Hardware

Antelope DPU

Enabling Edge Processing for CubeSats.

Antelope is a Data Processing Unit (DPU) designed for CubeSats to run algorithms and perform data or signal processing on board. This DPU offers flexible capabilities for on-board processing when it comes to processing in space – real-time analysis of Earth Observation payloads or telemetry from other satellites' subsystems has never been so easy.

Processing Speed

Powered by Zynq UltraScale+ MPSoC, providing 160 GOPS, Antelope efficiently handles processing tasks directly on board.

Data-Intensive Applications

Built for managing substantial datasets, it allows satellites to operate with minimal ground dependency.

Reliable Operation

With advanced fault tolerance and radiation shielding, Antelope ensures consistent performance in harsh space environments.

Suitable for Lunar Missions

Lightweight and versatile, Antelope is suitable for various missions, including lunar rover applications.

Use Cases

Flight Heritage

- Demonstrates continuous operation of the Antelope system in Low Earth Orbit (LEO) for 8 weeks without failures or errors, showcasing its reliability and resilience.
- Focuses on validating the long-term performance of on-board machine learning algorithms for telemetry and anomaly detection, highlighting the robustness of the system during extended operations.
- Utilizes advanced machine learning techniques, including RandomForest and Telemanom, to refine satellite strategies based on telemetry and thermal data, ensuring optimal satellite management throughout the mission.

Technical Sheet

Processing cores	Equipped with Zynq UltraScale+ MPSoC ZU2EG/ZU3EG/ZU4EG/ZU5EG: • Quad ARM Cortex-A53 CPU up to 1.5 GHz • Dual ARM Cortex-R5 in lock-step • FPGA for custom function implementation
Memory	• 8 GiB DDR4 with ECC • 4 GB SLC NAND Flash • Optional SATA SSD
Interfaces	• CAN, I2C, GPIO, SPI, RS422/485, UART, GPS PPS, LVDS or GTH transceivers, USB 3.0, USB 2.0, Ethernet 1Gb, SATA
Specifications	• Supply Voltage: 5.5 to 14 V (VBAT) or 5V regulated • Operating Temperature: -40 to 85°C • FPGA bitstream (reconfigurable in orbit)
Software ecosystem	• 64-bit Linux or bare-metal applications
Form-factor	• PC-104

Contact Us

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