



Revision history

2.0.0-1 (2022-04-21):

- complete re-design around the ESP32-PICO-D4 microcontroller.
- improve CCD-bus transceiver circuits.
- add PCI-bus transceiver circuits.
- improve SCI-bus routing switches.
- add switchable bootstrap and programming voltage sources (12.0V/20.0V) to SCI-bus.

2.1.0-1 (2022-05-26):

- remove feedforward capacitor from boost converter.
- adjust programming voltages slightly higher than nominal (D15-D22 diode voltage drop).
- make VPP boost converter permanently enabled.
- replace SCI-bus switches.
- change I2C port expander (U16) device address.
- increase some resistor values to lower power dissipation.

2.1.0-2 (2023-01-22):

- remove SMT assembly features.

2.1.0-3 (2023-07-17):

- change R8-R12 resistor values from 499Ω to 0Ω.

2.2.0-1 (2023-11-06):

- change J1 solder jumper (OBD2 signal ground) to bridged variant.
- add programmable bias voltage switch to J1962-7 for OBD1 compatibility.

2.3.0-1 (2025-02-17):

- mirror J1962 data link connector.
- remove unused J3 SCI connector.
- remove unused R4 resistor.
- add D23 TVS diode for power input protection.

2.3.0-2 (2025-09-23):

- add D24 Schottky diode to protect USB from backpowering.
- move D1 battery protection diode before bulk capacitor.
- add C40-C45 signal conditioning capacitors.
- change D5-D6, D10 ESD diode values.
- change PCI-bus power supply voltage from 8.0V to 7.5V.
- change PCI-bus receiver reference voltage from 4.0V to 3.5V.
- remove PCI-bus transmitter inductor.
- add power distribution load switch to USB output.

J1962/OBD2 connector pinout		
Pin	Function	
2	J1850 VPW (PCI)	
3	J1567 CCD+	
4	Chassis ground	
5	Signal ground JP1	
6	J2610 SCI-A RX (PCM) VBB VPP	J2610 SCI-A TX (TCM)
7	J2610 SCI-A/B TX (PCM)	J2610 SCI-A TX (TCM)
9	J2610 SCI-B RX (TCM) VBB VPP	J1567 CCD-
11	J1567 CCD-	
12	J2610 SCI-B RX (PCM) VBB VPP	J2610 SCI-A RX (TCM) VBB VPP
14	J2610 SCI-A RX (TCM) VBB VPP	J2610 SCI-B TX (TCM)
15	J2610 SCI-B TX (TCM)	
16	Battery power (+12V)	

Table 1.