

# PX2FMU – Flight Management Unit

## QUICK START – HARDWARE VERSION 0.3 DEV

### Description

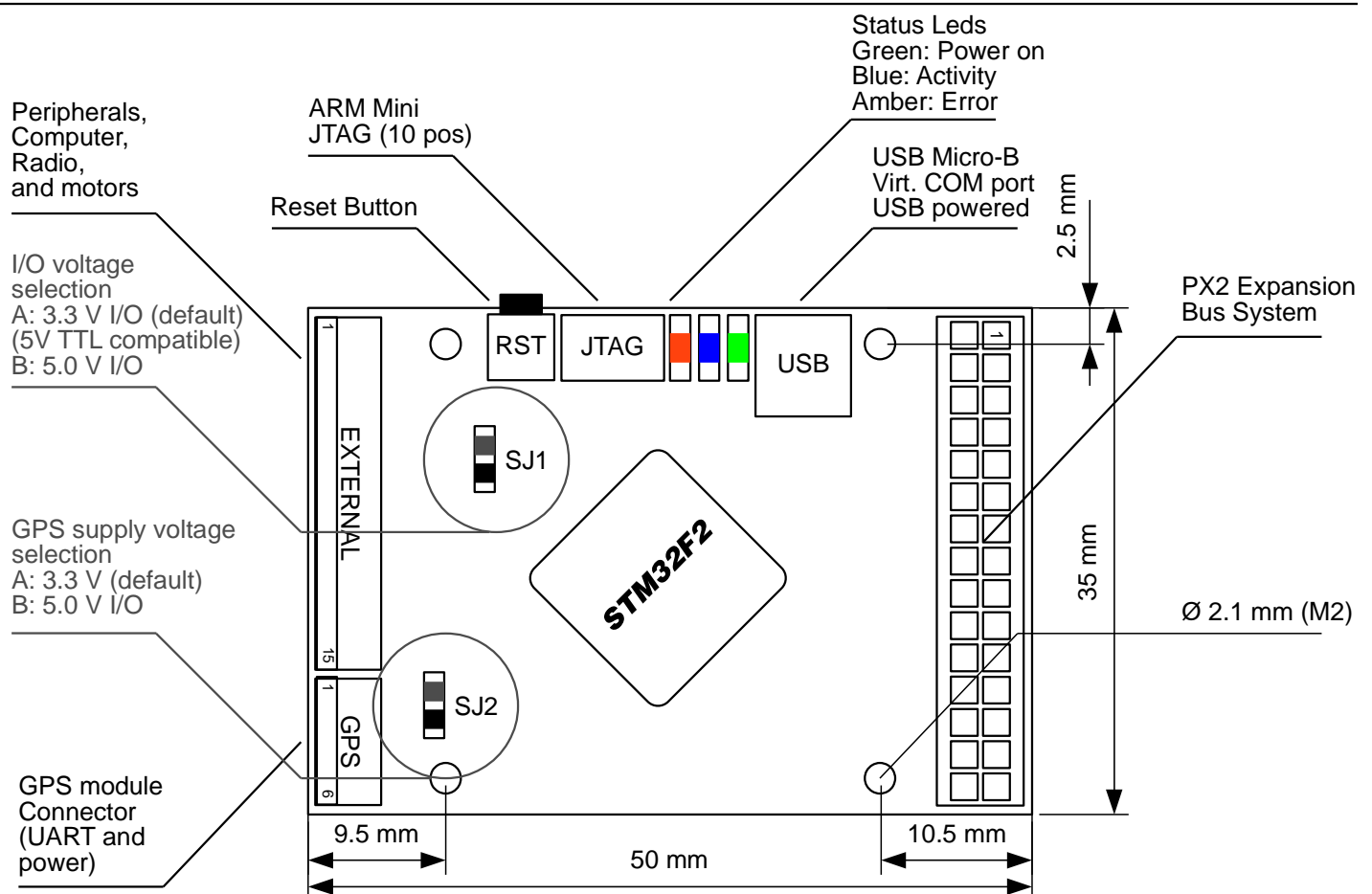
PX2FMU is an onboard management unit for micro air vehicles. It combines autopilot and inertial measurement unit and allows to control an aircraft using a single-board solution. The 30-pin expansion bus allows to combine it with other modules to provide additional I/O.

<http://github.com/qgc/hardware>

### Features

- 120 Mhz Cortex-M3 CPU (128 KB RAM, 1 MB Flash)
- 50 mW power consumption
- 3D Gyro, ACC and Magnetometer (16 bit)
- Barometric pressure (16 bit)
- CAN/SPI/I2C/4x UART interfaces
- PX2 Expansion bus (PX2IO: Servo and solid state relay outputs)
- USB Serial Port (Virtual COM Port / VCP) USB Bootloader
- 50x35x6 mm (1.38x1.97x0.24"), 8g, 30x30 mm mounting holes
- 4.3-6 V wide supply input range (incl. USB power)
- Selectable 3.3 V or 5 V IO

### Connectors, Jumpers and Dimensions



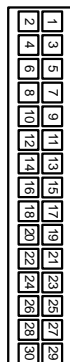
### Pinout and absolute maximum Ratings

- Input: 4.3-6 V, 10 mA onboard use, max. 800 mA peripheral supply
- Output: 5 V/3.3 V, fuse-limited 500 mA EXT, 5 V/3.3 V, fuse-limited 200 mA GPS
- VDD\_5V: 5 V input, VCC\_3V3: 3.3 V output

GND  
VDD\_GPS (3.3 or 5V)  
USART6\_RX  
USART6\_TX  
GND  
NOT CONNECTED (NC)



VDD\_5V  
GND  
CAN2\_RX  
USART1\_RX\_EXT  
I2C3\_SDA  
SPI3\_MOSI  
SPI3\_NSS  
UART5\_RX  
I2C2\_SDA  
USART2\_RTS  
USART2\_RX  
GPIO\_EXT1  
PC8  
ADC123\_IN11  
ADC123\_IN13

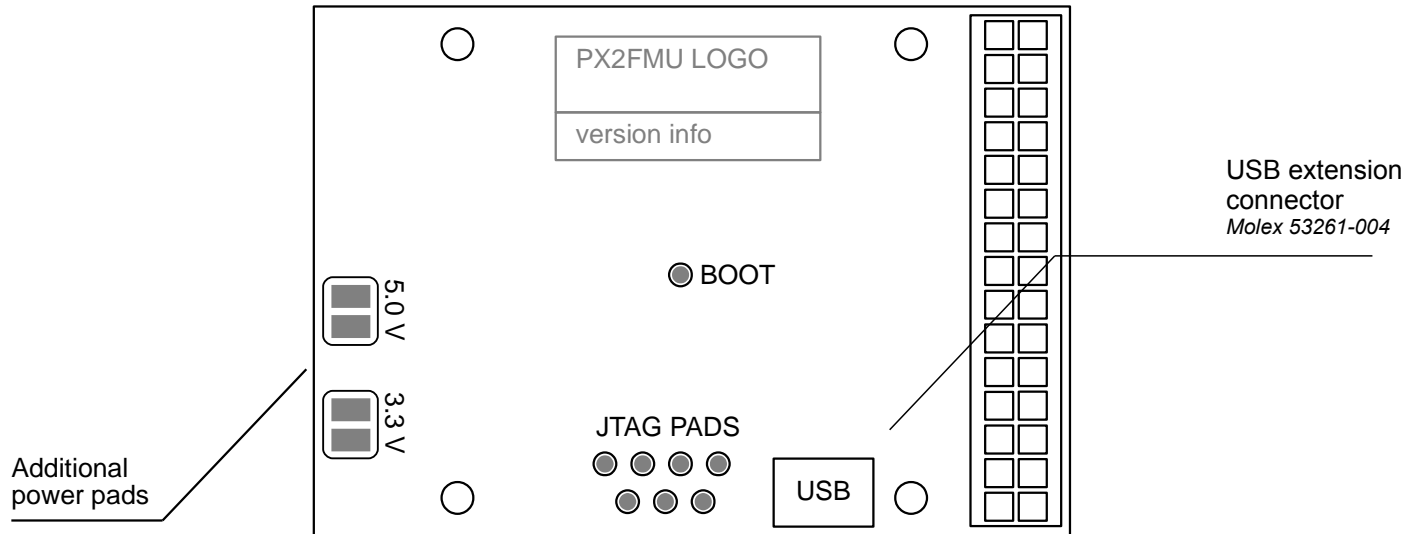


VDD\_5V  
VDD\_3V3  
I2C1\_SCL  
I2C1\_SDA  
USART2\_TX  
USART2\_CTS  
USART2\_RTS  
UART2\_RX  
USART1\_TX\_EXT  
USART1\_TX\_EXT  
PPM\_INPUT (3-5V)  
GPIO\_EXT2  
GPIO\_EXT1  
BATTERY\_MONITOR (3-18V)  
GND



## Additional connectors (bottom side)

The footprints on the bottom side of the connector can be used by advanced users to interface additional boards or sensors.



## Software Tools / Getting Started

Please follow the steps below to get started with PX2FMU.

- Download the QGroundControl GUI (Windows / Linux / Mac) from <http://www.qgroundcontrol.org/downloads>
- Install the application
- Connect PX2FMU with an USB-A to Micro USB-B cable to your computer (cellphone usb data cable type)
- Your operating system might display a message indicating that new hardware was found
- Start QGroundControl from your application menu
- Go to Communication > Add new Link
- Leave the default settings, except for these values:  
Baud rate: 115200 baud, data bits: 8 bits, stop bits: 1 bit, no parity, no hardware flow control
- QGroundControl will display the heartbeat of MAV001. The displayed attitude will change if you move PX2FMU.

## Upgrading Firmware / Developing Custom Code

After the steps in the getting started guide have been completed, follow these instructions to upgrade your firmware:

- Start QGroundControl, select from the "Widget" menu the item "PX2 Firmware"
- In the PX2Firmware widget, click on "Check for Updates"
- Select the firmware revision to flash – usually the newest one at the top of the list, but the tool also allows to downgrade to older versions.

To develop custom code, please follow the developer instructions at: [http://www.example.com/developers\\_guide](http://www.example.com/developers_guide)

## Contact, Copyleft and further Information

PX2FMU is an open hardware design, following the XXX open hardware license. You can do XXX with it. PX2FMU was created by XXX. The XXX project contributed XXX.

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Further information is available here:

- PX2FMU website
- Appropriate mailing list 1
- Appropriate community 1