

PX2FMU – Flight Management Unit

QUICK START – HARDWARE VERSION 0.3 DEV

Description

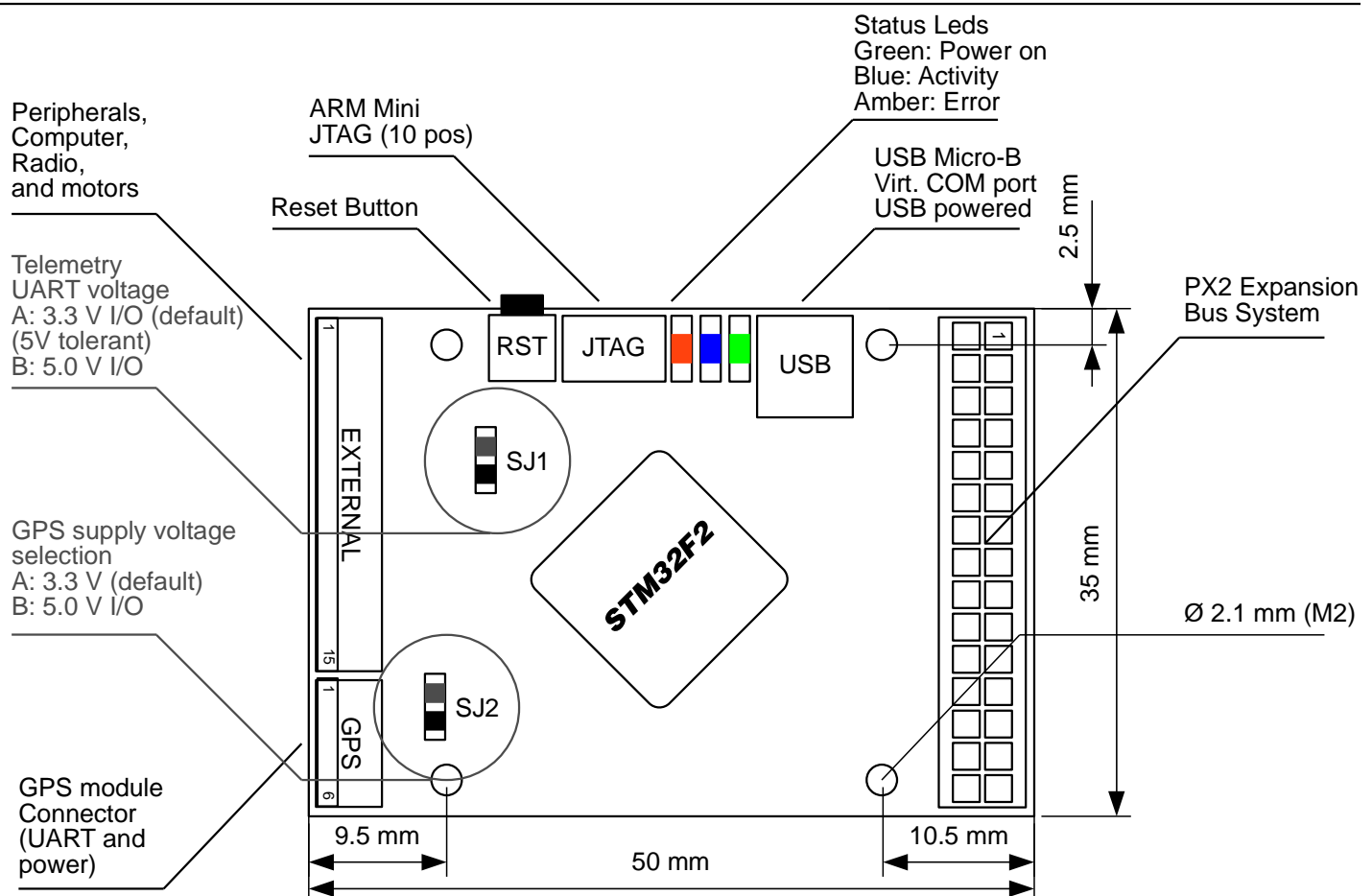
PX2FMU is an onboard management unit for micro air vehicles. It combines autopilot and inertial measurement unit and allows to control an aircraft using a single-board solution. The 30-pin expansion bus allows to combine it with other modules to provide additional I/O.

<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



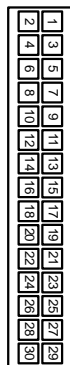
Pinout and absolute maximum Ratings

- 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



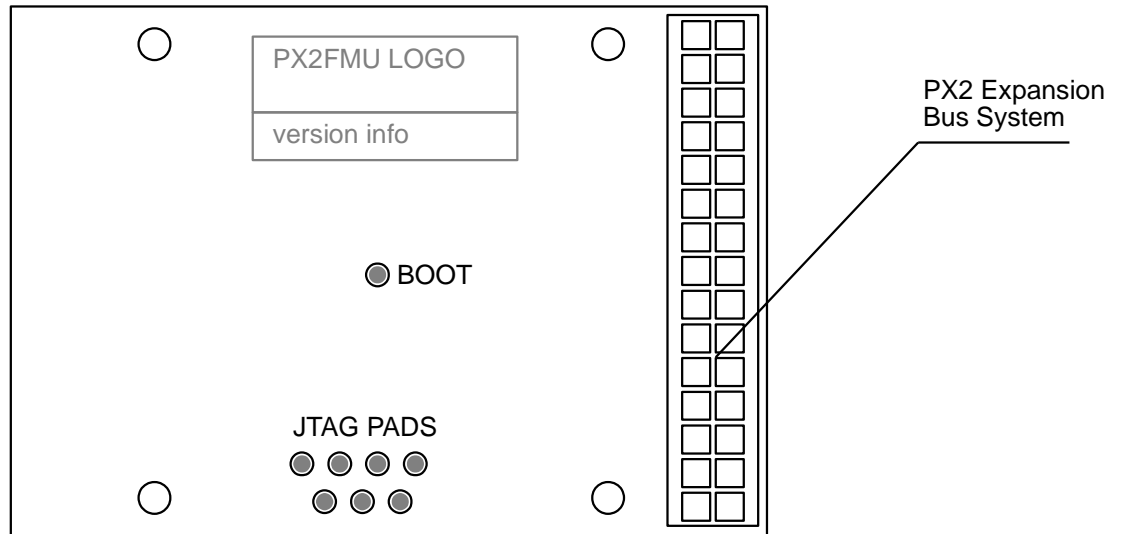
VDD_5V
GND
CAN2_TX
USART1_TX_EXT
I2C3_SCL
SPI3_SCK
SPI3_MISO
UART5_TX
I2C2_SCL
USART2_CTS
USART2_TX
PPM_INPUT
GPIO_EXT2
GND
ADC123_IN12

VDD_5V
VDD_3V3
I2C1_SCL
I2C1_SDA
USART2_TX
USART2_CTS
USART2_RTS
USART2_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

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