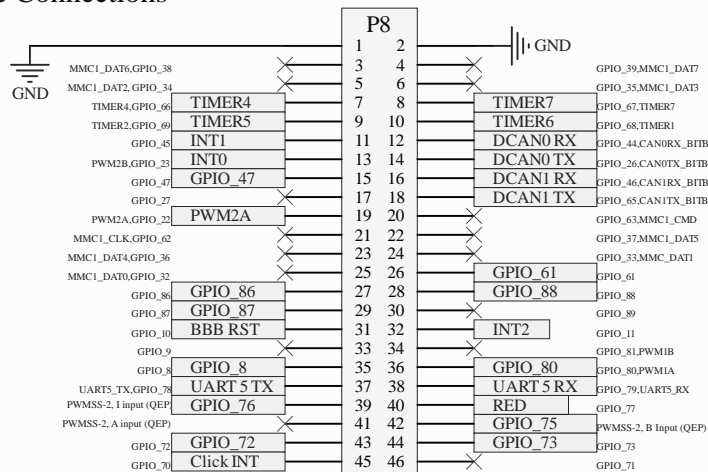
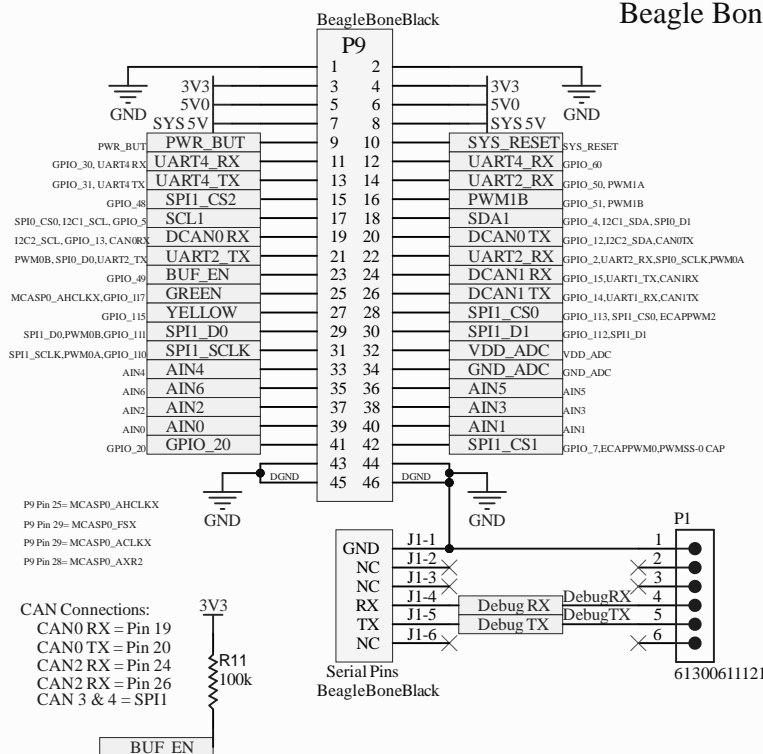


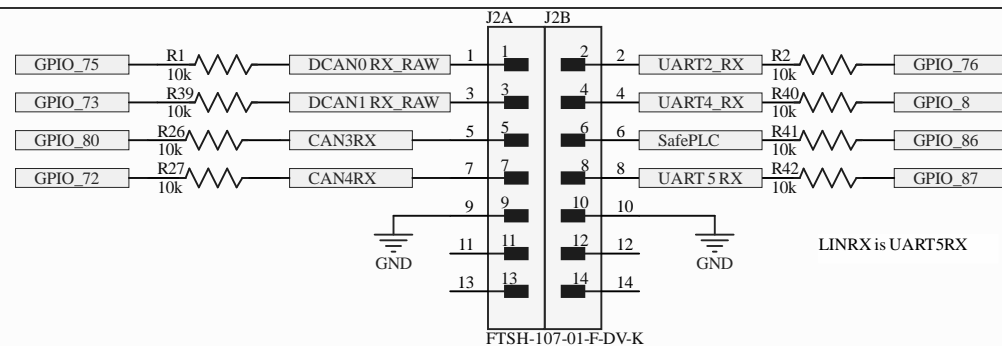
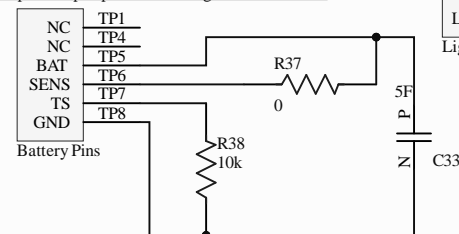
References:

https://users.freebasic-portal.de/tjf/Projekte/libpruio/doc/html/_cha_pins.html

Beagle Bone Connections



P9 pins 31-36 should not be driven on power up to prevent booting issues. See link.

Title: **Ultimate Truck Hacking Platform**

Subtitle: Beagle Bone Black Headers

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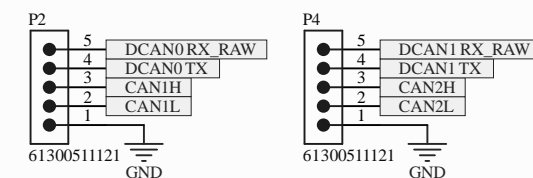
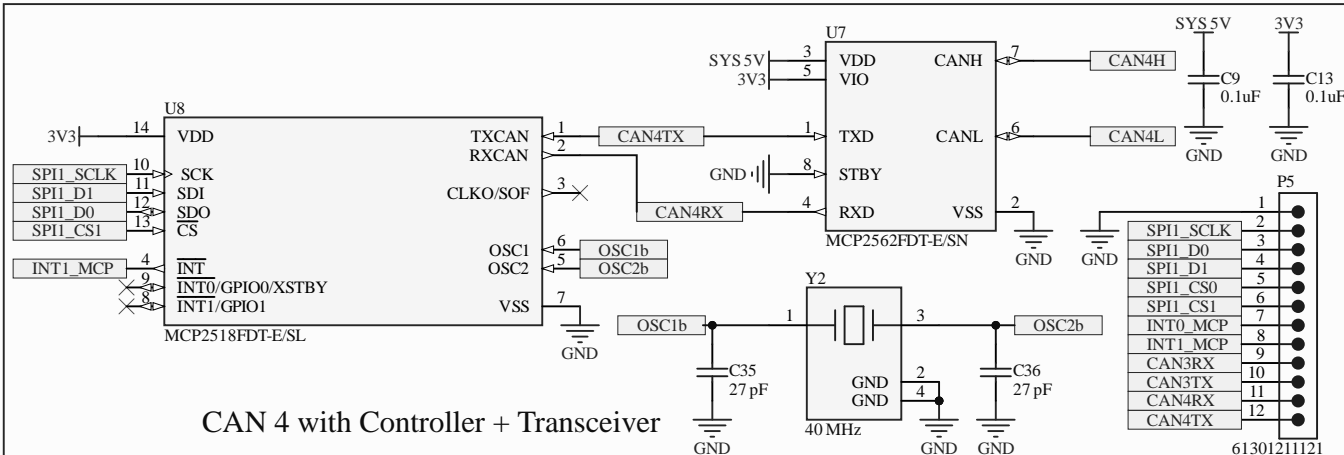
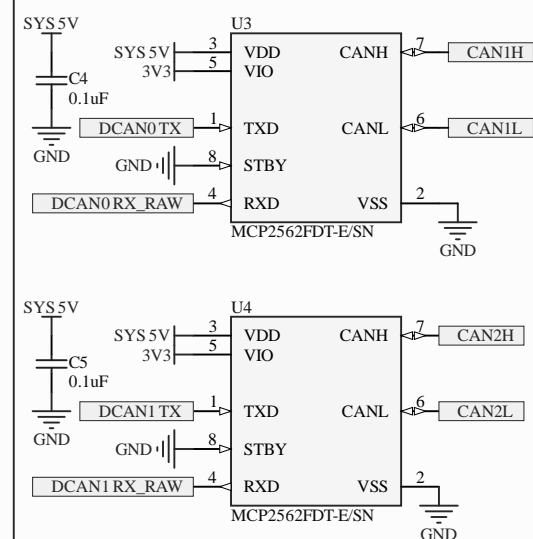
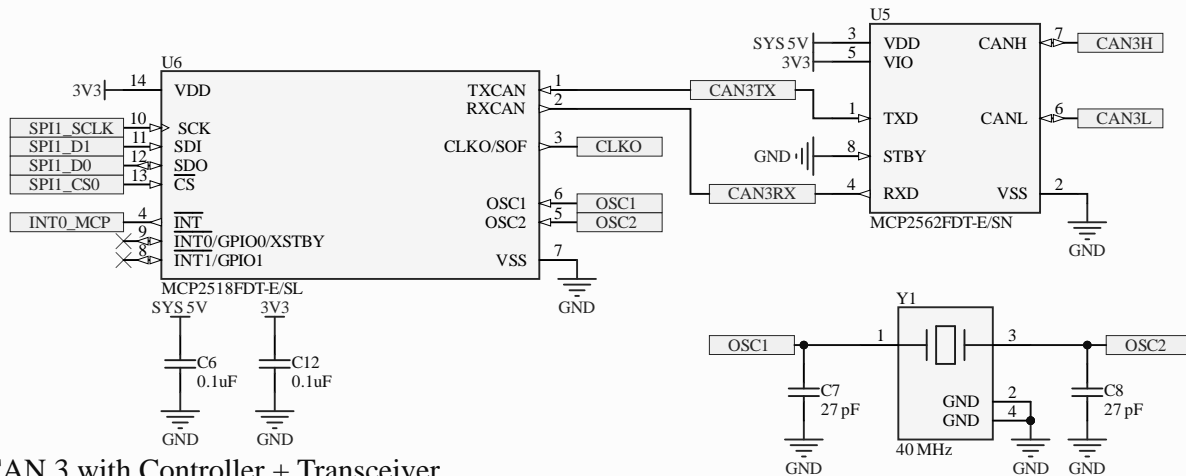
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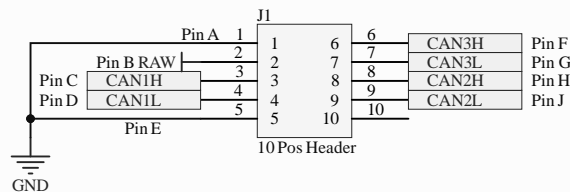
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*

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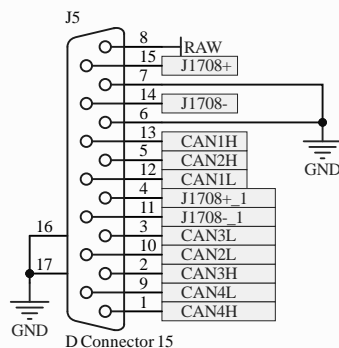
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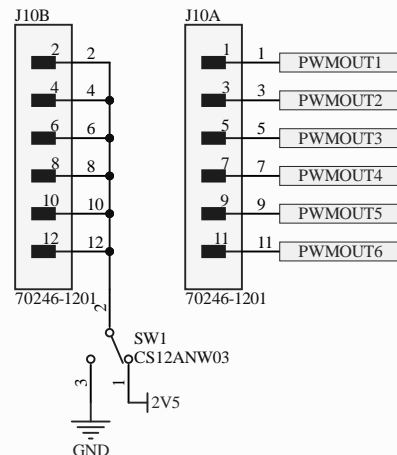
Internal Deutsch 9-pin Connectors

9-Pin connector Interface (Use PG11 Cordgrip)

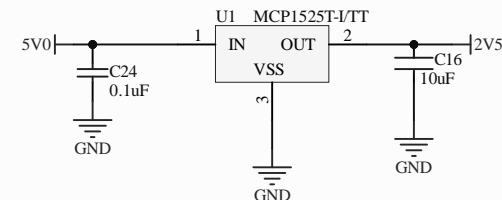


Pinout Compatible with the DG DPA 4

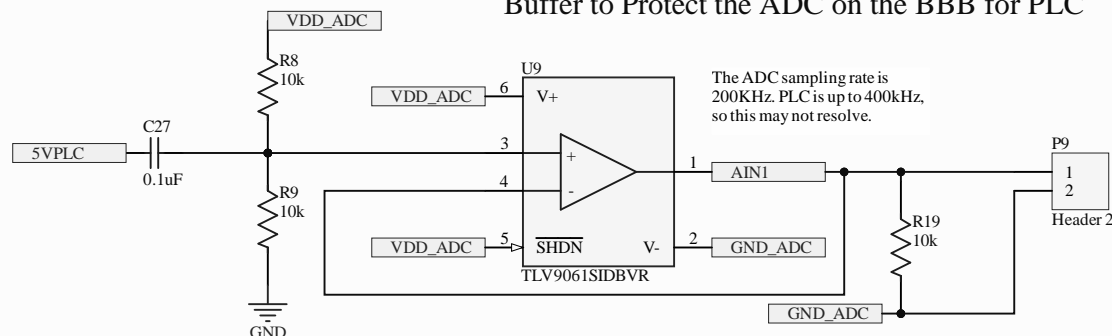
External Vehicle Connector



Signal outputs to simulate wheel speed sensors

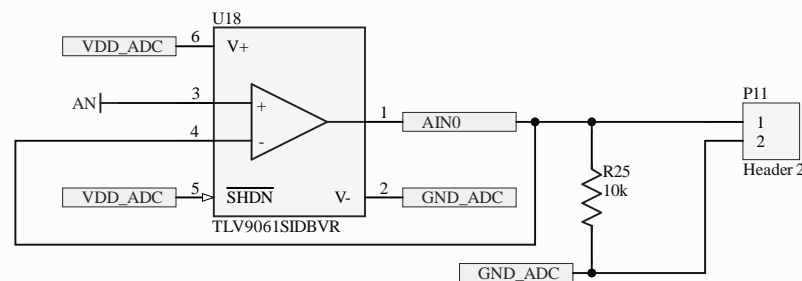


2.5V Reference Signal for 2nd order Filter on PLC

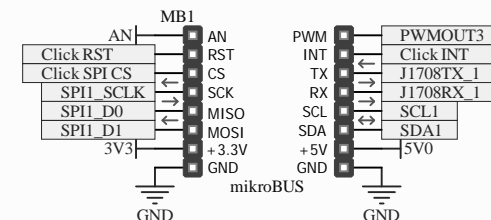


Buffer to Protect the ADC on the BBB for PLC

Optional: Buffer to Protect the ADC on the BBB for MikroBus



MikroBus Expansion



<https://www.mikroe.com/click>

<https://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf>

Title: **Ultimate Truck Hacking Platform**

Subtitle: Board Interfaces

Date: 7/17/2024 Time: 4:25:03 PM

File: UTHPEdge Connectors v2.SchDoc

Revision: 2

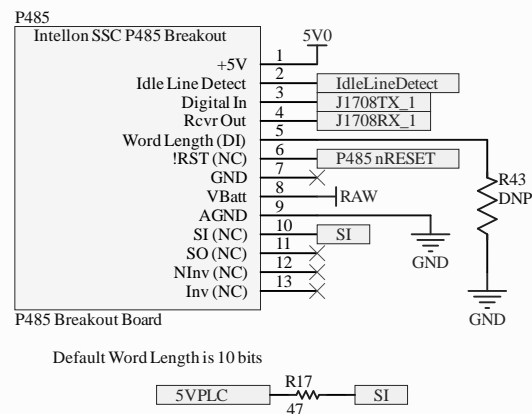
Sheet 3 of 6

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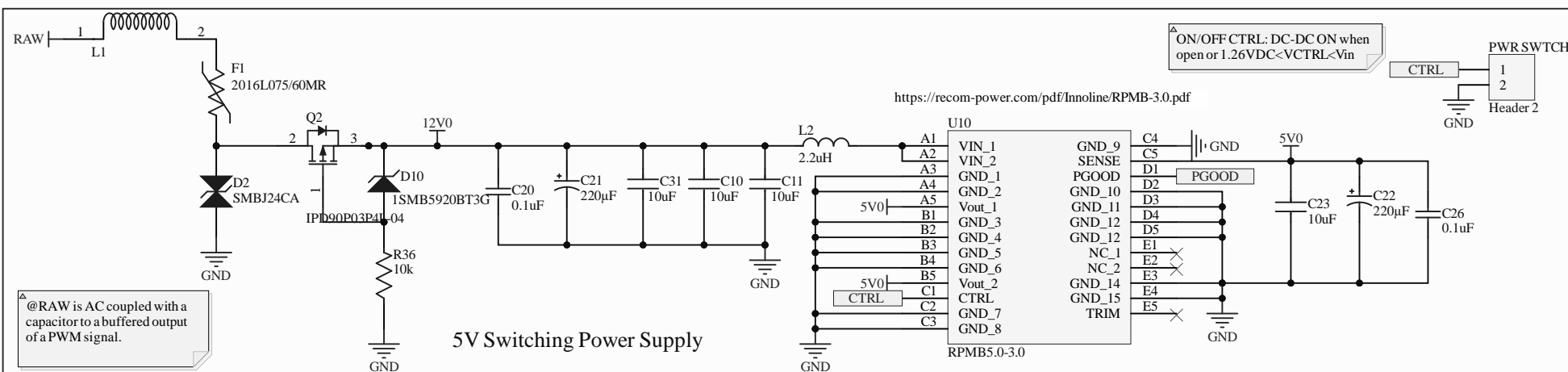
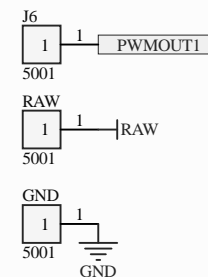
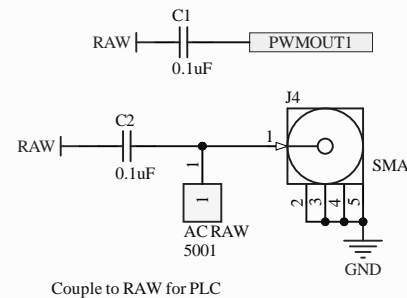
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Power Line Carrier Coupling



Title: **Ultimate Truck Hacking Platform**

Subtitle: Power, LIN, Logic Buffer

Date: 7/17/2024 Time: 4:25:04 PM

File: UTHP Power Supply and PLC v2.SchDoc

Revision: 2

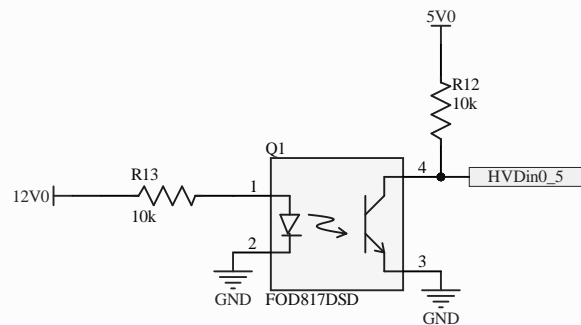
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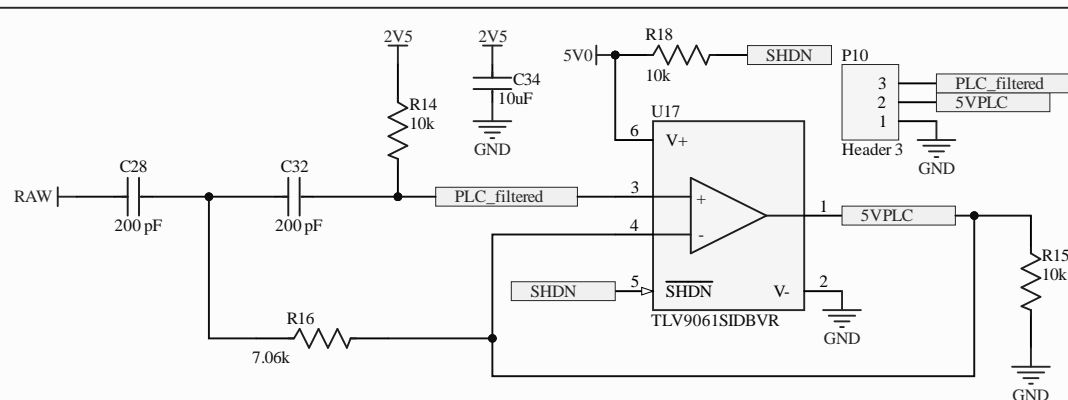
Drawn with Altium



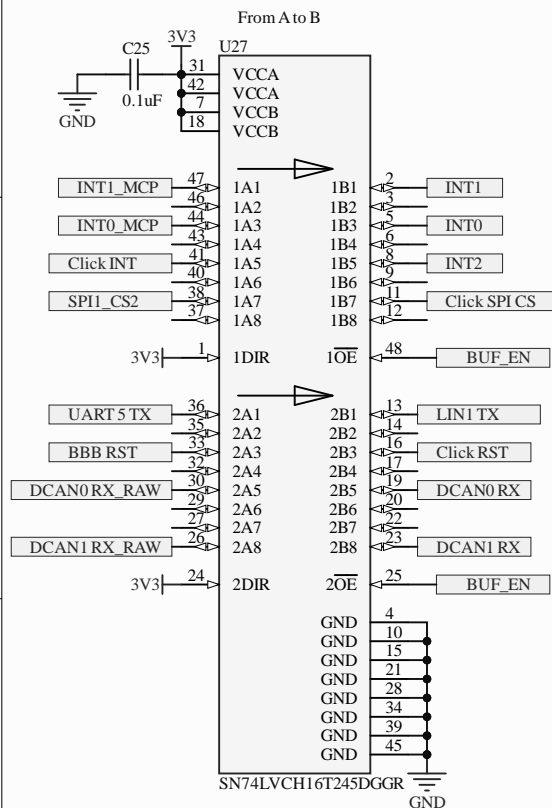
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Optoisolator to detect power disconnects



2nd Order Sallen-Key High Pass Filter for 80 KHz Cutoff for PLC Connections



1DIR connected to 3.3V, 2DIR connected to ground. When OE is low and DIR is high, data transmission is from A to B. When OE is low and DIR is low, data transmission is from B to A. When OE is high, both output ports will be high-impedance. See <https://www.ti.com/lit/ds/symlink/sn74lvch16t245.pdf>

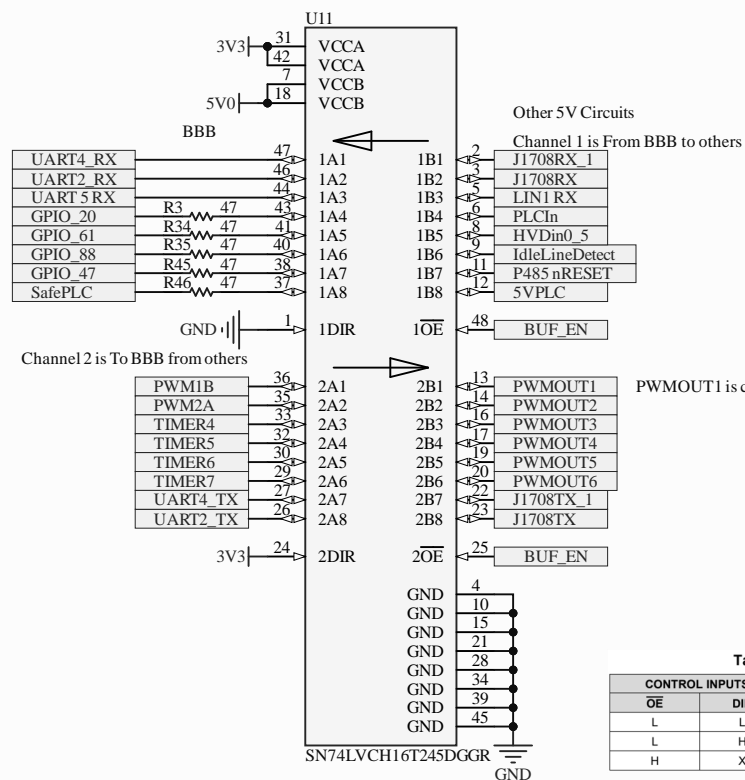



Table 1. Function Table (Each Transceiver)⁽¹⁾

CONTROL INPUTS		OUTPUT CIRCUITS		OPERATION
\overline{OE}	DIR	A PORT	B PORT	
L	L	Enabled	Hi-Z	B data to A bus
L	H	Hi-Z	Enabled	A data to B bus
H	X	Hi-Z	Hi-Z	Isolation



Title: <i>Ultimate Truck Hacking Platform</i>		Systems Cyber <i>Jeremy Daily</i> <i>Thomas Balzer</i> <i>Carson Green</i> <i>Fort Collins, CO</i>	 SYSTEMS ENGINEERING COLORADO STATE UNIVERSITY
Subtitle: I2C and J1708	Revision: 2		
Date: 7/17/2024 Time: 4:25:06 PM	Sheet 6 of 6		
File: UTHP J1708 LIN RTC v2.SchDoc			
		Drawn with Altium	