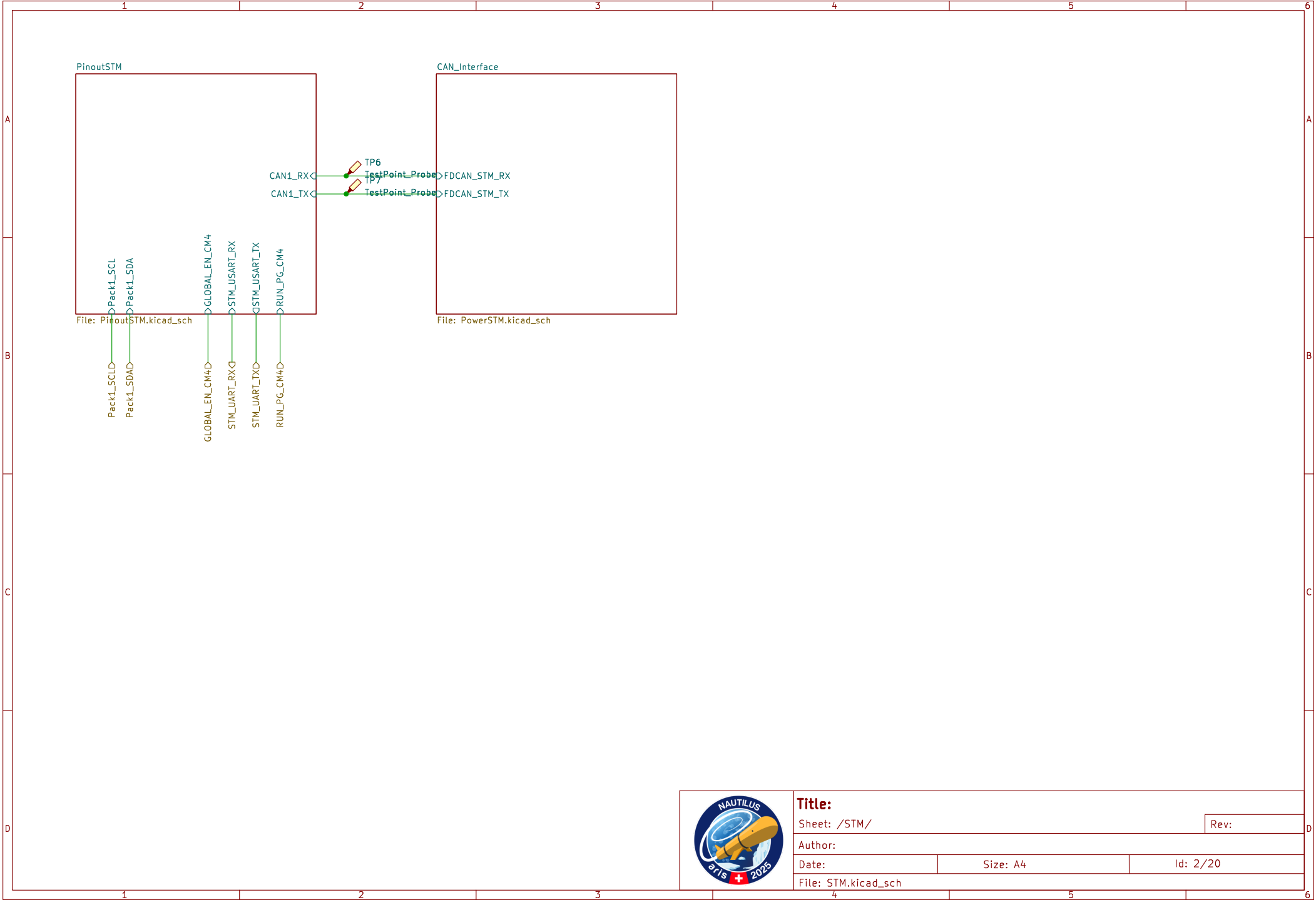
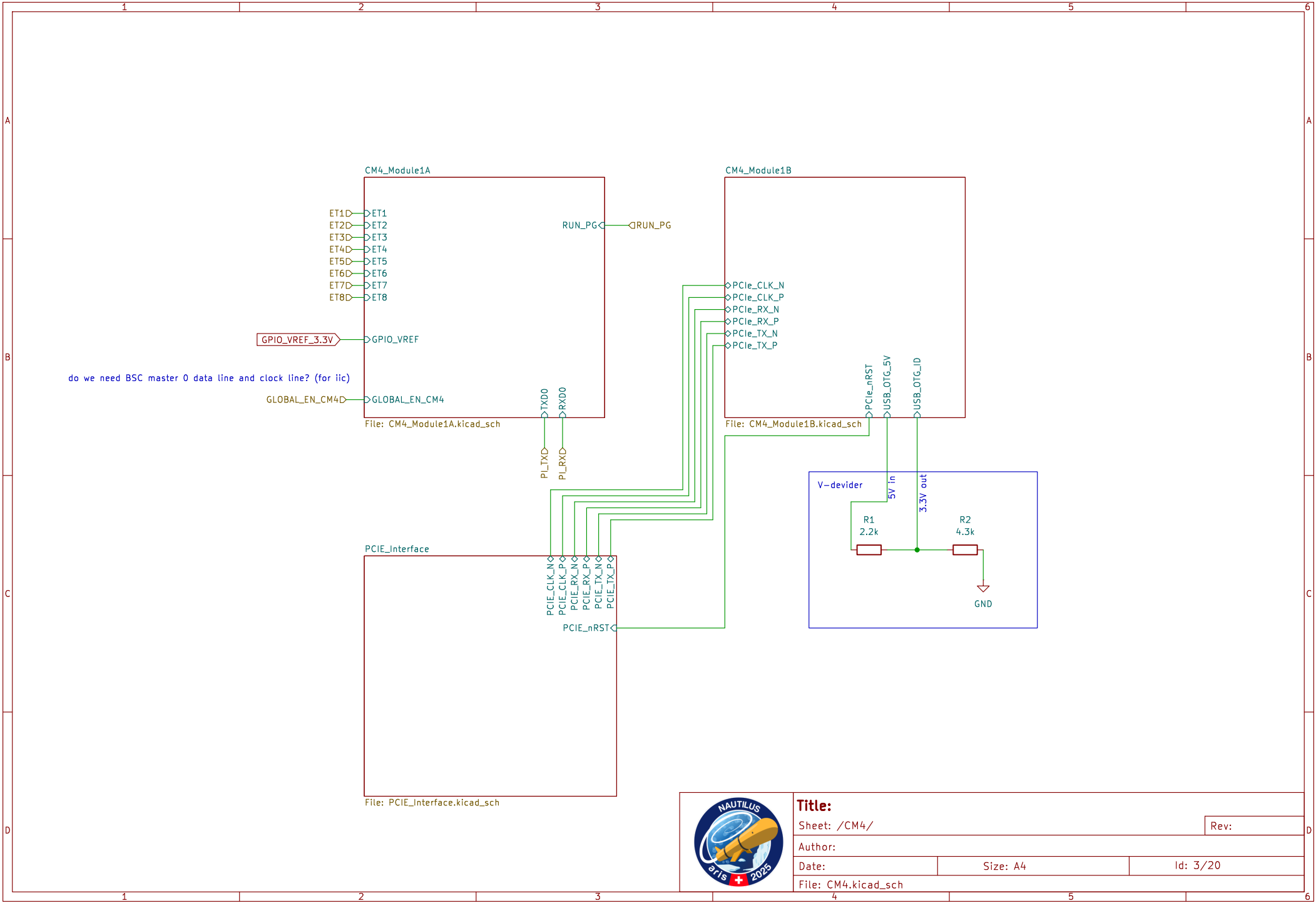


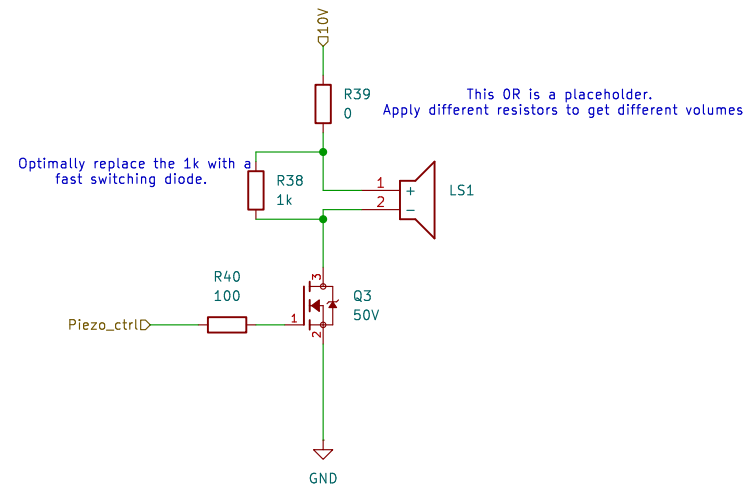
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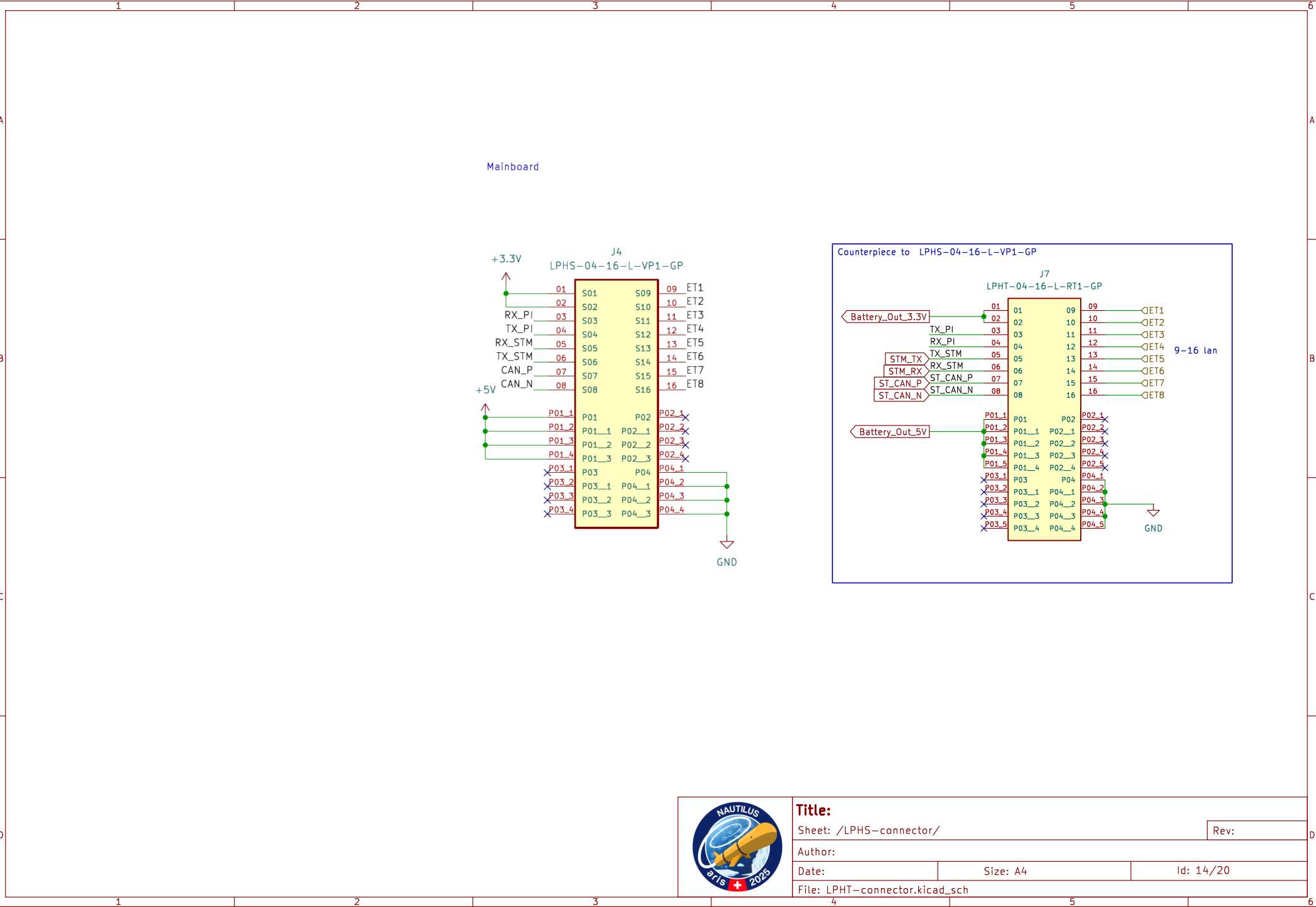


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Author:		
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File: CM4.kicad_sch		

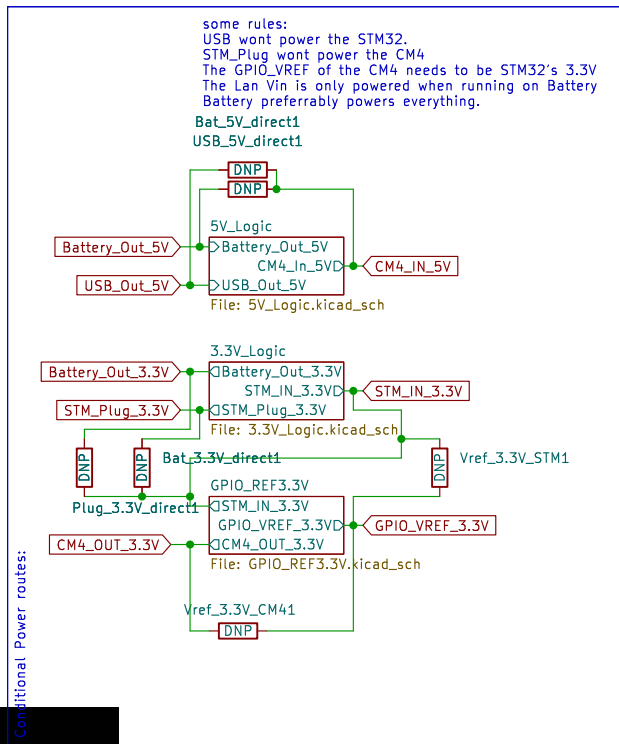
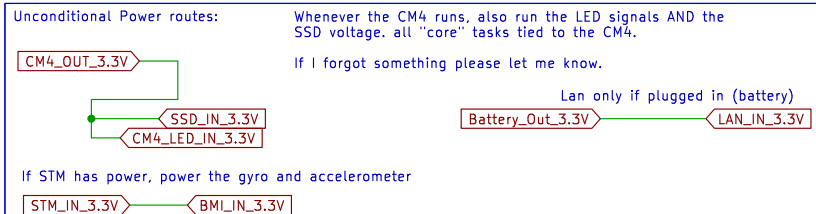
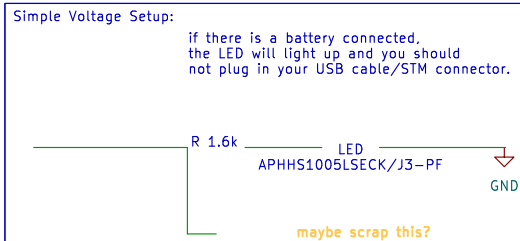
Not in the PCB yet as we dont know if we actually need it.



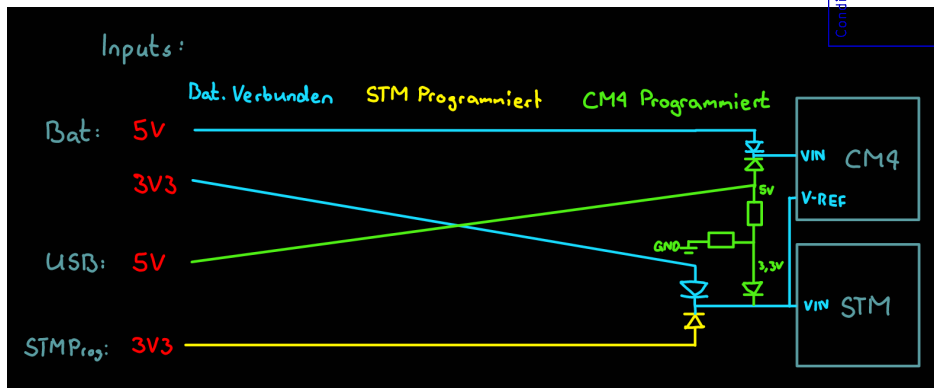
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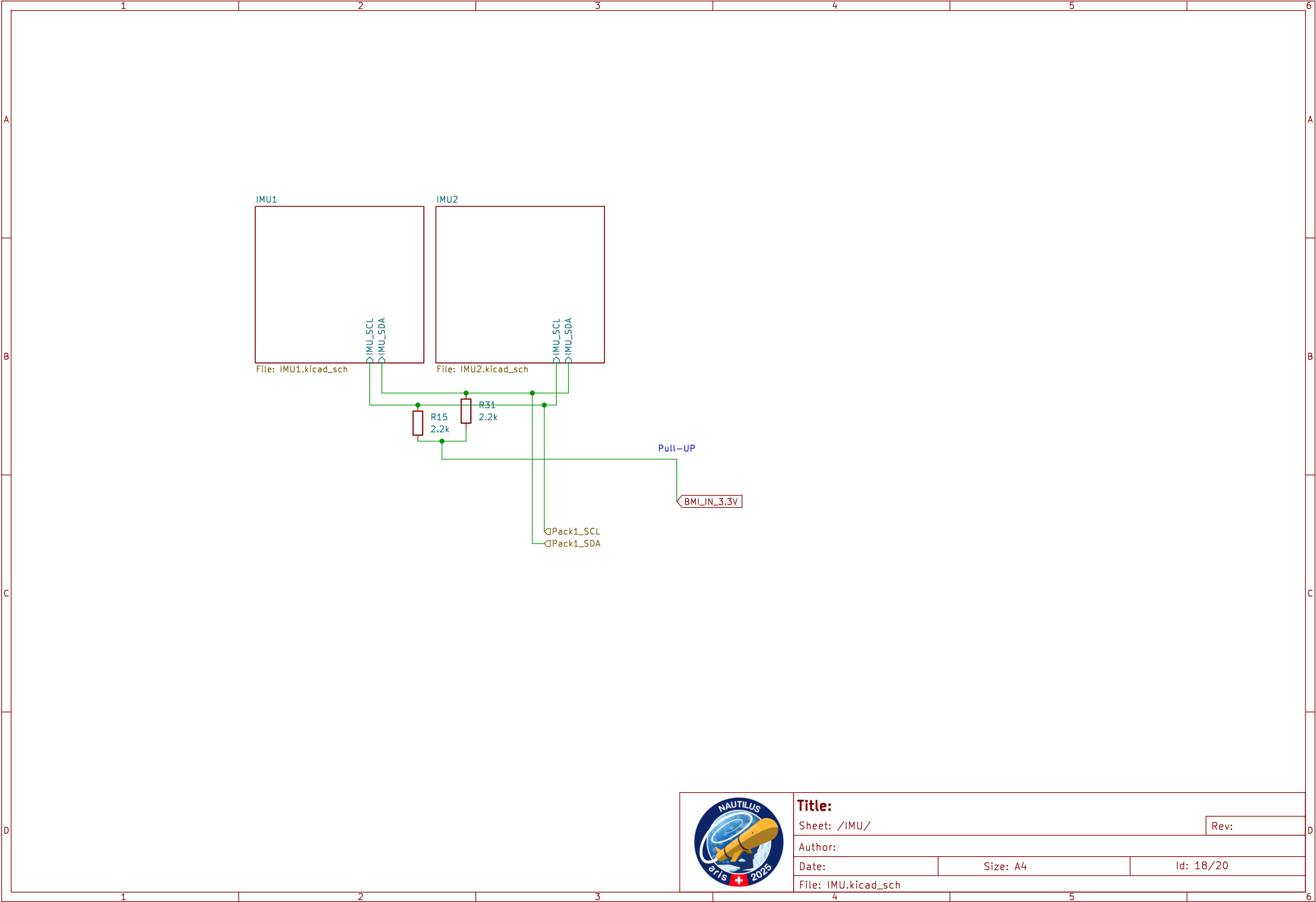
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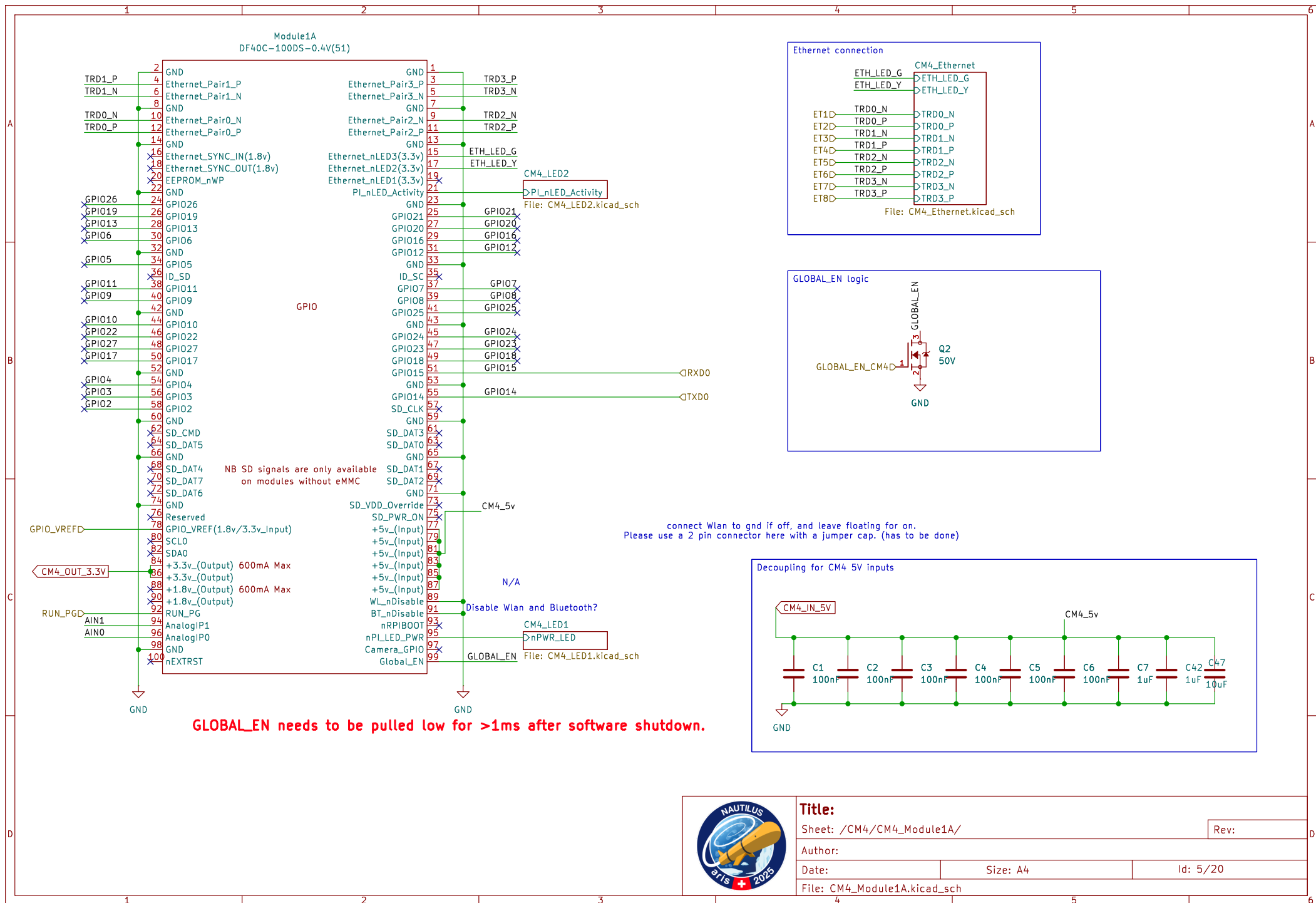
Wont work... diodes are not perfect...



Title:		
Sheet: /Power_logic/		Rev:
Author:		
Date:	Size: A4	Id: 14/20
File: Power_logic.kicad_sch		



Title:		
Sheet: /IMU/		Rev:
Author:		
Date:	Size: A4	Id: 18/20
File: IMU.kicad_sch		



Fan controller

R3
1k

Q1
50V

Fan_ctrl

Connected to PB7

fan only active when battery is connected.
Mby add an external power pin to externally power the fan for testing.

FAN

External interfaces

J1
FTSH-107-02-L-DV

STM_Plug_3.3V

USART1_RX
USART1_TX

STM_BOOT0

R4
10k

GND

SW1
B3F-1052

C19
100nF

GND

logic handled in power section

Vdd

STM_IN_3.3V

Vss

GND

STDC14 for STLINK-V3MINI (STM32 JTAG/SWD and VCP)

Figure 11. CN5 STDC14 connector (Top view)

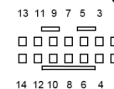


Table 4. CN5 STDC14 connector pinout

STDC14 Pin #	ARM10 Pin #	Pin description	Type
1	-	Reserved ⁽¹⁾	-
2	-	Reserved ⁽¹⁾	-
3	1	T_VCC ⁽²⁾	I
4	2	T_JTMS/T_SWCLK	I/O
5	3	GND	S
6	4	T_JCLK/T_SWCLK	O
7	5	GND	S
8	6	T_JTDO/T_SWO ⁽³⁾	I
9	7	T_JCLK	O
10	8	T_JTDI/NC ⁽⁴⁾	O
11	9	GNDDetect	O
12	10	T_NRST	O
13	-	T_VCP_RX	O
14	-	T_VCP_TX	I

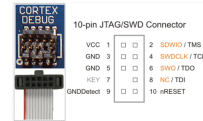
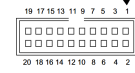


Figure 10. JTAG debugging flat ribbon layout



Title:

Sheet: /STM/PinoutSTM/

Rev:

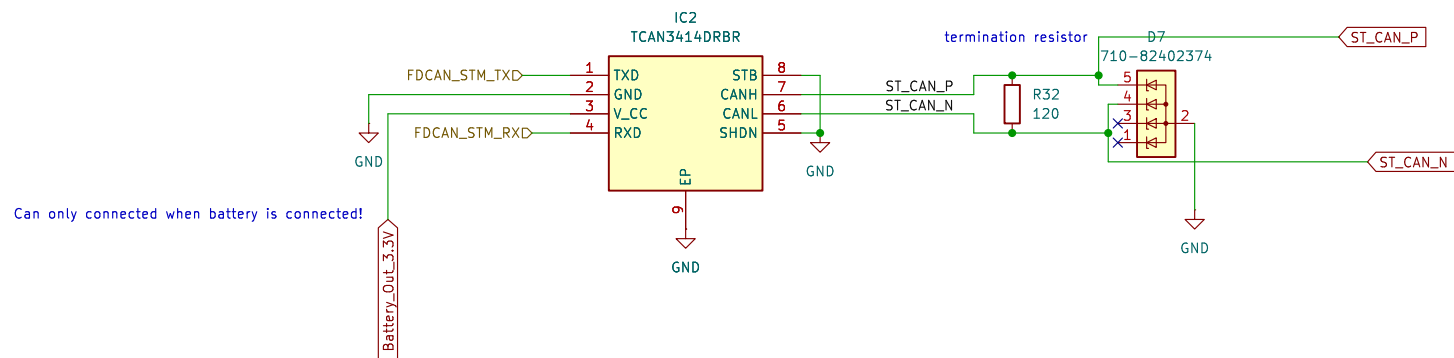
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Date:

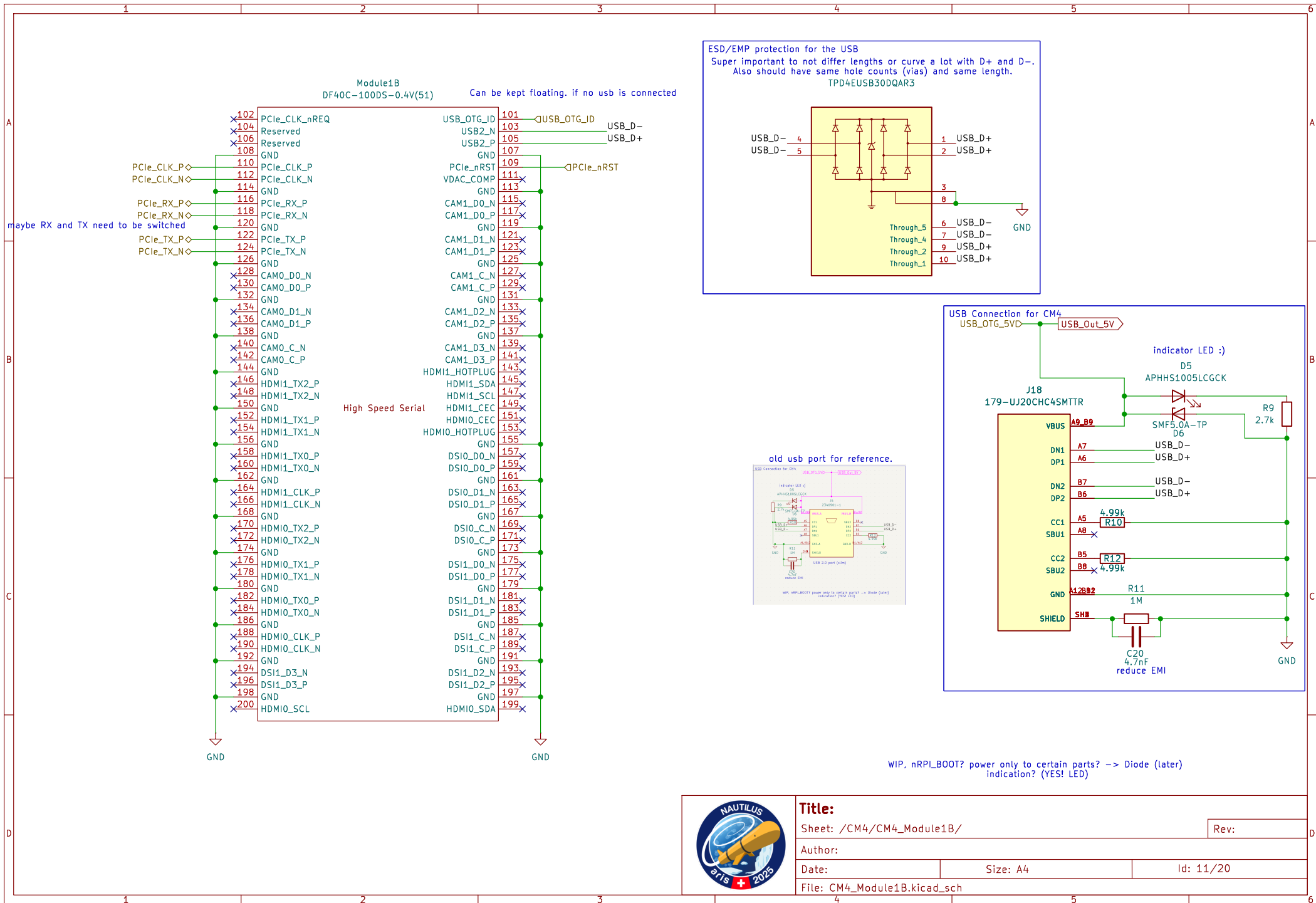
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Id: 6/20

File: PinoutSTM.kicad_sch



Title:		
Sheet: /STM/CAN_Interface/		Rev:
Author:		
Date:	Size: A4	Id: 7/20
File: PowerSTM.kicad_sch		





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

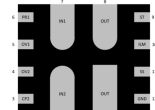
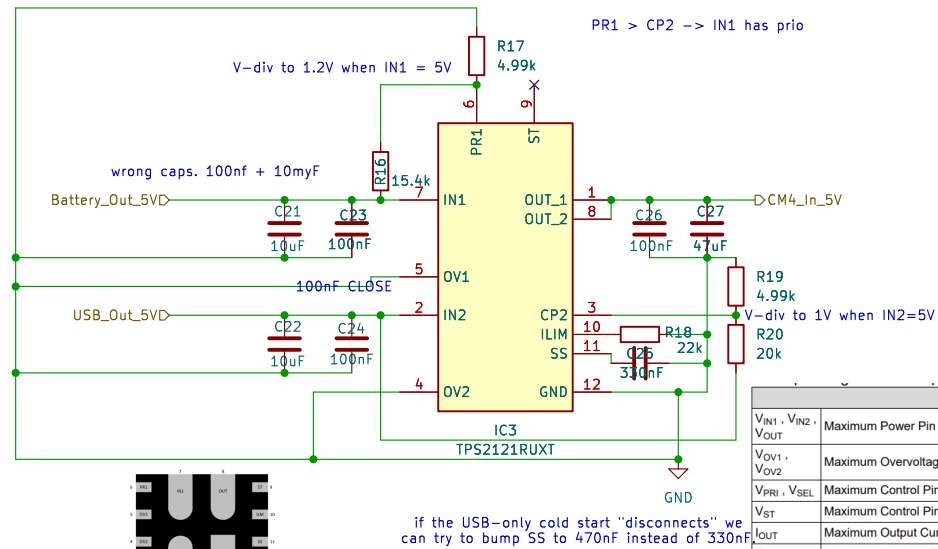


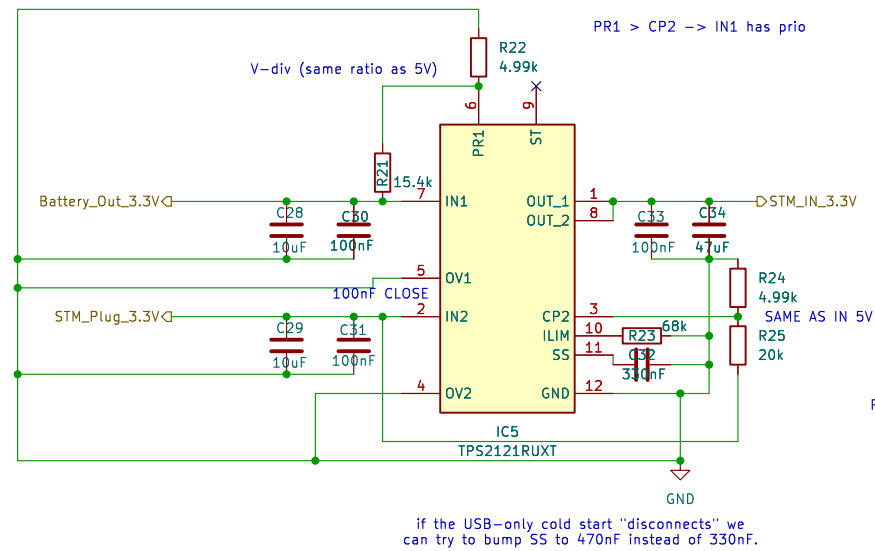
Figure 6-2. TPS2121 (RUXT) Package 12-Pin VQFN-HR Bottom View

PIN		TPS2121		IO	DESCRIPTION
NAME	TPS2120	TPS2121	WCSIP		
IN1	B1, B2, C1	7	1	I	Power Input for Source 1
IN2	B3, B4, C4	2	1	I	Power Input for Source 2
OUT	C2, C3, D1, D2, D3, D4	1, 8	1	O	Power Output
ST	E1	9	0	O	Status output indicating which channel is selected. Connect to GND if not required.
ILIM	E2	10	0	O	Output Current Limiting for both channels.
ISL	E3	11	0	O	Adjusts Input Settling Delay Time and Output Soft Start Time
GND	E4	12	—	—	Device Ground
PRI1	A1	6	1	I	Enables Priority Operation. Connect to IN1 to set switchover voltage. Connect to GND if not required.
OV1	A2	5	1	I	Active Low Enable Supervisor for IN1 Overvoltage Protection. Connect to GND if not required.
OV2	A3	4	1	I	Active Low Enable Supervisor for IN2 Overvoltage Protection. Connect to GND if not required.
SEL	A4	—	1	I	Active Low Enable for IN1. Allows GPIO to override priority operation and manually select IN2. TPS2120 only.
CP2	—	3	1	I	Enables Comparator Operation and is compared to PRI1 to set switchover voltage. Connect to GND if not required. TPS2121 only.

		Pins	MIN	MAX	UNIT
V _{IN1} , V _{IN2} , V _{OUT}	Maximum Power Pin Voltage	IN1, IN2, OUT	-0.3	24	V
V _{OV1} , V _{OV2}	Maximum Overvoltage Pin Voltage	OV1, OV2	-0.3	6	V
V _{PRI} , V _{SEL}	Maximum Control Pin Voltage	PRI, SEL	-0.3	6	V
V _{ST}	Maximum Control Pin Voltage	ST	-0.3	6	V
I _{OUT}	Maximum Output Current	OUT	Internally Limited		
T _{J, MAX}	Maximum Junction Temperature		Internally Limited		
T _{STG}	Storage temperature		-65	150	°C



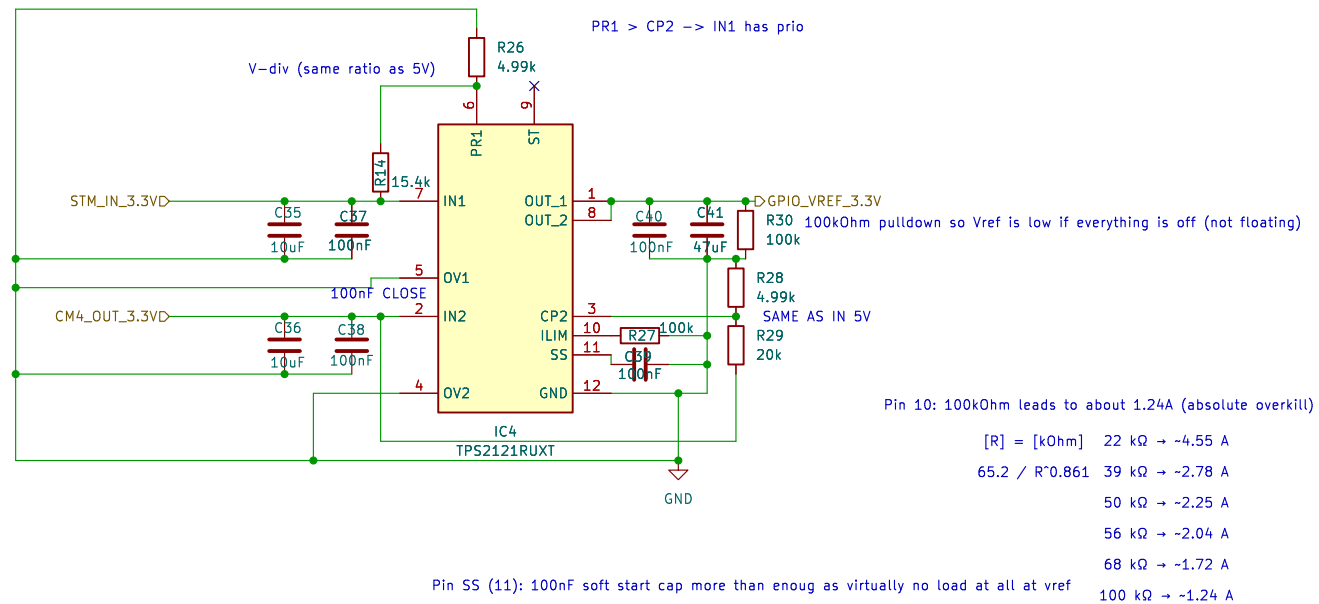
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Author:		
Date:	Size: A4	Id: 15/20
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[R] = [kOhm]	22 kΩ	→ -4.55 A
65.2 / R*0.861	39 kΩ	→ -2.78 A
	50 kΩ	→ -2.25 A
	56 kΩ	→ -2.04 A
	68 kΩ	→ -1.72 A
	100 kΩ	→ -1.24 A



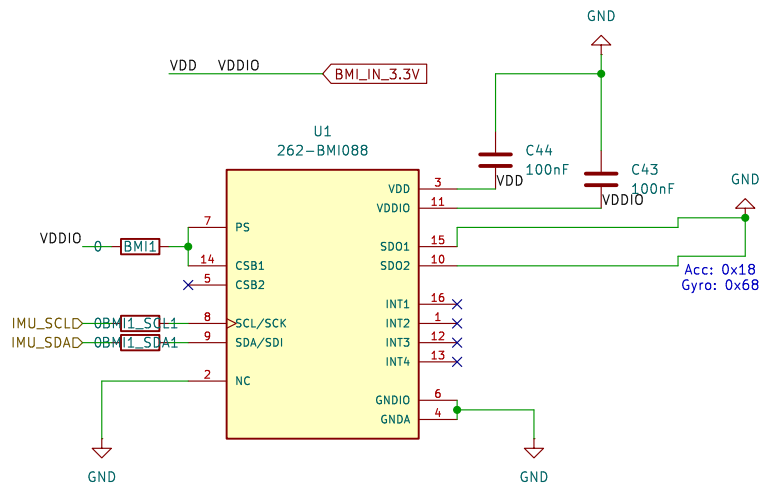
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Title:		
Sheet: /Power_logic/GPIO_REF3.3V/		Rev:
Author:		
Date:	Size: A4	Id: 17/20
File: GPIO_REF3.3V.kicad_sch		

PS -> 3.3V IIC
CSB1 -> 3.3V NOT SPI

PB8 on STM
PB9 on STM



Accelerometer
SD01 pin pulled to GND (0x18)
SD01 pin pulled to VDDIO: (0x19)

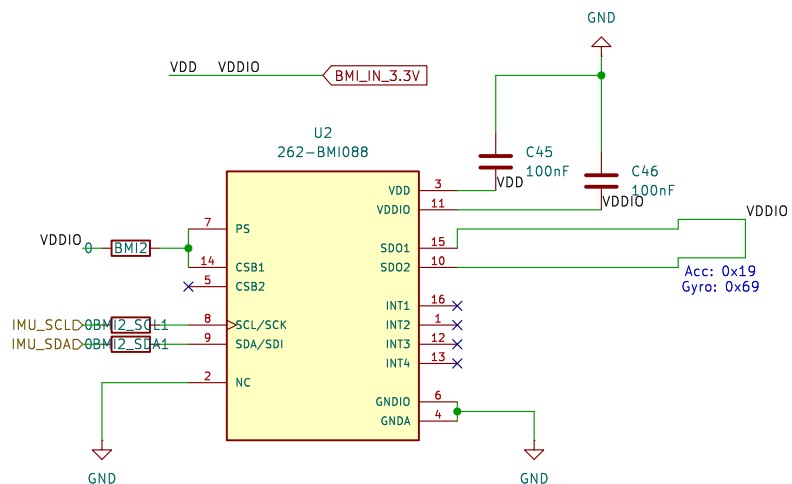
Gyroscope:
SD02 pin pulled to GND: (0x68)
SD02 pin pulled to VDDIO: 0x69



Title:		
Sheet: /IMU/IMU1/		Rev:
Author:		
Date:	Size: A4	Id: 19/20
File: IMU1.kicad_sch		

PS -> 3.3V IIC
CSB1 -> 3.3V NOT SPI

PB8 on STM
PB9 on STM



Accelerometer
SD01 pin pulled to GND (0x18)
SD01 pin pulled to VDDIO: (0x19)

Gyroscope:
SD02 pin pulled to GND: (0x68)
SD02 pin pulled to VDDIO: (0x69)



Title:

Sheet: /IMU/IMU2/

Rev:

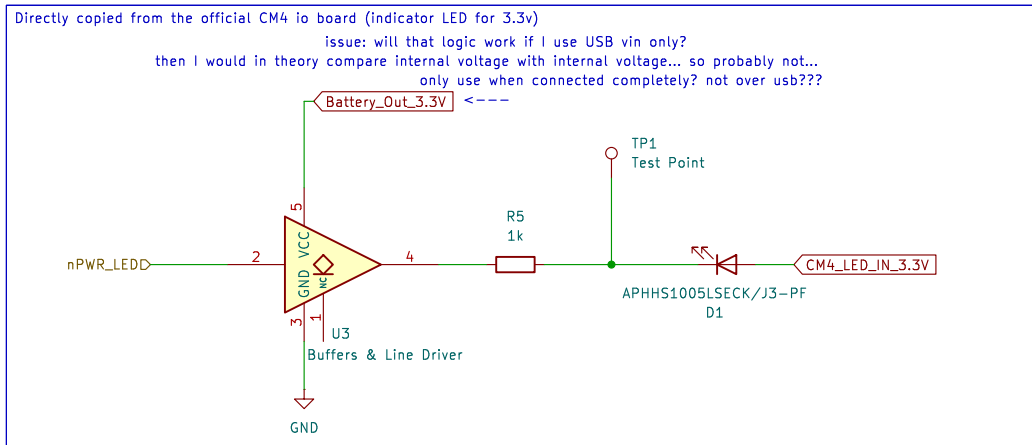
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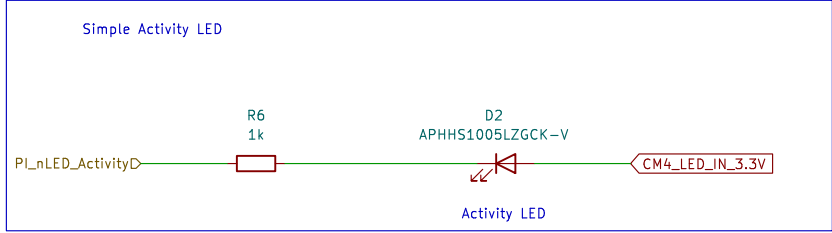
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Author:		
Date:	Size: A4	Id: 8/20
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Title:

Sheet: /CM4/CM4_Module1A/CM4_LED2/

Rev:

Author:

Date:

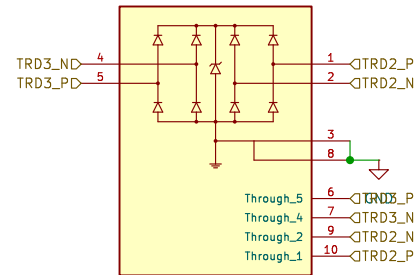
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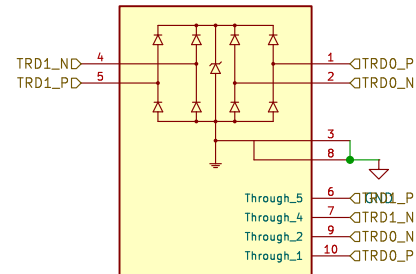
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POE Protection

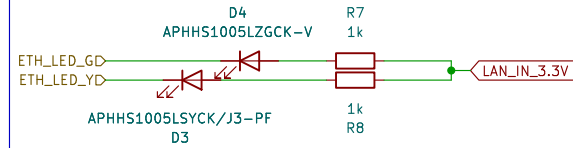
TPD4EUSB30DQAR1



TPD4EUSB30DQAR2



Optimal: Green: 325 Ohm (3.3-2.65)/0.002
Optimal: Yellow: 725 Ohm (3.3-1.85)/0.002



Title:

Sheet: /CM4/CM4_Module1A/CM4_Ethernet/

Rev:

Author:

Date:

Size: A4

Id: 10/20

File: CM4_Ethernet.kicad_sch