ELECTRONIC RESEARCH & DESIGN

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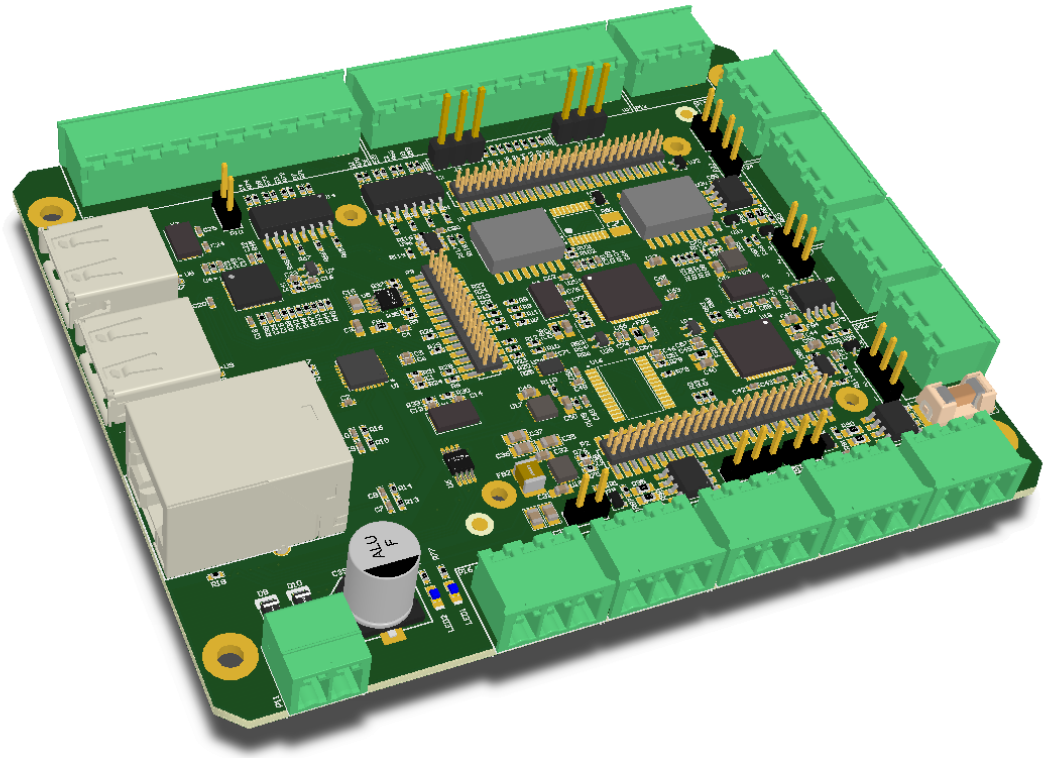
Industrial IO Base Board

The Industrial IO Base Board is an add-on for the Cherry Blossom System On Module.



It has the following features:

- 3 x RS232 Ports (RXD and TXD only)
- 3 x RS485 Ports (Auto Tx)
- 1 x CAN Bus
- 1 x I2C Bus (3.3V levels)
- 2 x Serial Ports (3.3V Levels)
- 5-12V DC input (1.5A)
- 2 x 5V Out (regulated 500mA) and Unregulated Input Voltage out.
- 8 x optical isolated inputs.
- 8 x High side driver outputs (No overcurrent – fuse limited to 500mA total for the 8 ports).
- 2 x USB High Speed Host ports
- 1 x 10/100 Mbps Ethernet

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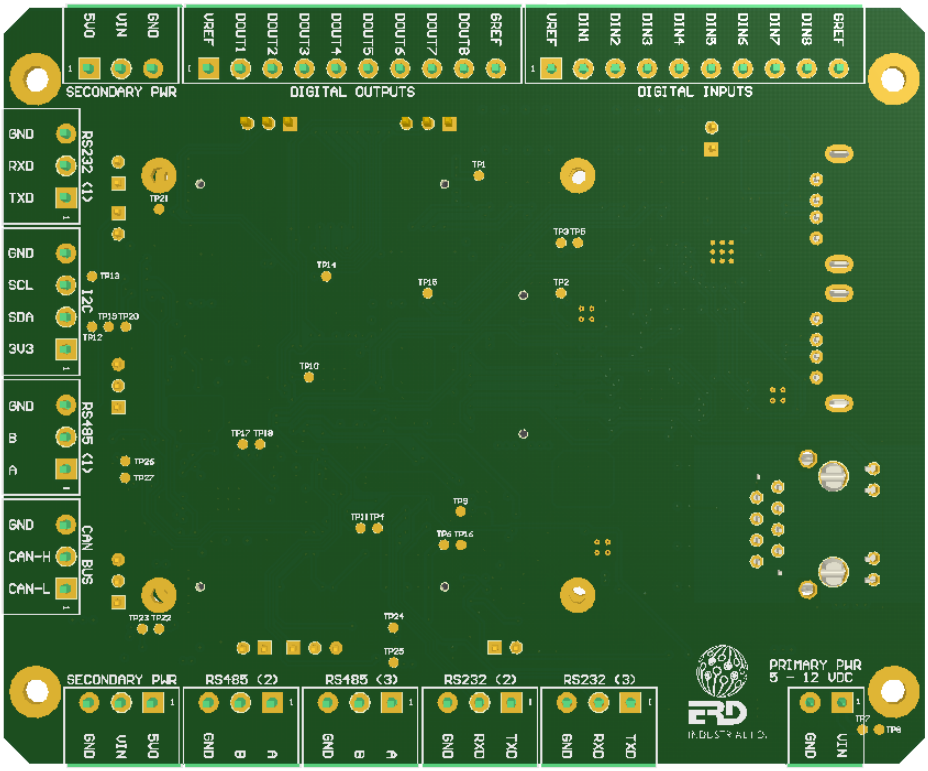


The rear of the Industrial IO defines the connections for the various interfaces. Serial Ports are supplied via FTDI quad USB to Serial converters.

1. Ethernet (P4)

10/100Mbps Ethernet

2. USB Host (P5, P6)

High Speed USB host ports, downstream via on-board USB Hub

3. Serial TTL level ports (J1, J2)

3V level serial ports:

- Pin 1 : GND
- Pin 2 : RXD
- Pin3 : TXD

4. Serial RS232 ports (P14, P15, P16)

RS232 level serial ports:

- Pin 1 : TXD
- Pin 2 : RXD
- Pin 3 : GND

5. Serial RS485 ports (P17, P18, P20)

RS485 level serial ports with auto direction on transmit:

- Pin 1 : A
- Pin 2 : B
- Pin 3 : GND

P19, P21 and P23 provides RS485 termination when fitted.

6. CAN (P22)

3V CAN:

- Pin 1 : CANL
- Pin 2 : CANH
- Pin3 : GND

7. Outputs (P5, P6)

5V – 18V Outputs (500mA total limited):

- Pin 1 : VIO_REF
  - This pin could be supplied by the 5V-12V unregulated input voltage to the board. Please populate P8 for this purpose.
  - With P8 not connected the output voltage should be supplied from this pin.
- Pin 2 : DOUT1
- Pin 3 : DOUT2
- Pin 4 : DOUT3
- Pin 5 : DOUT4
- Pin 6 : DOUT5
- Pin 7 : DOUT6
- Pin 8 : DOUT7
- Pin 9 : DOUT8
- Pin 10 : GND

The outputs are driven from a PCF8574A at address 0x38 on I2C bus 1.
All outputs are pulled high by default.

8. Inputs (P9)

5V – 18V Outputs (500mA total limited):

- Pin 1 : VIO_REF
  - This pin could be supplied by the 5V-12V unregulated input voltage to the board. Please Jumper P8 for this purpose.
  - With P8 not jumpered the output voltage should be supplied from this pin.
- Pin 2 : DIN1
- Pin 3 : DIN2
- Pin 4 : DIN3
- Pin 5 : DIN4
- Pin 6 : DIN5
- Pin 7 : DIN6
- Pin 8 : DIN7
- Pin 9 : DIN8
- Pin 10 : GND_REF

The Inputs are read from a PCF8574A at address 0x0x39 on I2C bus 1.
All inputs are via opto-couplers and are referenced to GND_REF (Pin 10) and are pulled high by default.

  - This pin could be coupled to the on-board GND pin if P10 is jumpered.
  - With P10 not jumpered the reference is to Pin 10.

9. I2C (P24)

3.3V I2C from processor I2C bus 1

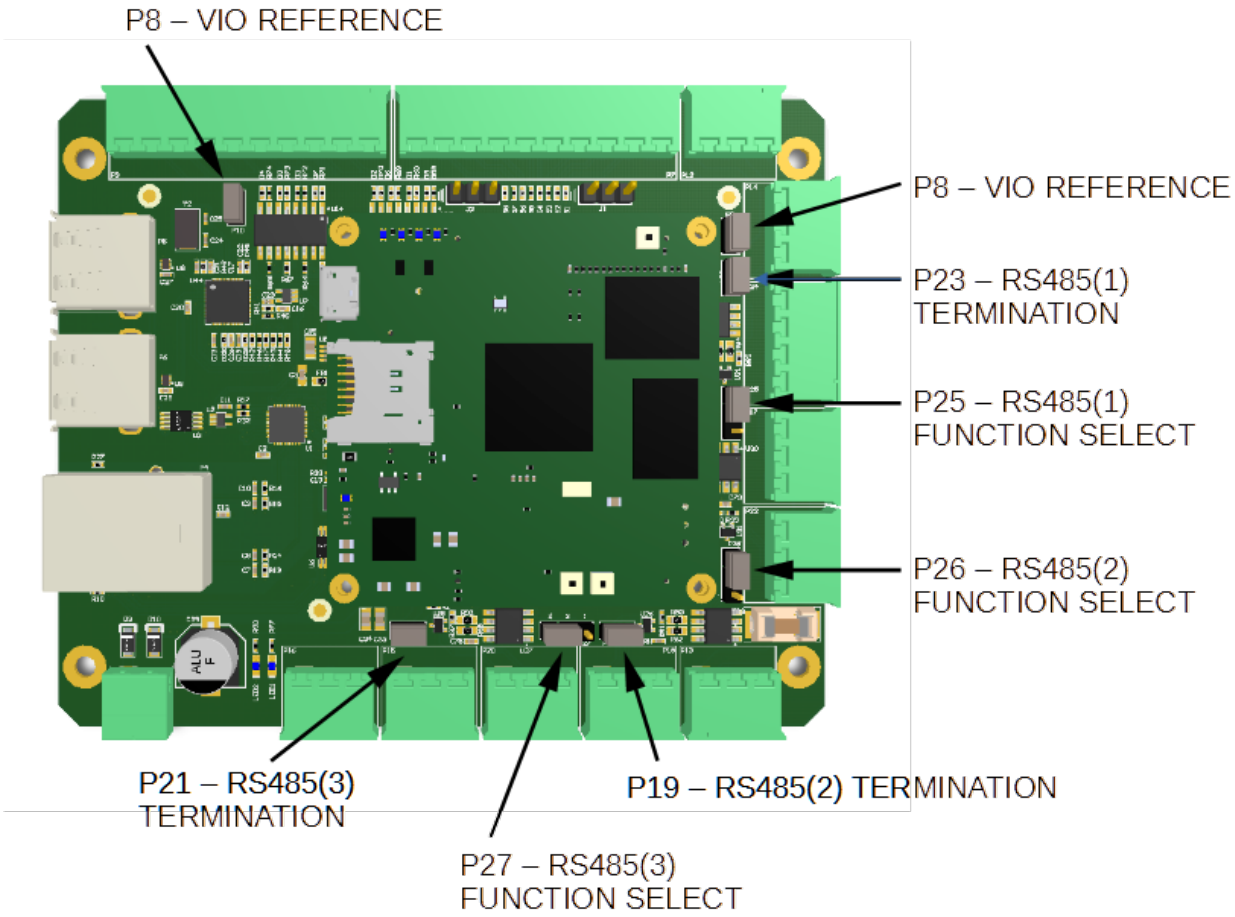
- Pin 1 : 3.3V (25mA limit!)
- Pin 2 : SDA
- Pin 3 : SCL
- Pin 4 : GND

10. 3.3V 5-12 V Unregulated supply (P11)

- Pin 1 : 5-12V In

- Pin 2 : GND

11. VOUT (P12, P13)
    - Pin 1 : 5V (500mA limit!)
    - Pin 2 : Unregulated 5-12V Input supply
    - Pin 3 : GND



Serial port mapping under Linux are as follows:

- USB0 : RS232 – P14
- USB1 : RS232 – P15
- USB2 : RS232 – P16
- USB3 : RS485 – P17
- USB4 : RS485 – P18
- USB5 : RS485 – P20
- USB6 : TTL (3V) – J1
- USB7 : TTL (3V) – J2

The FUNCTION SELECT headers (P25, P26, and P27) set the DE functionality of their respective RS485 drivers.
With a jumper populated in position [1:2] - No echo on data transmission.
With a jumper populated in position [2:3] (DEFAULT) - Transmitted characters will be echoed.

Linux paid support available:

To order the board (and related stacker boards), please contact:

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