

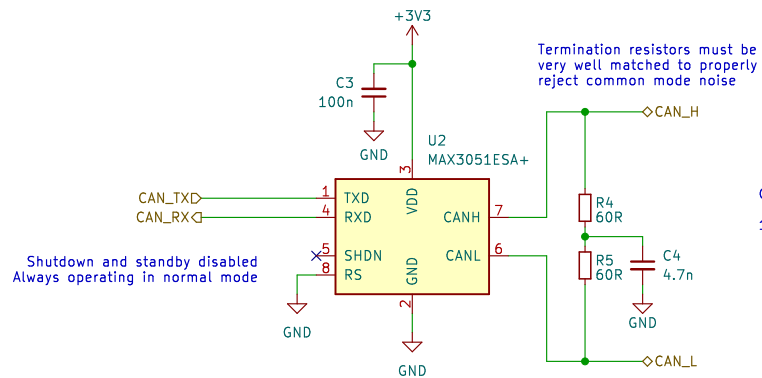
CAN bus operating at 1MHz
1.1MHz corner frequency

$$R = 60 \parallel 60 = 30 \text{ ohms}$$

$$T = RC = 141 \text{ ns}$$

$$f = 1/(2 \cdot \pi \cdot T) = 1.13 \text{ MHz}$$

Vehicle: STAG 9		
Drawn By: Esteban Norena, Tim Brewis		
Checked By: Tim Brewis		
CAD Part:		
SUFST – Southampton University Formula Student Team		
Sheet: /CAN–C Bus Transceiver/		
File: can–transceiver.kicad_sch		
Title: On–Car Telemetry		
Size: A4	Date: 2023–04–04	Rev: 1.0.0
KiCad E.D.A. kicad (6.0.11–0)		Id: 2/7



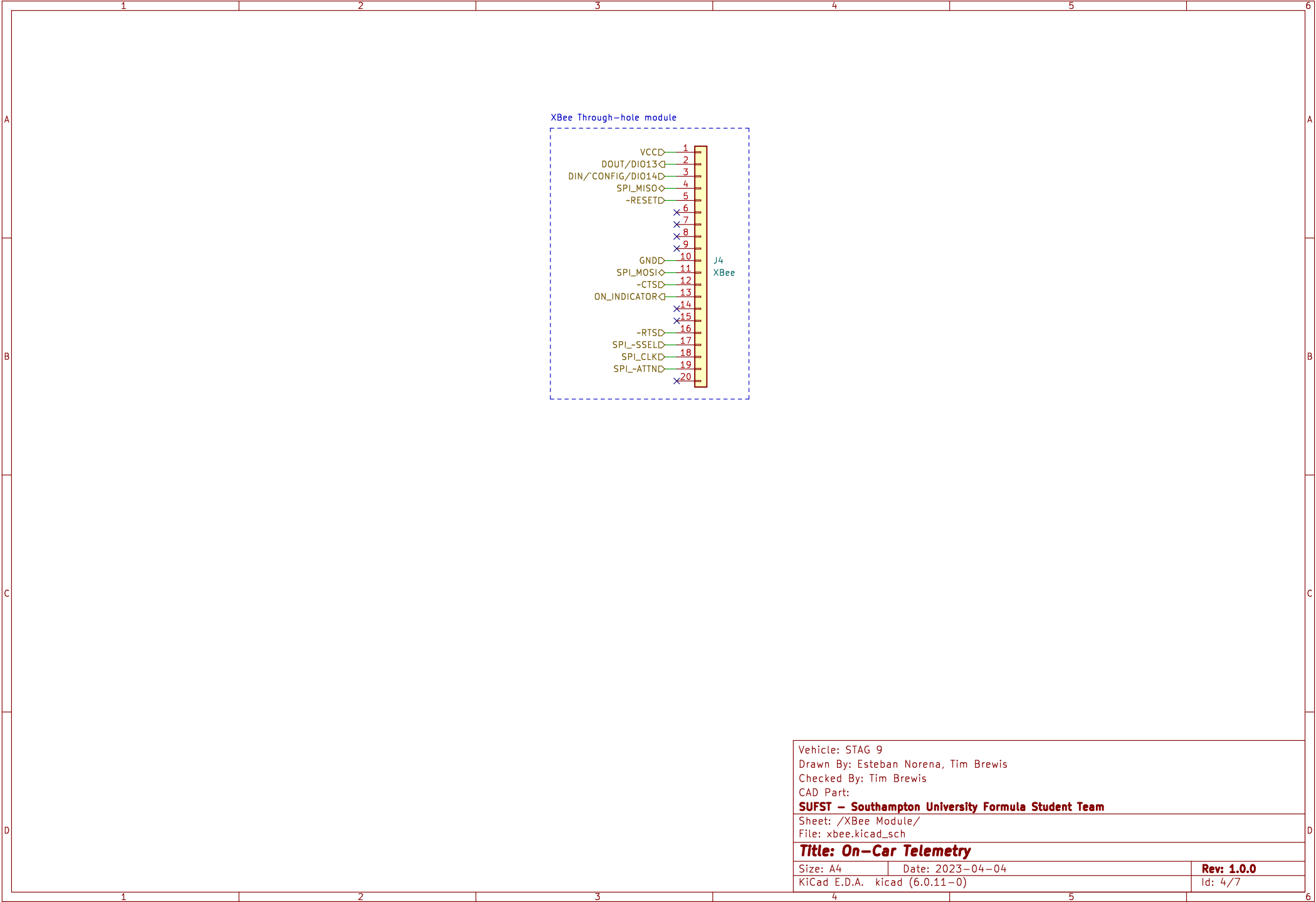
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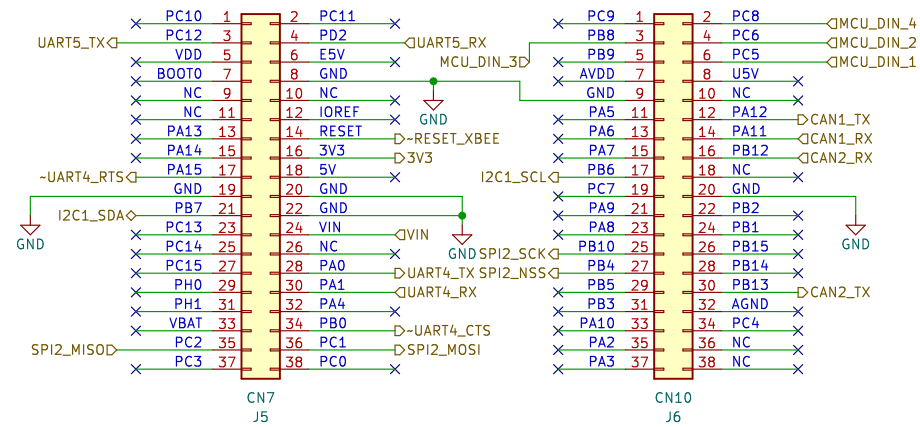
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STM32 F446RE Nucleo-446

Nucleo-446 dev board has built in regulator supplied from VIN which provides 3.3V power for rest of circuit, up to 500mA



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CAD Part:

SUFST – Southampton University Formula Student Team

Sheet: /mcu/

File: mcu.kicad_sch

Title: On-Car Telemetry

Size: A4 Date: 2023-04-04

KiCad E.D.A. kicad (6.0.11-0)

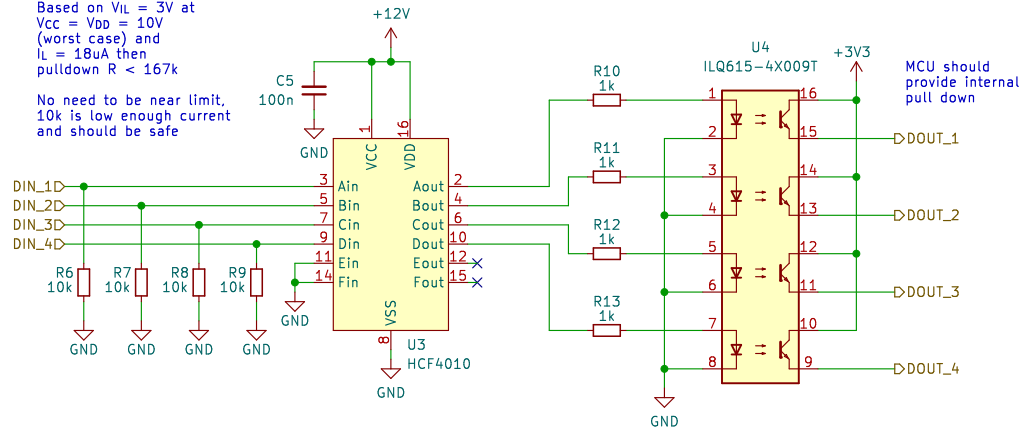
Rev: 1.0.0

Id: 5/7

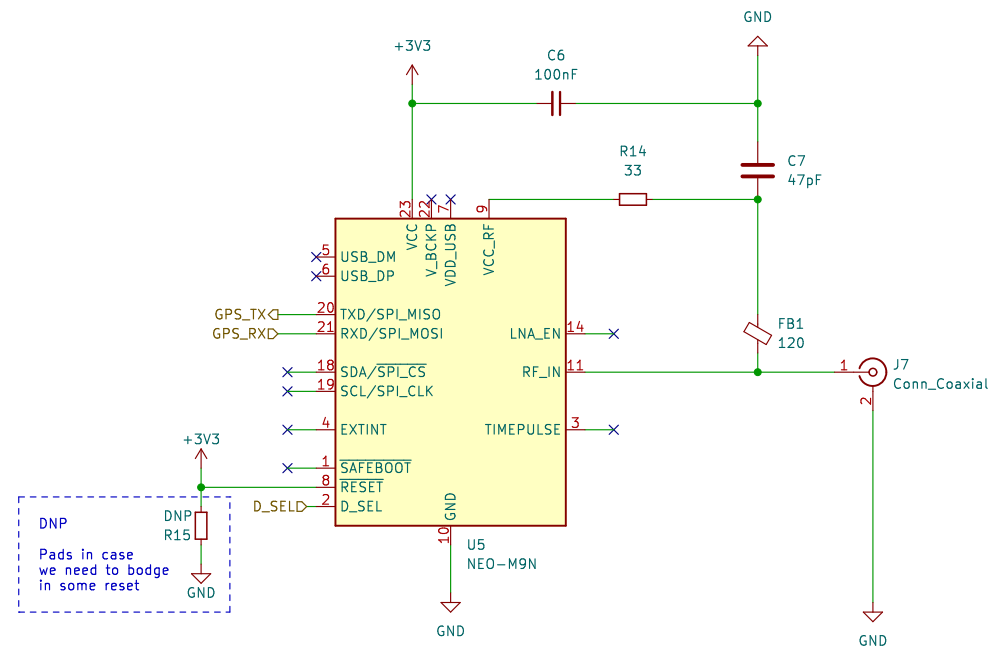
Digital (12V -> 3.3V)

Based on $V_{IL} = 3V$ at
 $V_{CC} = V_{DD} = 10V$
 (worst case) and
 $I_L = 18\mu A$ then
 pulldown $R < 167k$

No need to be near limit,
 10k is low enough current
 and should be safe



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SUFST – Southampton University Formula Student Team	
Sheet: /input shift/	
File: input-shift.kicad_sch	
Title: On-Car Telemetry	
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KiCad E.D.A. kicad (6.0.11-0)	Rev: 1.0.0
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CAD Part:		
SUFST – Southampton University Formula Student Team		
Sheet: /GPS/		
File: GPS.kicad_sch		
Title: On-Car Telemetry		
Size: A4	Date: 2023-04-04	Rev: 1.0.0
KiCad E.D.A. kicad (6.0.11-0)		Id: 7/7