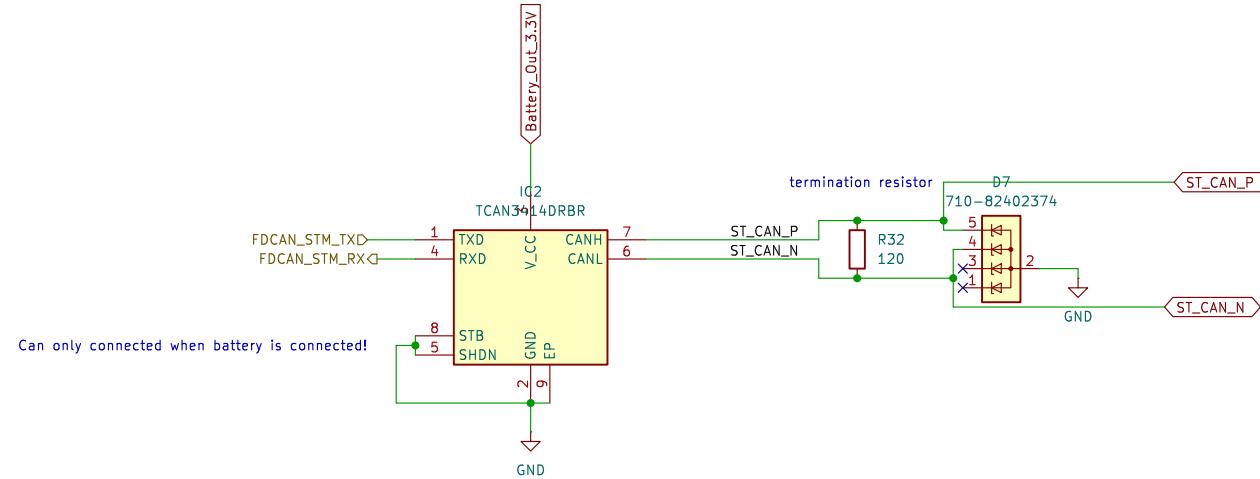
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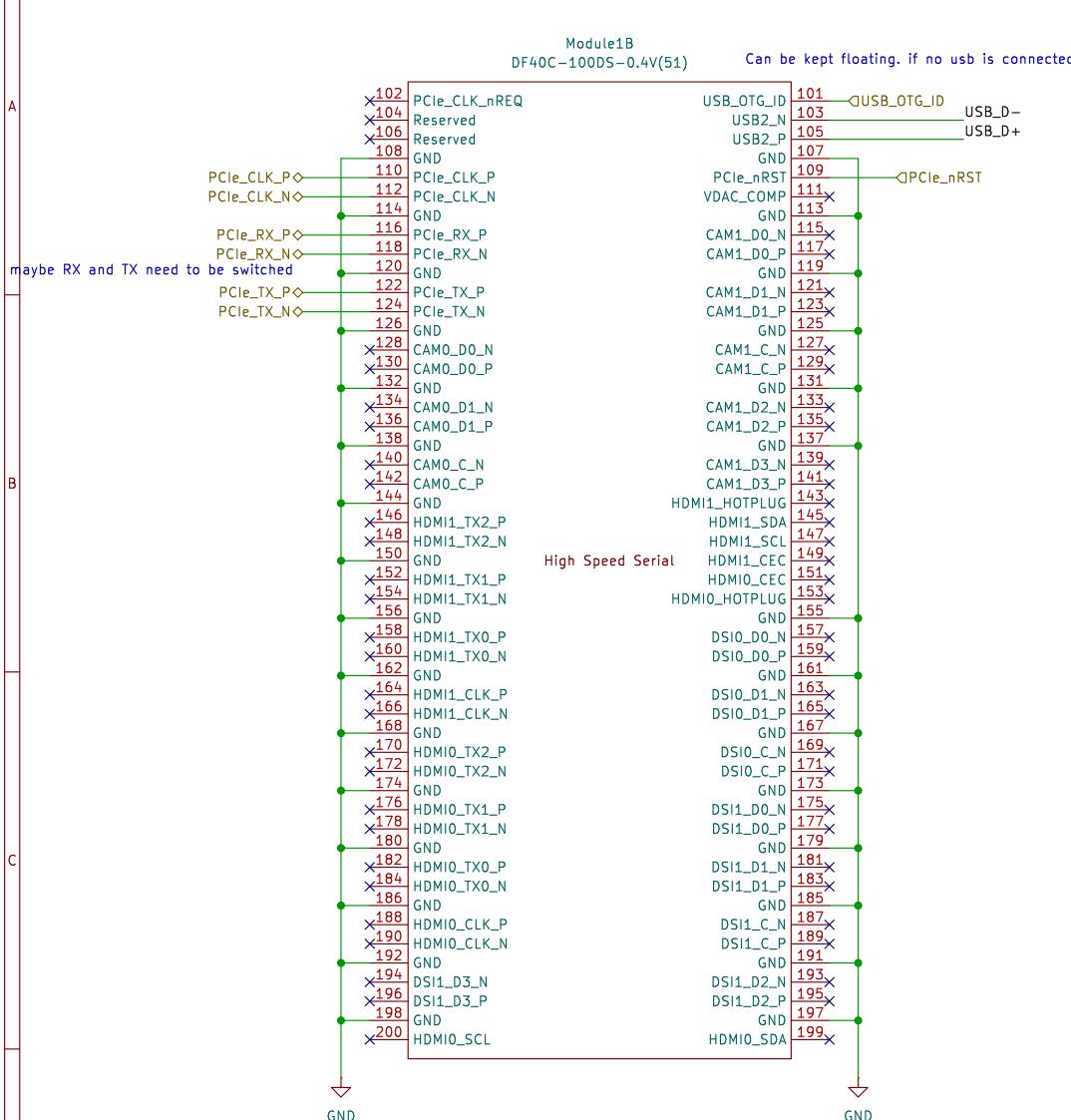
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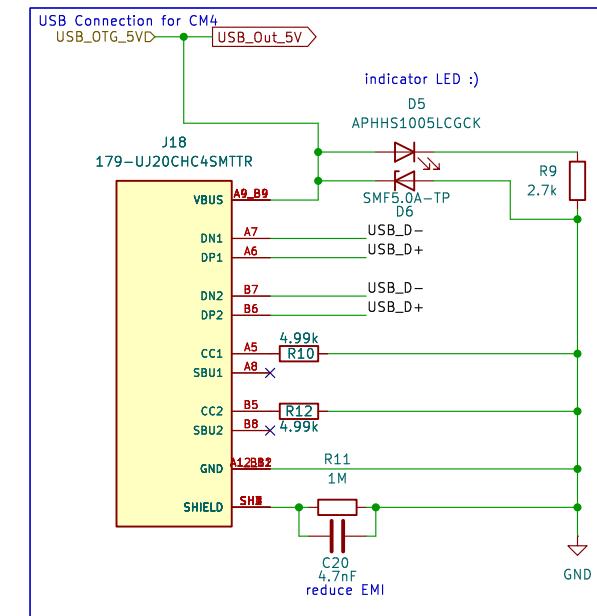
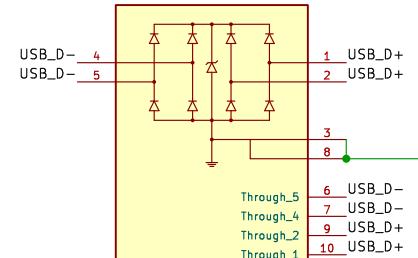
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ESD/EMP protection for the USB
Super important to not differ lengths or curve a lot with D+ and D-.
Also should have same hole counts (vias) and same length.

TPD4EUSB30DQAR3

**Title:**

Sheet: /CM4/CM4_Module1B/

Rev:

Author:

Date: Size: A4

Id: 11/20

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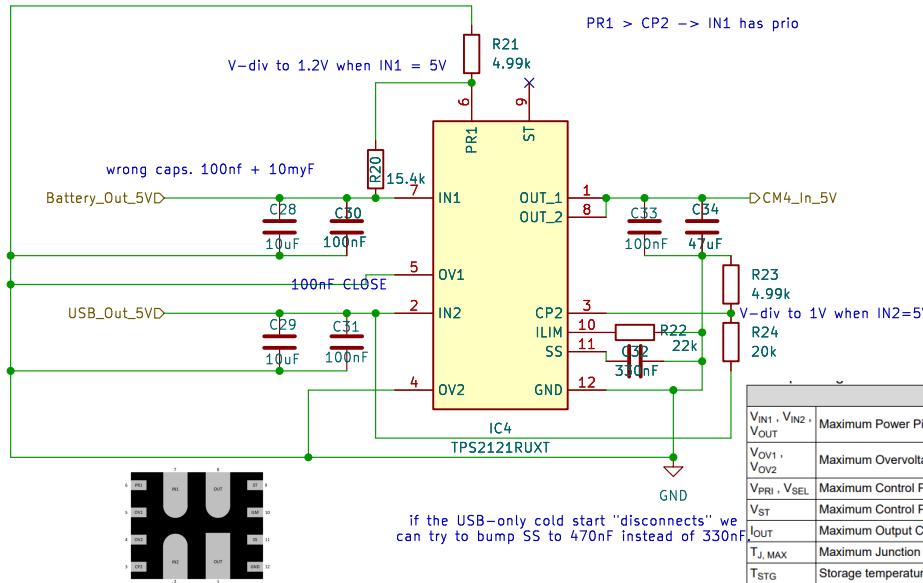
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for questions about wiring etc please consult the datasheet...
<https://www.ti.com/lit/ds/symlink/tps2120.pdf?ts=1761678178328>



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

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

Pin Functions		
NAME	TPS2120	TPS2121
IN1	B1, B2, C1	I Power Input for Source 1
IN2	B3, B4, C4	I Power Input for Source 2
OUT	C2, C3, D1, 1, 8	I Power Output
GND	D2, D3, D4	— Ground
ST	E1	— Status output indicating which channel is selected. Connect to GND if not required.
ILIM	E2	— Output Current Limiting for both channels.
SS	E3	— Adjusts Input Setting Delay Time and Output Soft Start Time
SEL	E4	— Selects the priority operation mode.
PR1	A1	Enables Priority Operation. Connect to IN1 to set switchover voltage. Connect to GND if not required.
OV1	A2	Active Low Enable Supervisor for IN1 Overvoltage Protection. Connect to GND if not required.
OV2	A3	Active Low Enable Supervisor for IN2 Overvoltage Protection. Connect to GND if not required.
CP2	—	Active Low Enable for IN1. Allows GPIO to override priority operation and manually select IN2. TPS2120 only.

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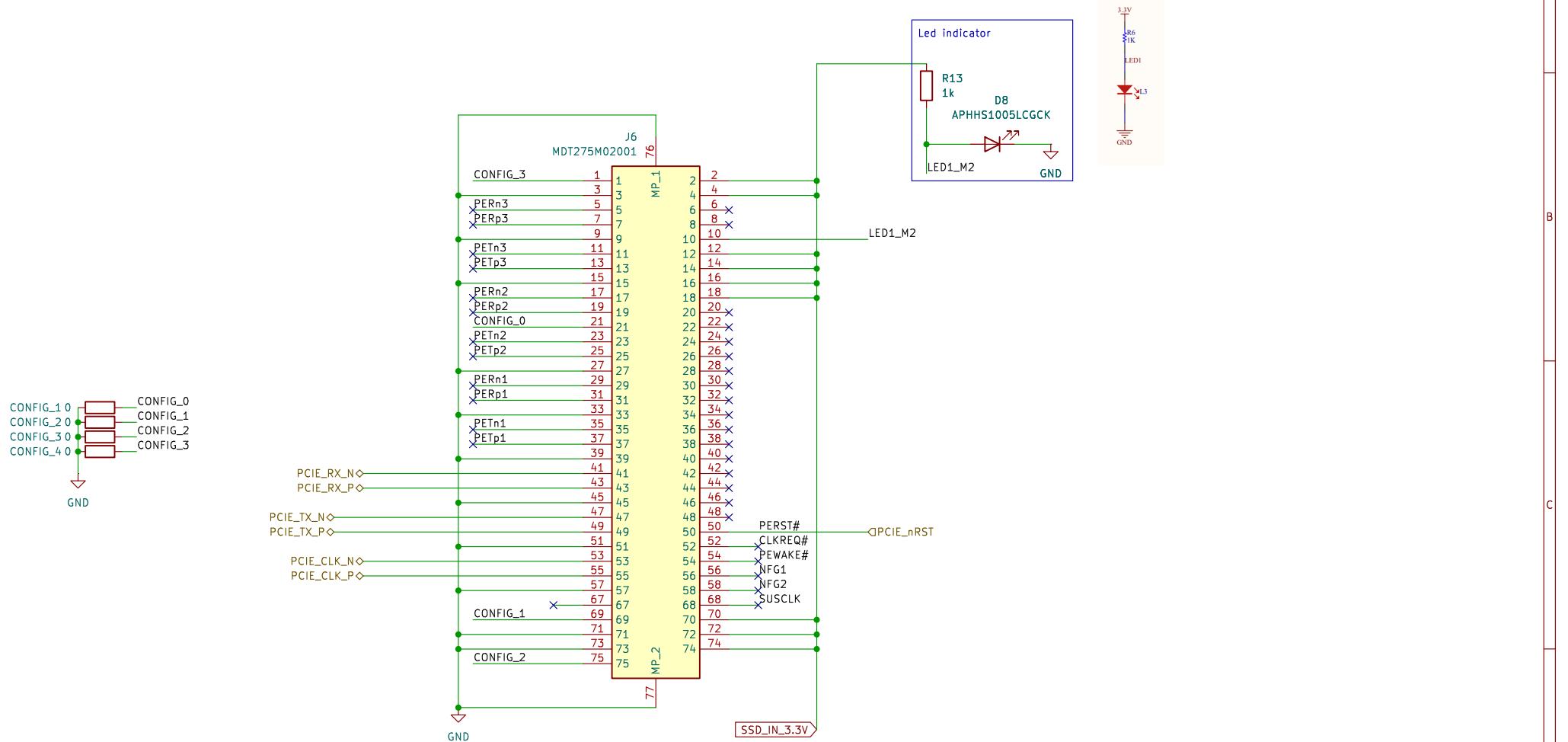
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Title

Sheet: /CM4/PCIE Interface/

Author:

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Review

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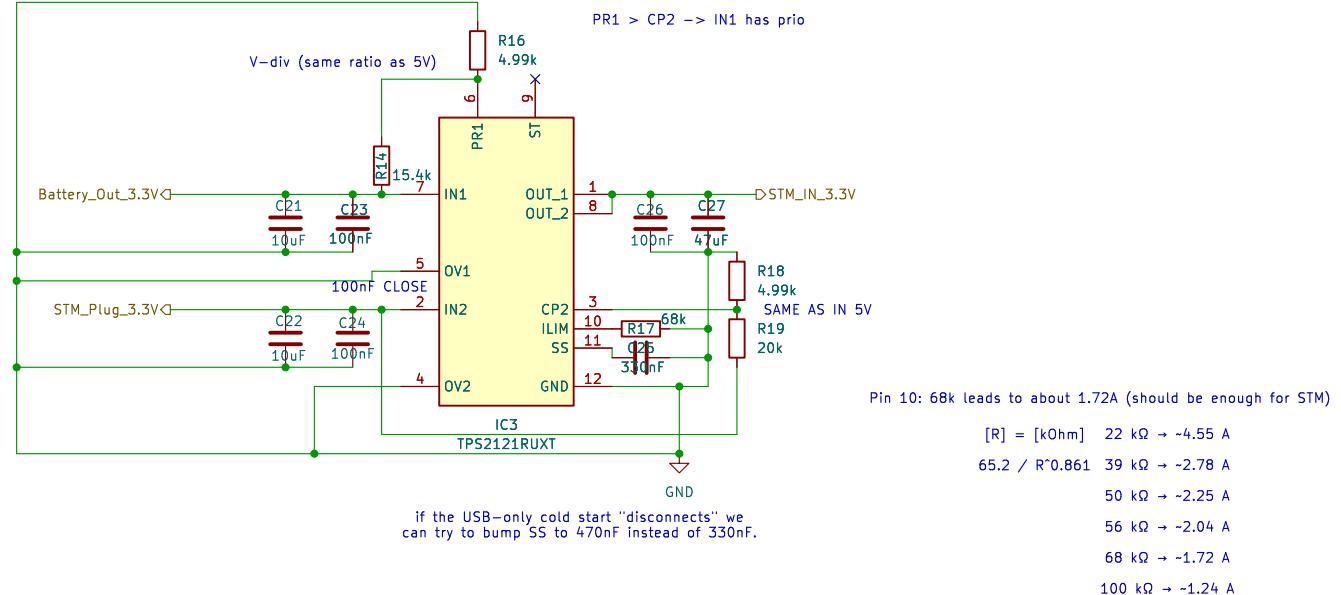
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Author:

Date:

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File: 3.3V_Lo

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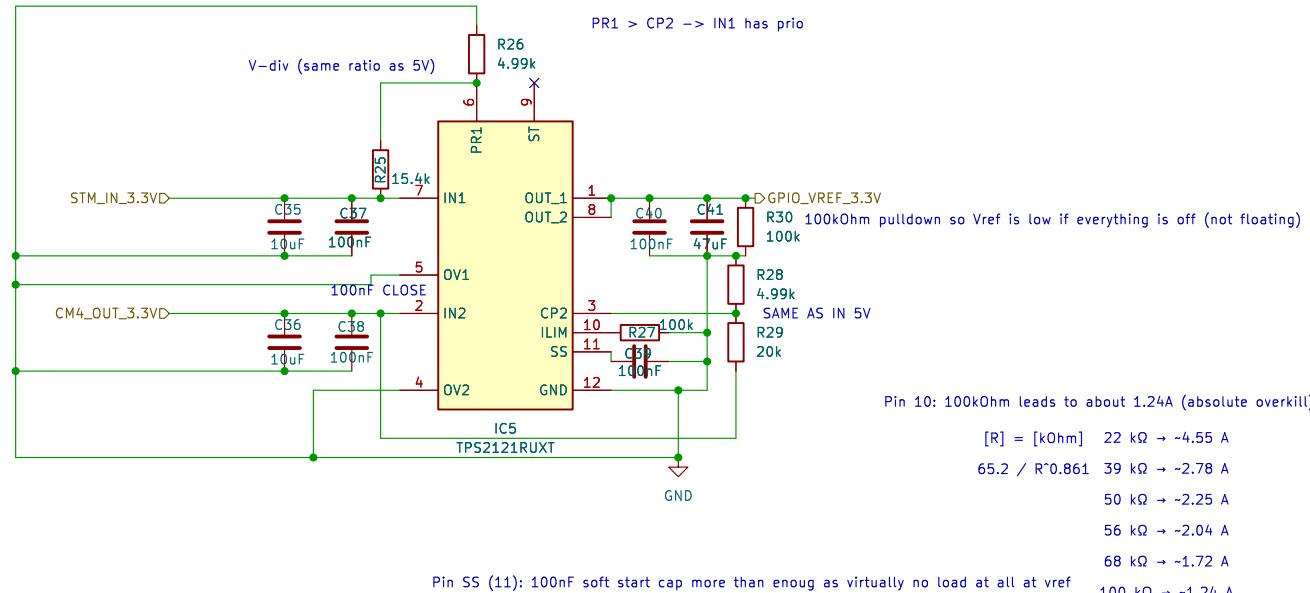
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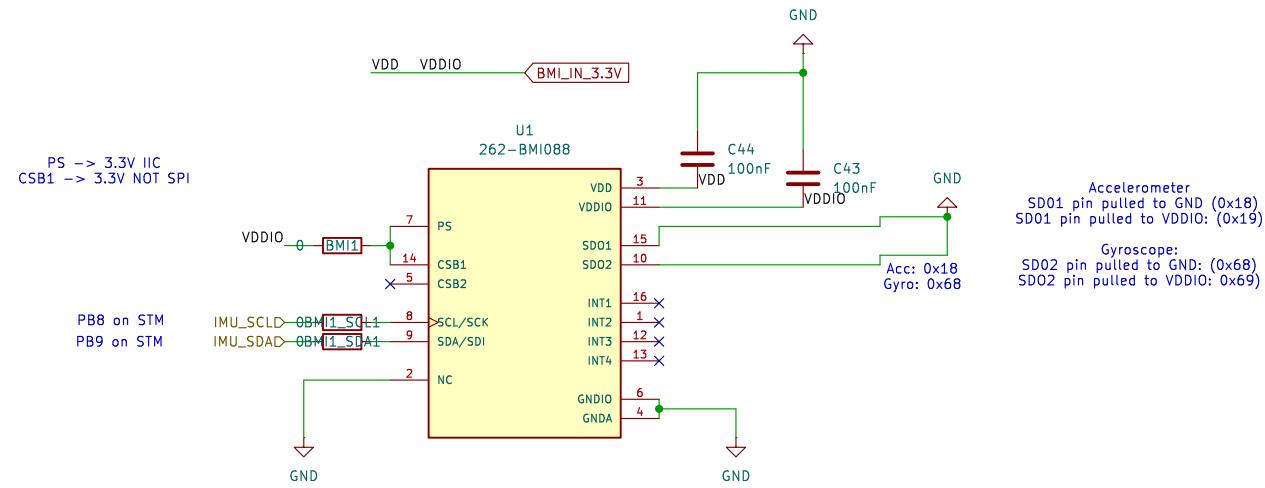
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Title

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File: IMU1.kicad_sch

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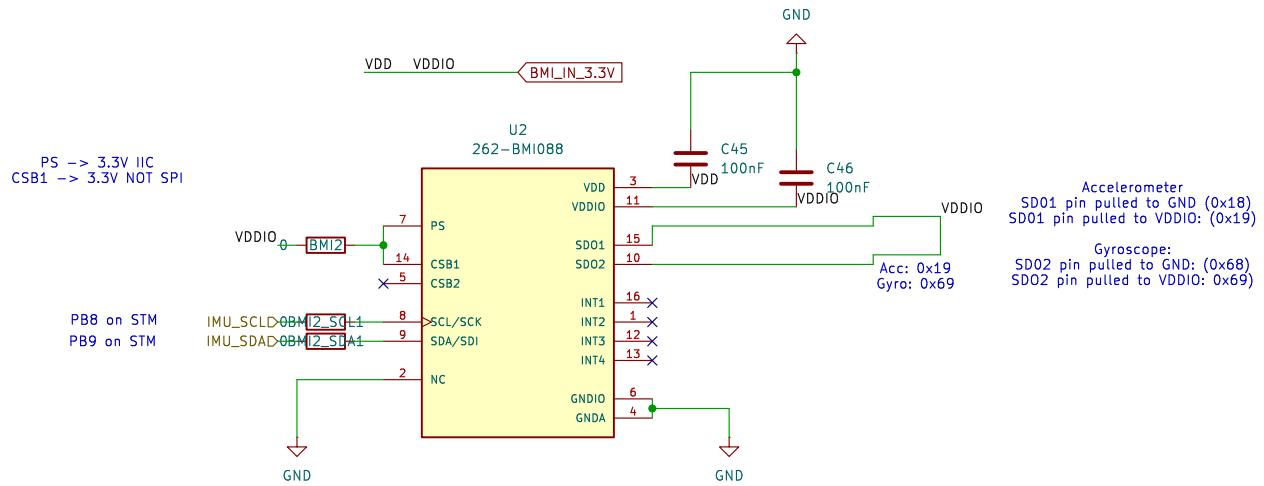
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**Title:**

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Rev:

Author:

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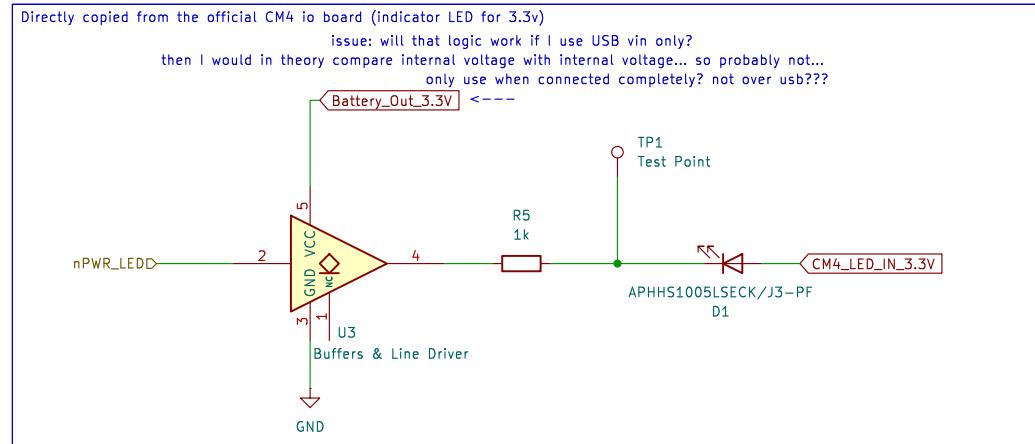
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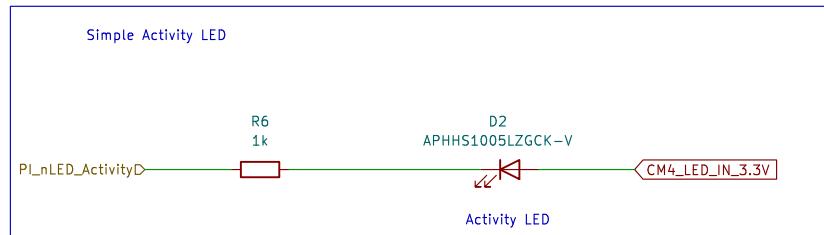
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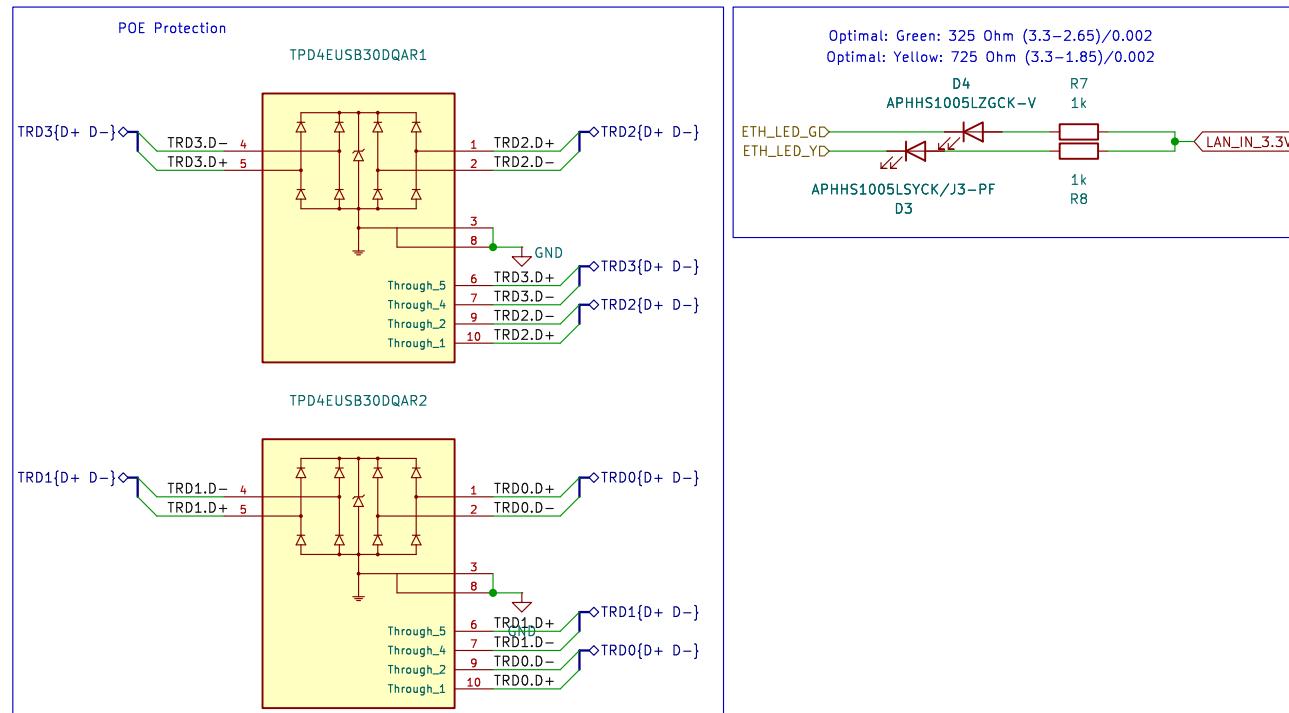
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Rev:

Author:

Date:

Size: A4

Id: 10/20

File: CM4_Ethernet.kicad_sch