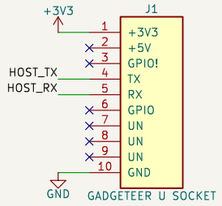
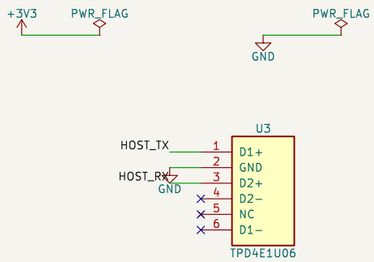
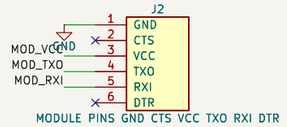
01 / GADGETEER U SOCKET J1 (HOST SIDE)



06 / CONNECTOR UART ESD: U3 HOST, U4 MODULE (SYSTEM IMMUNITY UNQUALIFIED)

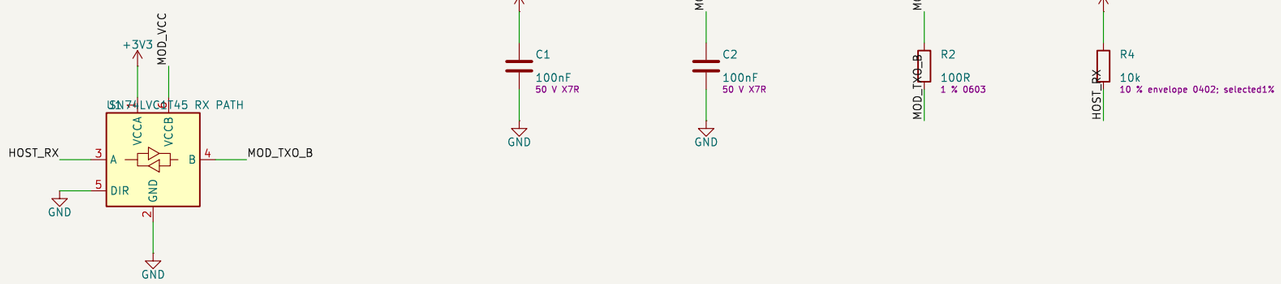


04 / MODULE HEADER J2 (RIGHT-ANGLE MALE 1x6, PINS EAST)

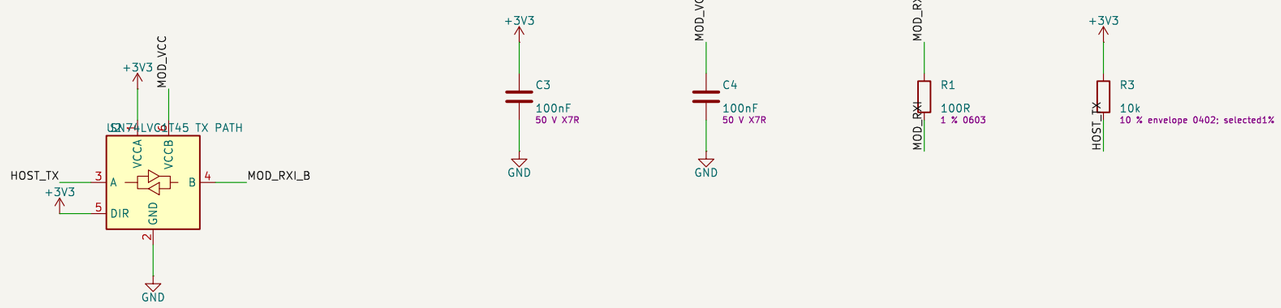


J2 pin 3 VCC is an OUTPUT of the module (3.3 V or 5 V by its jumper); it feeds only U1.6 U2.6 C2 C4 TP2.

02 / MODULE TXO -> HOST RX PATH: U1 (DIR = GND, B TO A), SERIES R2, BYPASS C1 C2, IDLE-HIGH PULL-UP R4



03 / HOST TX -> MODULE RXI PATH: U2 (DIR = +3V3, A TO B), SERIES R1, BYPASS C3 C4, IDLE-HIGH PULL-UP R3



05 / TEST POINTS (BOTTOM SIDE, OBSERVATION ONLY)



NOTES

Pin map (D2): U socket 1 +3V3, 2 +5V (not connected), 3 GPIO! (not connected), 4 TX = HOST_TX (host output), 5 RX = HOST_RX (host input), 6–9 not connected, 10 GND.

Direction names follow the SMOOTHIE viewpoint: HOST_TX is driven by the host (board input), HOST_RX is driven by U1 (board output), MOD_TXO is driven by the module, MOD_RXI is driven by the board (via U2 and R1).

U1 (module TXO to host RX): pin 1 VCCA = +3V3, pin 6 VCCB = MOD_VCC, DIR (pin 5) = GND selects B to A. U2 (host TX to module RXI): DIR (pin 5) = +3V3 selects A to B. No DIR is on a signal net.

Host rails and the module rail never touch: MOD_VCC reaches only J2.3 U1.6 U2.6 C2 C4 TP2; +3V3 reaches only J1.1 U1.1 U2.1 U2.5 C1 C3 R3 R4 TP1; Gadgeteer +5V is not connected.

Either supply at 0 V puts both translators in isolation (both ports high-impedance): Ioff is finite; absent MOD_VCC may float and physical backfeed is unqualified; R3/R4 hold HOST_TX/HOST_RX high while a translator is isolated.

J2 pins 2 (CTS) and 6 (DTR) and J1 pins 2 3 6 7 8 9 carry no-connect flags. No chain socket (D7), U3/U4 UART ESD arrays; no LEDs. 3.3 V host logic only.

POWER DOWN BEFORE PLUGGING THE MODULE: contact order is not controlled and hot-plug is not claimed. Module upside down = wrong pin order (see power_direction_contract).

No 12–24 V input: the external-power jumper rule does not apply.

CERN-OHL-S-2.0 | KiCad only | black solder mask, white silkscreen | v02 STUDY, not for fabrication.

Generated from design-contract.json by tools/create_schematic.py

Gadgeteer U socket to CH340 module header (FTDI-Basic order), SN74LVC1T45 translators and connec

Smoothieware / CERN-OHL-S-2.0

Sheet: /

File: cheap-uart-adapter-breakout.kicad_sch

Title: Smoothie cheap UART adapter breakout (CH340 module carrier, 3.3 V h

Size: A3	Date: 2026-10-03	**Rev: v10**
KiCad E.D.A. 9.0.8		Id: 1/1