IA CORE

IA Core is an affordable **onboard computer for general applications on mini and microsatellites**. Built with rugged automotive-grade components the IA Core can run standalone or as part of a distributed redundant architecture as on the ION spacecraft. This is an alternative to more expensive radiation-hardened and centralized solutions.

The IA Core includes a mechanical and electrical interface to allow mounting onto a motherboard. As a companion for the development phase, D-Orbit can provide the IA Core test motherboard, which supports benchtop software and hardware development. The test motherboard exposes all of the external interfaces of the IA Core via convenient connectors. Each test motherboard can host 1 (one) IA Core. Multiple test motherboards, each with their IA Core, can be connected to allow the development of multi onboard computer system designs.

The IA Core comes with a software development kit that includes a real-time operating system and tools to manage the board configuration, transfer data and software applications, and collect and transmit telemetry.

For flight models, customers may wish to develop their motherboards for integration into the satellite. Alternatively, D-Orbit has a portfolio of motherboards developed as part of the ION program.
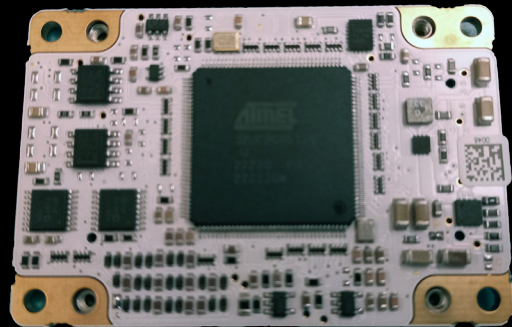
TECHNICAL FEATURES

- High-performance low power 32-bit CPU (AVR32 arch)
- Up to 91 DMIPS @ 66 MHz CPU clock
- 1Gbit SPI flash memory
- 4Mbit FRAM
- 256Mbit SDRAM
- 2 x CAN (1Mbps) interfaces, CSP enabled
- 2 x UART interfaces
- Several 12-bit ADC and GPIOs line

INCLUDED WITH IA CORE

- Test Board Schematics
- Materials that guarantee low outgassing
- Packing, handling and shipping to LIA Aerospace
- One year warranty against workmanship
- FreeRTOS operating system
- Software development kit (SDK)
- Radiation protection layer by design for mitigation of SEE
- Two hours of online support

TECHNICAL SPECIFICATIONS

Physical Dimensions & Temperature

Dimensions	40mm x 60mm x 1.6mm (PCB)
Mass	30 gr (including case)
Operating Temperature	-30 + 70 °C

Interfaces & Ratings

Data Interface	2 x CAN Bus
	2 x UART
Current	< 0.5A
Voltage	3.7V to 15.3V*

* safe operation is allowed within this range