



OBC

High reliability, low-power flight computer with integrated AOCS interface and controller for low Earth orbit spacecraft.



ITAR-Free



TRL 9

Main OBC Processor

Processor	Dual Core ARM-A9 (766 MHz)
Memory (SDRAM)	Dual 256 MB
Non-Volatile Memory (Flash)	Dual 32 GB (SD Card) Dual 128 MB Flash
Reliability	Robust boot (4 boot areas) Data scrubbing, Health monitoring, Watchdog RAM ECC
In-Flight Reprogrammable	Yes
Communication Interfaces	2× CAN, 2× SpaceWire * 14× RS422, 2× RS485 DCL (Direct Command Line)
External Temperature Interfaces	12× Thermisor One-wire

** In development*

Key Specifications

Operating Temperature	-10 °C to +50 °C
Form Factor	EuroCard 3U
Dimensions	160 x 117 x 30.5 mm
Mass	0.35 kg
Design Life	Up to 8 years LEO
Supply Voltage	Single input 24-32 V
Power Consumption	5 W
Latch-Up Detection Circuitry	All internal power supplies All power outputs
Output Power Supplies	12 V, 5 V and 3.3 V
Health Monitoring	Internal voltages & currents Internal temperatures Output voltages & currents

Onboard Flight Software

Operating System	Linux 4.14 build for Xiphos Q7S
Interfaces	CCSDS TCTM CCSDS File Delivery Protocol Direct Command Terminal
Mission Scripts	Lua scripts with systemd for scheduling
State Management	Bespoke Satellite Controller, Applications & FDIR
Drivers	Bespoke Sensors & Actuators CTRS, GNSS, RW, ST, FOG, PROP, DTX, FSS

Magnetic Interface Controller

Processor	Hard 166-MHz 32-Bit ARM Cortex-M3 FPGA with 12k LEs
Memory (SDRAM)	64 KB
Non-Volatile Memory (Flash)	256 KB
Reliability	Robust Boot (2 boot areas) EU Immune Zero FIT Watchdog
In-Flight Reprogrammable	Yes
Communication Interfaces	2× CAN, 2× RS485
Magnetorquer Driver	3× 5V H-bridge
Magnetometer Inputs	5× 0-5V (12bits ADC)

Functionality Highlights

- High-reliability dual core ARM-A9 able to run full satellite software suite, including high-fidelity AOCS with FDIR.
- Stand-alone or dual-redundant operation.
- Standard interfaces necessary for most satellite sensors and actuators.
- Independent microcontroller for magnetic control able to perform satellite detumbling and basic AOCS functions.