

# Athena – Powerful flight control computer



For a number of reasons it is useful to have a powerful flight control computer for airborne wind energy systems:

- Advanced estimation and flight control algorithms can be implemented easily without premature optimization;
- a standard operating system like Linux enables the use of a lot of standard programming tools;
- for programming of the Linux part no cross compiler is needed;
- a multi core CPU makes it much easier to achieve real-time performance.

## Properties of the Athena flight control system



### Properties

#### Main CPU:

- Quad-core Cortex-A7  
Up to 1.2GHz
- RAM:  
256MB DDR3 RAM, on request up to 1 GB
- MicroSD slot: Up to 64 GB

#### Secondary CPU:

- 72 MHz Cortex-M4, 64 kB RAM, 256 kB flash memory

## Size and Power

- 104 mm x 68 mm x 60 mm incl fast wireless link
- 12 to 24V power supply, 5W nominal, 20W max

## Sensors

- Barometer
- IMU/ AHRS (attitude heading reference system) MTi-2 from Xsense, pre-calibrated, temperature compensated
- Board temperature



## Interfaces

- Fast wireless LAN, 3 antennas, minimal 1 MB/s on 1km distance in the free 5 GHz frequency range
- Alternatively a 100 MBit Ethernet connector
- 14 PWM outputs for servos etc
- Serial (TTL level) interface for external GNSS unit  
Dronecode standard (6 pin)
- Secondary telemetry link Dronecode standard (6 pin)
- Power (drone code standard) (6 pin); this connector is mainly used to measure the battery voltage and current
- I2C bus interface Dronecode standard (4 pin)
- CAN bus interface Dronecode standard (4 pin)
- MOD bus interface (RS485); this interface can be used to connect additional I/O modules, but also to connect intelligent sensors and actuators directly
- Four analog inputs, 13 bits effective resolution; two for measuring battery voltage and current and 2x input for analog sensors, 3 pin (GND, signal, 5.000V).
- Interface for LIDAR sensors to measure the height over ground more precisely.
- 3x USB interface

In addition we offer I/O boards, that can be connected using the RS485 interface. A special I/O board for connecting power LED's is also available.

**Price:** 4400,00 EUR plus VAT. Prices for higher quantities on request.

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