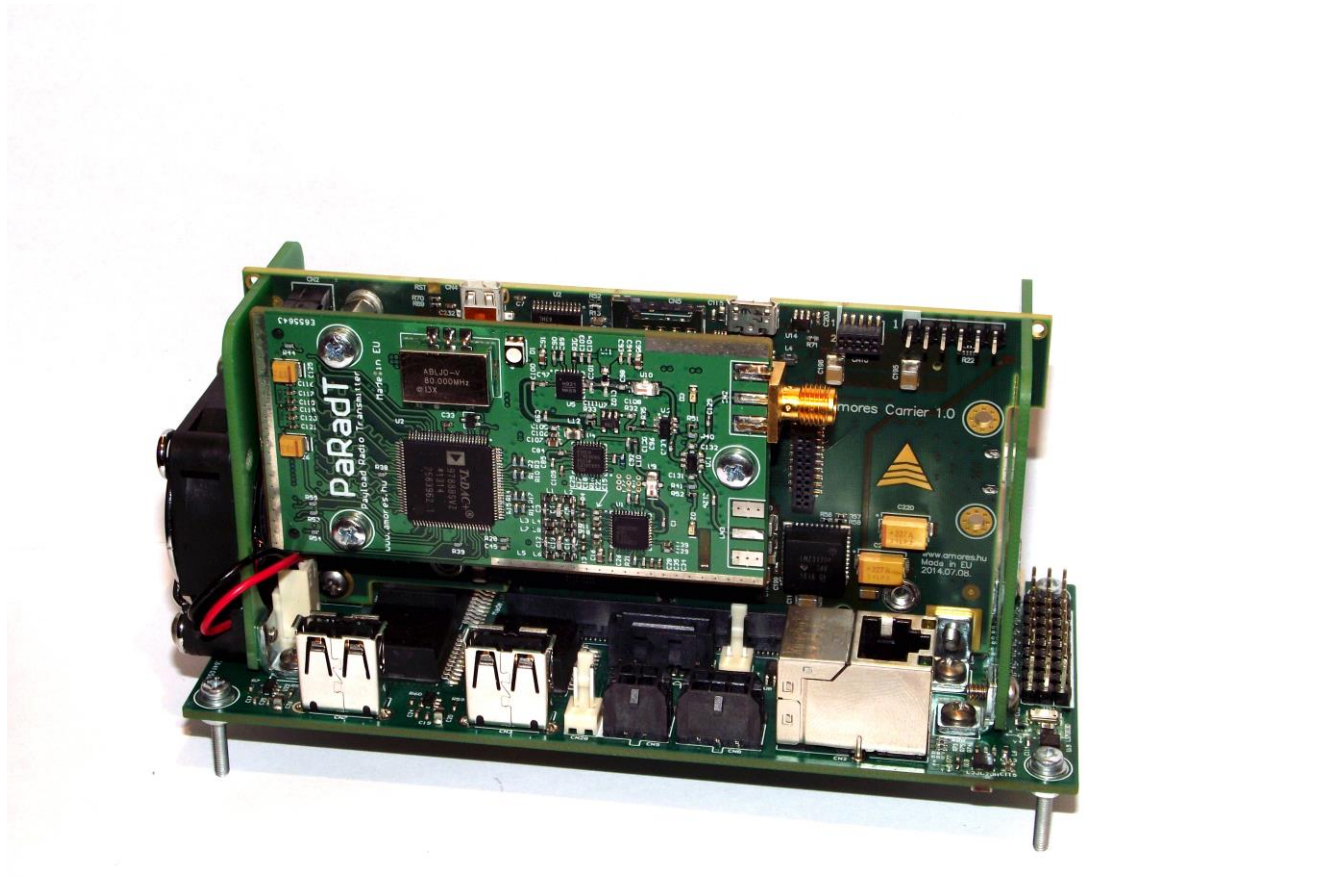


Amores Robotics AERObotProHD

Product Description

The AMORES AERObotProHD is a state-of-the-art electronic central unit for professional UAV applications. The unit may contain an autopilot with enhanced attitude controller, aircraft stabilization controller, and navigation controller functionality. (External sensors are needed.) Therefore this central unit can also be used to transfer high-definition (HD) camera video signal to the earth station using the on-system digital video signal encoder and payload radio. The module meets the European regulations.



AERObotProHD system

Features

- Very low weight, power consumption and dimensions comparing to the power of the system
- Basically same systems for airborne UAV and the ground control station
- NVIDIA TEGRA3 CPU for enhanced control algorithms
- Hardware video encoder for high quality HD, or SD video signal transmission
- Xilinx Artix7 FPGA for digital radio algorithms and coprocessor functions for autopilot
- Direct conversion payload digital radio transmitter – airborne system and digital radio receiver – ground station
- High efficiency in-system power supplies
- In-system secondary and third degree sensors to acquisition static pressure, 3D acceleration, rotation, magnetic field data for system redundancy
- CAN buses, I2C buses, SPI buses, UARTs for external sensors, R/C receiver and actuators
- HDMI, Composite video, Svideo, Component video input ports
- PPM, PWM inputs, PWM outputs
- Gbit Ethernet for high speed camera on the UAV, or network connection to the ground network

microSD card, SATA connection for data storage

USB connections for f.e. external WiFi module, USB camera, etc.

Complete software support for the airborne system: autopilot, video encoder, payload radio transmitter firmware

Complete software support for ground station firmware: video decoder, payload radio receiver, antenna positioning firmware

Enhanced Fail Safe system solutions for system hangup, battery discharging, GPS signal loss, etc.

Redundant, completely independent autopilot for severe system error

Specification

Power supply unit	8.. 30 V
Supply Voltage	8.. 30 V
Estimated Power Consumption	15 W
CPU – NVIDIA TEGRA 3	
Speed	1.4 GHz
Memory	2 GB
Flash 8GB	8 GB
USBs	2
SATA	1
UART	1
SPI	2
I2C	3
Operating system	LINUX
Video Encoder / Decoder	
Resolutions	480i, 480p, 576i, 576p, 720p , PAL, NTSC
Compression methods	H.264, MPEG-4, H.263, VP6
Camera interface	HDMI (on D type micro HDMI socket)
FPGA Xilinx Artix7	
Logic cells	200 k
Payload Radio Receiver – PaRadR, Transmitter PaRadT	
Operation Mode	Simplex (Air to Ground), point to point
Expected range – LOS	Several kilometers (5.. 10) with maximal output power, dependent on antennas and terrain
Radio carrier frequency	In 2.4 GHz ISM band
Bandwith	20 MHz
Maximum RF output power	1.5 W
Data rate without FEC	10 Mbit/s
Data rate with ½ Viterbi	5 Mbit/s
Modulation mode	QAM, OFDM
Diversity	2 antennas at Transmitter, 3 Antennas at Receiver
CAN system	
CAN buses	Input CAN bus for sensors, R/C receiver, Output CAN bus for the actuators, servos
Operating Temperature Range of the System	from -40 °C to +85 °C
Dimensions	65 x 30 x160 mm
Weight without cabling	300 g

Further Amores Robotics system components:

AmoresTeRad - Telemetry radio with Amores Robotics antenna

AmoresIMU - External, precision, UAV specialized Inertial Measurement Unit

AmoresGPS - uBlox module based GPS module with 3 axes magnetic sensor

AmoresTimeRef – AmoresGPS mating board with 10 MHz output clock signal locked to the atomic clock on the satellite

AmoresUPS – redundant, intelligent uninterruptable power switcher unit for maximum 4 LiPo batteries

AmoresCANRC - CAN message input, PWM output board

AmoresRCCAN – PWM or PPM input, CAN message out board

AmoresPMCAN – Pitot tube static and differential pressure measurement unit with magnetic sensor

AmoresAEROBOTmini – redundant autopilot with onboard ARM processor, pressure sensors, GPS module, and IMU running RTL (Return To Launch) program

AmoresAntennaTracker – for two telemetry, and three payload radio antennas