PX4FMU – Flight Management Unit
QUICK START – HARDWARE VERSION 1.6

Description
PX4FMU is an onboard management unit for micro air vehicles. It combines an autopilot and inertial measurement unit and enables the control of an aircraft using a single-board solution. Additional I/O can be easily connected via the 30-pin expansion bus.

http://pixhawk.ethz.ch/px4/

Features
- 168 Mhz Cortex-M4 CPU (196 KB RAM, 1 MB Flash)
- 250 mW typical power consumption
- Reverse polarity protection on all power inputs
- 3D gyro, accelerometer and magnetometer, pressure sensors
- I2C, 3x UART, PPM, analog, GPS, 2x 5V GPIO, 4x PWM / Servo
- MicroSD card slot
- Expansion bus: CAN, 2x I2C, SPI, 4x analog, 2x UART, GPIOs
- USB Serial Port (Virtual COM Port / VCP) and bootloader
- 50 x 36 x 6 mm (1.97x1.97x0.24”), 8g, 30x30 mm mounting holes
- 4.5-6 V wide supply input range (incl. USB power)
- Selectable 3.3 V or 5 V IO for UART2 and GPS ports

Connectors, Jumpers and Dimensions

Pinout and absolute maximum Ratings
- Input: 4.3-6 V (VDD_5V), 20 mA onboard use, max. 800 mA for max peripheral load,
  Reverse-polarity protected.
- Output: 3.3 V (VDD_3V3), fuse-limited 500 mA EXT, 3.3 V,
  fuse-limited 200 mA GPS

http://pixhawk.ethz.ch/px4/
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 PX4FMU.

- Download the GCS GUI (Windows / Linux / Mac) from http://www.example.com
- Install the application
- Connect PX4FMU 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 GCS 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
- GCS will display the heartbeat of MAV001. The displayed attitude will change if you move PX4FMU.

Upgrading Firmware / Developing Custom Code

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

- Start GCS, select from the "Widget" menu the item "PX2 Firmware"
- In the PX4Firmware 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

Open Hardware License

PX4FMU is an open hardware design, following the OSHW 1.1 definition licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0) license. PX4FMU uses the BSD-licensed NuttX operating system as base for the PX4 software stack (http://nuttx.sourceforge.net).

UNLESS OTHERWISE MUTUALLY AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE WORK, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

http://creativecommons.org/licenses/by-sa/3.0/