Autonomous Drone Engineer

C1 – OutOfBox and Flashing

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Contents of the Intel Aero ReadyToFly Drone

Included in the RTF Drone:

- The Drone, assembled
- A remote

Not included:

- USB hub, USB-OTG and HDMI cables required for flashing and setup
- Battery and battery charger for flights
- Or power adapter for desk development

For references, check the github:
https://github.com/intel-aero/meta-intel-aero/wiki/01-About-Intel-Aero

Typical lab setup

The drone, connected to:

- A power supply (simpler, safer than a battery)
- A USB hub for the keyboard, mouse and USB key (for flashing)
- A HDMI screen

Calibration computer/tablet:

- A device running QGroundControl, the software used to calibrate the drone sensors
- Can be Linux, Windows, Mac, Android, iOS, …
- If portable, you can bring this device with you when you're flying

Development computer (now shown on the photo):

- Soon after the initial setup, you'll switch to your regular computer (any OS) to develop software for Intel Aero, accessing it over the wifi network with ssh.
- Note: The development computer can be the same machine as the calibration computer/table

Flashing

1. You'll download: a large .iso file
2. You'll create a bootable USB disk from your development station
3. You'll flash:
    1. The Operating System (Linux Yocto) running on the Intel Aero board
    2. The BIOS of the Intel Aero board
    3. The firmware of the Intel Aero Flight Controller
    4. The FPGA layout

Note: the first flashing procedure requires the keyboard + screen + USB key, but the following flashing procedures can be done over ssh + USB key.

For details, consult:
https://github.com/intel-aero/meta-intel-aero/wiki/02-Initial-Setup

Video recording of the installation

Calibration and first flight

After flashing the Flight Controller, sensors need to be **recalibrated**.

QGroundControl (QGC) running on your calibration computer will guide through the procedure.

At the end of the procedure, you should be able to **arm** the motors (without the propellers). It will proove everything is connected.

For details, consult: https://github.com/intel-aero/meta-intel-aero/wiki/02-Initial-Setup#calibration

If you have a battery, you can proceed to the **first flight**.

https://github.com/intel-aero/meta-intel-aero/wiki/03-First-flight

Video recording of the calibration

Conclusion

We:

- Flashed all the components
- Recalibrated the sensors
- Made our first flight, or at least armed the motors

We’re ready to open a terminal and start coding!

Thanks

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https://intel-aero.github.io