ELECTRONIC RESEARCH & DESIGN

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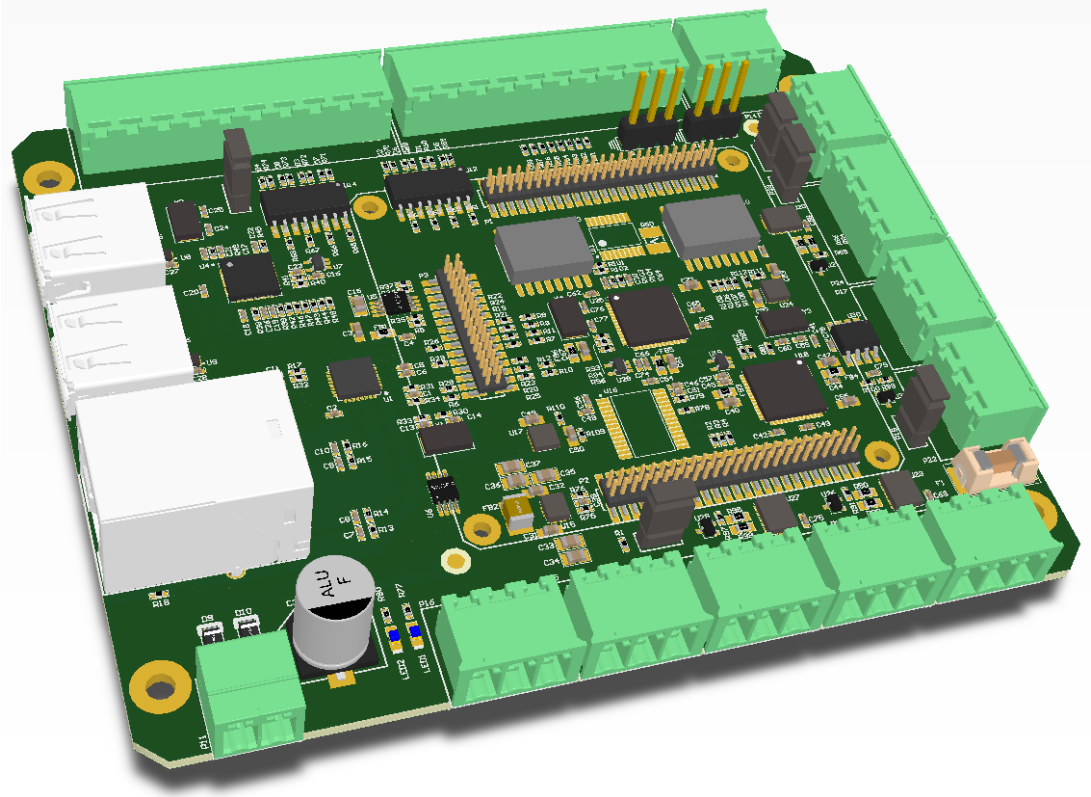
Industrial IO Base Board

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

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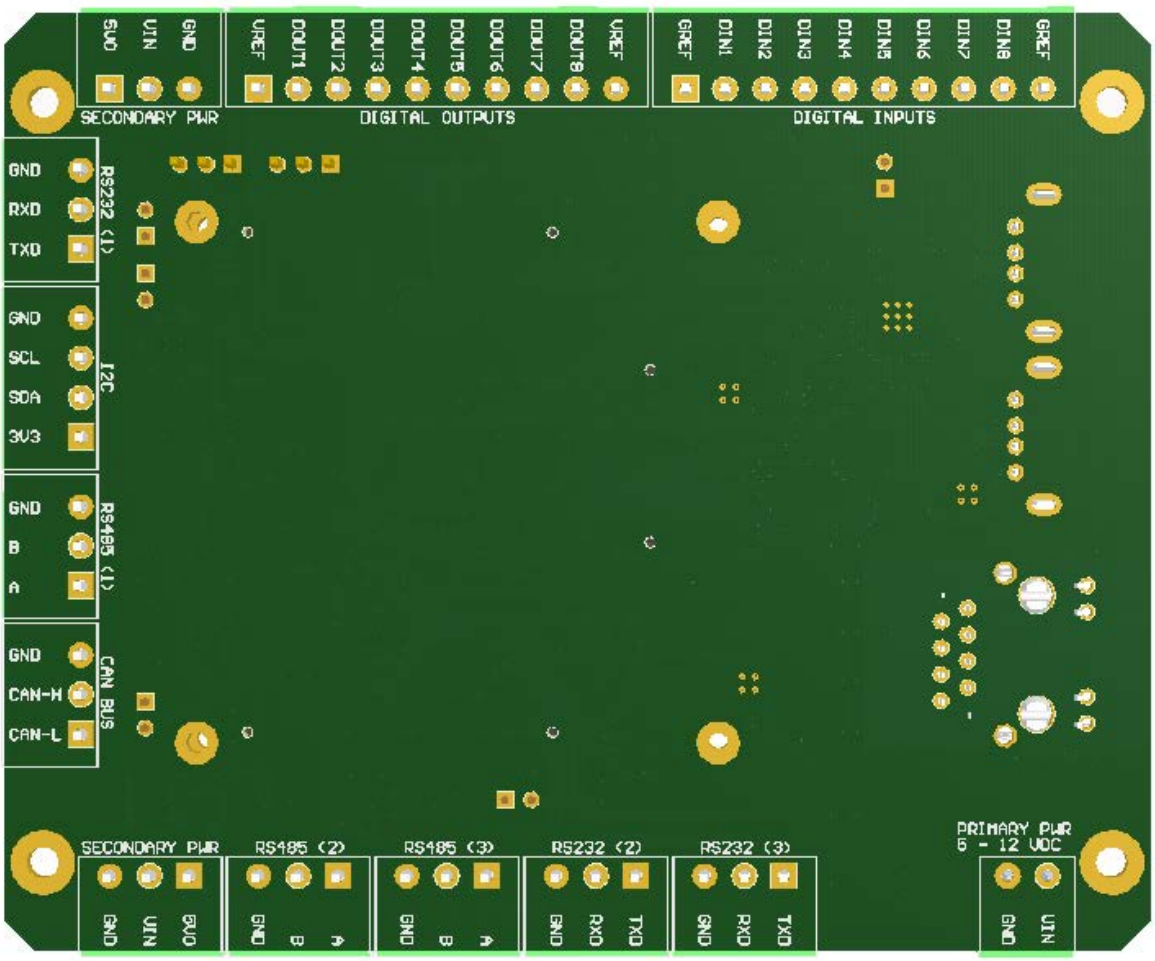
- 1 x 10/100 Mbps Ethernet



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.

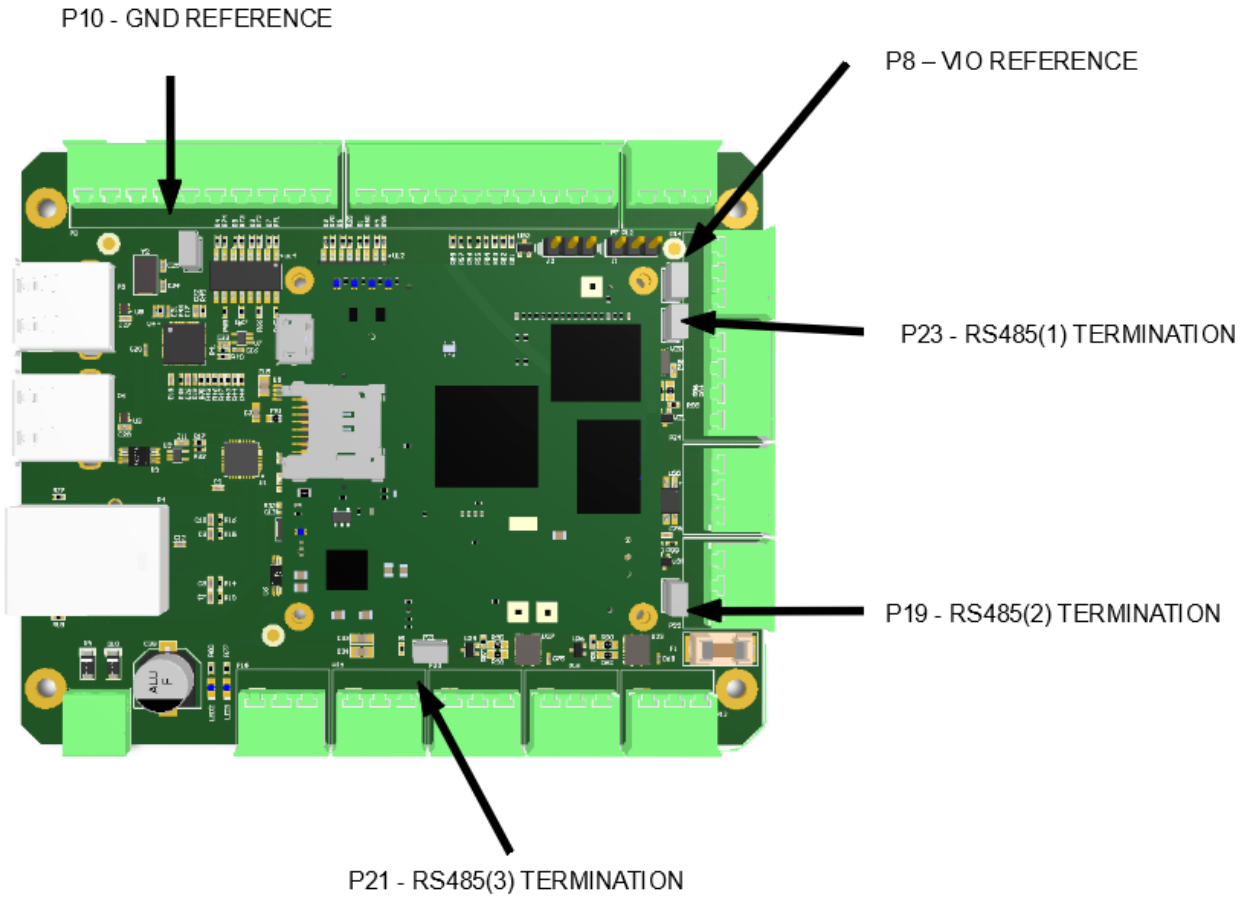
9. I2C (P24)

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

Linux paid support available:

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

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