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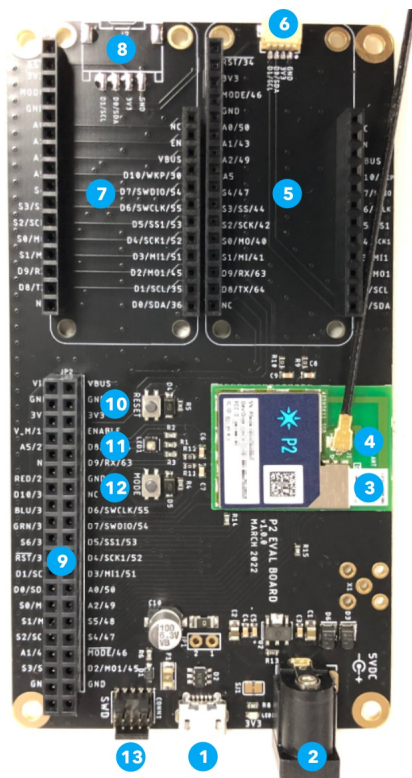
Preliminary pre-release version 2022-04-18

This is an preliminary pre-release migration guide and the contents are subject to change.

{{#unless pdf-generation}} {{downloadButton url="../assets/pdfs/datasheets/p2-eval-board.pdf"}}
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This is a simple breakout board for Particle's P2 Wi-Fi module. It breaks out all of its pins via easy to use headers. The board features a USB port, a barrel jack power connector, buttons, and RGB LED as well as Feather, Grove, and Qwiic connectors for prototyping with external sensors, displays, etc..

Description



Label	Description
1	USB
2	5V Power In (optional)
3	P2 Module
4	External Wi-Fi and BLE antenna (optional)
5	Feather expansion connector
6	Qwiic I2C connector
7	Feather expansion connector
8	Grove expansion connector
9	Expansion header
10	RESET button
11	RGB LED
12	MODE button
13	SWD debugging connector

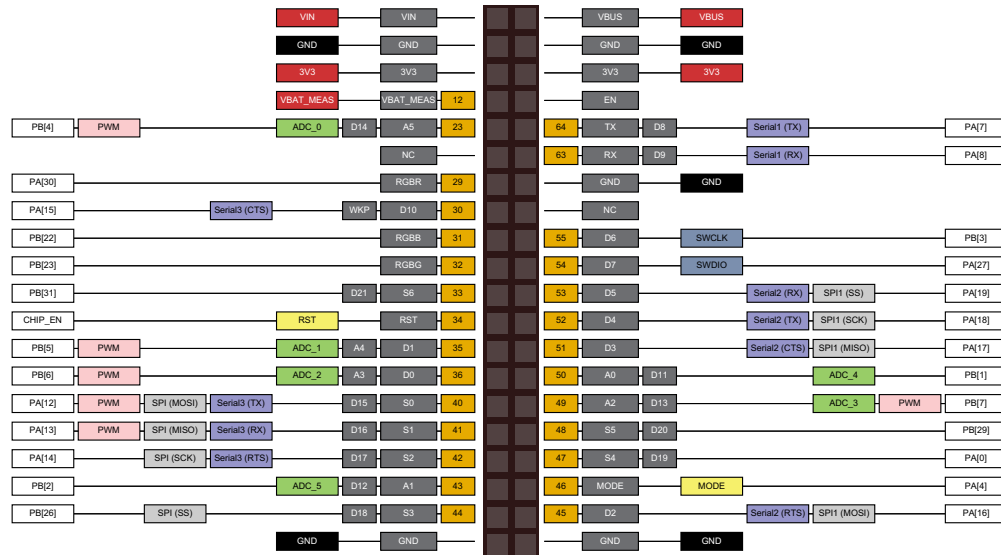
If powering by USB, 500 mA is required. This is compatible with most USB hubs, computers, laptops, and chargers, but will not work with some low-power USB ports on some keyboards.

The P2 includes a built-in trace antenna that is used for both BLE and Wi-Fi. A U.FL connector is provided for an external antenna, if desired. The antenna selection must be made in software; the P2 will not automatically switch between built-in and external antennas. If using an external antenna, a dual-band (2.4 GHz and 5 GHz) antenna is required. The external antenna doesn't have to explicitly include BLE support, as the BLE frequencies are the same as 2.4 GHz Wi-Fi so all antennas are compatible.

Expansion connectors

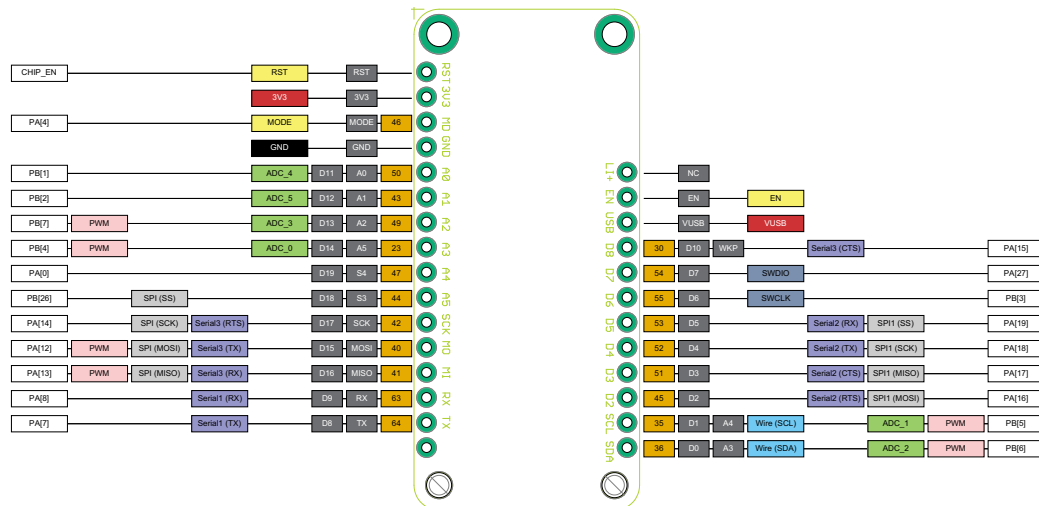
EXPANSION HEADER

If you are prototyping your own custom design you may want to use the 40-pin expansion header. It's a standard 20x2 female header, 0.1" pitch, that can accept male header pins or prototyping wires.



See the [P2 Datasheet](#) for details about the pins. The gold boxes indicate the P2 pin numbers.

FEATHER EXPANSION



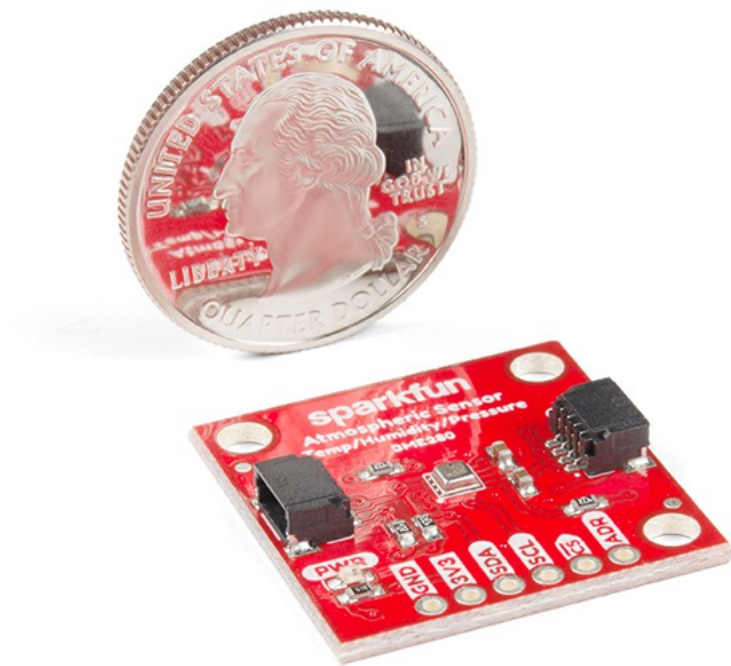
There are two socket for [Feather accessory boards](#). These are only for use with displays, sensors, storage, etc..

You must not plug a Particle device such as an Argon or Boron in this socket, as the device may be permanently damaged.

This will work with most Feather boards, however:

- The P2 does not support ADC inputs A3, A4, and A5.
- The P2 does not work with Feather accessories that use SPI1 on the Argon or Boron D pins.

Qwiic is a 3.3V I2C standard developed by SparkFun and adopted by other manufacturers. It's also compatible with Adafruit Stemma Qt expansion devices. You can use this to add displays, sensors, etc. and multiple devices can be connected to a single Qwiic port, as accessory boards have two connectors for chaining multiple sensors.

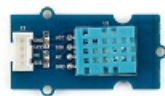


GROVE CONNECTOR

The Grove connector allows [Grove accessories](#) to be added. Pins D0 and D1 are present on the connector. This allows the use of Grove I2C sensors.

If you are not using I2C elsewhere (Feather, Qwiic), you can use these pins as digital GPIO, or as analog inputs.

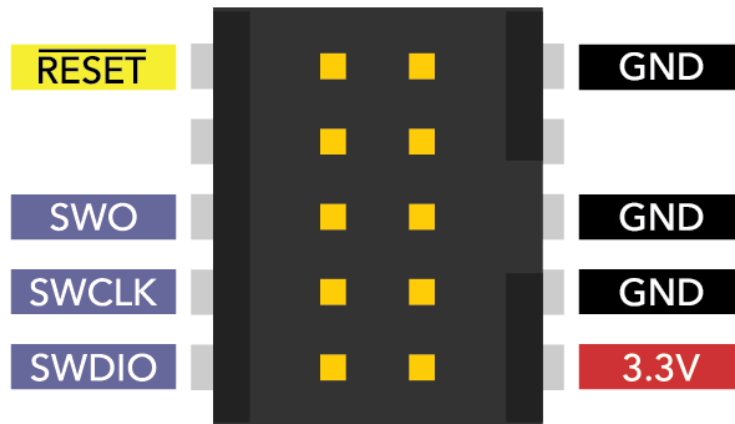
Pin	I2C	Digital	Analog
GND			
3V3			
D0/SDA	SDA	D0	A3
D1/SCL	SCL	D1	A4



SWD debugging connector

The P2 eval board has a 10 pin debug connector that exposes the SWD interface of the MCU. This can be used to program the bootloader, device OS, or the user firmware using any standard SWD tools including the Particle Debugger, Segger J/LINK, or other CMSIS-DAP debuggers. It can also be used for source-level debugging using Particle Workbench.

Note that SWD is shared with GPIO pins D6 and D7, and by default SWD is only enabled while the bootloader is running, immediately at boot, and when in DFU mode (blinking yellow). Only Debug builds in Workbench have SWD enabled in when user firmware is running.



The SWO pin is not used on the P2.