CAVU
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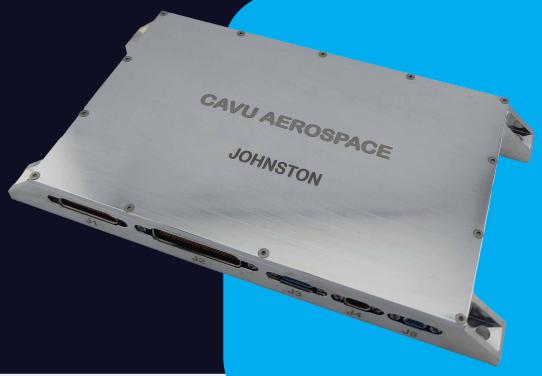
OBC JOHNSTON



PIONEERING RESILIENCE IN SPACE COMPUTING

- The Johnston OBC is a high-reliability satellite computer built around a Flash-based FPGA platform. It's purpose-built for space missions where dependable performance, fault resilience, and long-term operation are critical.

KEY FEATURES

- Single-Board Flash-Based FPGA SoC Satellite Computer
- Multiple Boot Sources with Selectable Regions
- Mission-Tailored Design with Flexible Firmware Options
- Compact and Integrated for CubeSats and Small Sats

SMART CONTROL FOR MISSION SYSTEMS

- With support for a wide range of digital and analog interfaces—including up to 50 GPIOs and 32 ADC channels—the Johnston OBC enables advanced control and monitoring capabilities for satellite subsystems such as power management, thermal control, and AOCS. Designed with flexibility in mind, it adapts to the specific needs of each mission.

MISSION-GRADE INTEGRATION

- 3–5 Year Operational Lifespan in LEO
- Real-Time Current and Temperature Sensing
- Built-in Watchdog for System Recovery
- Triple Real-Time Clocks for Timekeeping and Redundancy
- Integrated Voltage Regulation with Hot Redundancy

CAVU-OBC-JOHNSTON-Br-v2025.1

Sales@CavuAerospace.UK +44 (0)1786 628002
HQ: 12 Scion House, Stirling University Innovation Park, Stirling, UK. FK9 4NF

PROCESSING ARCHITECTURE

- Microchip/Microsemi SmartFusion2 Flash FPGA
- ARM Cortex-M3 Core
- Optional Floating Point Unit (FPU) on FPGA
- Up to 150 DMIPS at 128 MHz (Max 166 MHz)
- Supports Keil MDK and SoftConsole via JTAG Debugging

MEMORY

- **RAM:** 64/128Mbits MRAM 64-bit width (32-bit+32-bit ECC)
- **Nonvolatile Flash Memory:**
  - Total 24GByte pSLC eMMC (Triple 8G)
  - 4Mbit Serial FRAM
  - 256M Serial NOR

ENVIRONMENT

- **Radiation Tolerance:**
  - Total Ionizing Dose: 30Krad (Si)
  - Latch-up Immune
  - SEE @ 60MeV
- **Temperature & Pressure:** -40 °C to +85 °C @ 10-8 bar
- **Shocks:** 2000g, 2000-10000Hz
- **Random Vibrations:** 14g(RMS) 3-Axis , 20~2000Hz

INTERFACES

- **Serial Interfaces:**
  - **CAN2.0 Up to 1Mbps:** 4
  - **Full-Duplex RS422/RS232:** 4
  - **Half-Duplex RS485:** 2
  - **RS232:** 4
  - **I2C:** 1
  - **SPI:** 1
- **DIGITAL/ANALOG:**
  - **GPIO (5V/3.3V):** 48
  - **DAC** (0V~5V): 2CH 12-bit
  - **ADC** (-10V ~ +10V): 32CH 16-bit, (+20V Range Available)

BUDGET

- **Dimensions:** 200x110mm or 170x135mm
- **Mass:** 700gr
- **Power Supply:** 28V ±4V, Custom Range Available
- **Power Consumption:** 1W ~ 2W

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