

DARA OBC

On-Board Computer



DARA OBC is the low power, high-performance OBC of Alén Space. It comes in a PC104 form factor and can be integrated in LEO CubeSats, nanosatellites, and microsatellites. Equipped with interfaces that enable many types of connectivity for subsystems and payloads, it is a flight proven solution (TRL9), highly versatile and able to match the needs of any mission.

The developer-friendly DARA OBC enables the implementation of custom On-Board Software for each mission, with its robust Software Development Kit based on FreeRTOS, including drivers and support for CubeSat Space Protocol (CSP).

“

UNMATCHED VERSATILITY, SEAMLESS CONNECTIVITY, AND ROBUST STORAGE – A FLIGHT-PROVEN OBC FOR YOUR SPACE MISSION.



Highlights

ARM Cortex M7 Microcontroller, up to 280 MHz

- Typical power consumption: 280 mW
- SDK with FreeRTOS (CSP compatible)
- Hardware watchdog and reset circuit

• IMU:

- 3-Axis Digital Magnetometer
- 3-Axis Gyroscope
- 3-Axis Accelerometer

• GNSS Options:

- Custom development option for internal GNSS - compatible with GPS, Galileo, GLONASS, Beidou
- External GNSS via PPS signal input

DARA OBC

On-Board Computer



Interfaces:

- 3xRS422 Full-Duplex
- 1xUART for external communication
- 2xCAN
- 2xI2C
- PPS
- 15xGPIO
- 8xADC
- 6xPWM over an H-bridge
- SPI
- Through the umbilical connector:
 - CAN
 - JTAG
 - 4xGPIOs
 - UART for debugging
 - Multipurpose UART
 - 2xUARTs for payload access

Memories:

- 2MB program flash memory
- 1.4 MB internal RAM
- EEPROM for board configuration
- 32 MB high - speed SDRAM for code execution
- 512 KB SEU and SEL immune MRAM for critical data storage

Storage:

- Up to 128 GBs of massive storage (2x microSD card slots)
- 128 MB NAND flash

Other:

- Temperature and current sensors
- RTC with external power supply for time retention during power-downs
- Switchable power for the NAND flash memory, PWM H-Bridge, internal GNSS and a switchable external independent power supply for external sensors, for lower power consumption
- Cryptographic capabilities (AES, HMAC)
- Operational temperature -40 °C to +85 °C

