Hardware

Serval DPU

Edge Processing for Small Satellites

Serval is a compact Data Processing Unit (DPU) with a <1U form factor. Its performance and reliability make it suitable not only for SmallSats but also for larger spacecraft and more demanding missions. Built on AMD's Versal AI Edge ASoC platform, Serval combines advanced processing capabilities with radiation protection and is planned for availability in 2027.

High-Performance

Powered by the AMD Versal ASoC, Serval delivers exceptional computing capacity for demanding satellite missions.

Compact Design

With a <1U PC/104 form factor, Serval integrates seamlessly into SmallSats, while its compact size also allows easy use in larger spacecraft platforms.

AI-Driven

The unit enables on-board AI and autonomy, reducing data transmission needs and increasing mission efficiency.

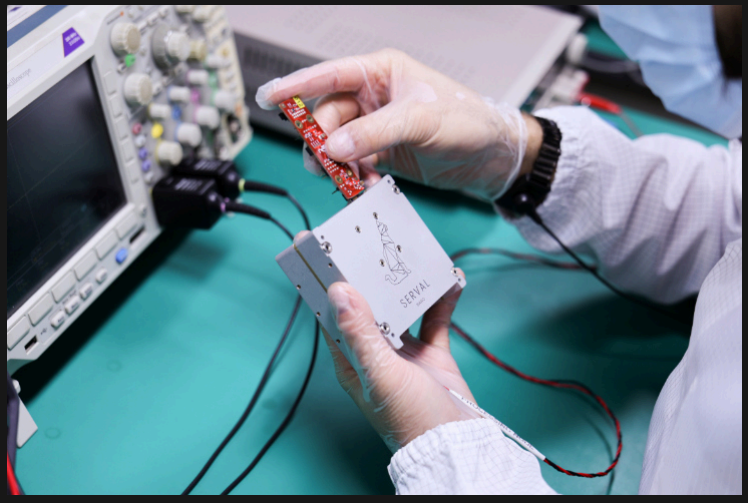
Applications

Serval targets missions requiring advanced onboard data processing for critical applications, with future potential to support scientific deep space and lunar exploration.

Capabilities

In-Flight Reconfiguration

Serval DPU features dual NOR Flash devices that enable safe in-orbit updates by separating the working image from the new one. Its FPGA fabric can be reconfigured during the mission, while high-bandwidth DDR4 and exposed high-speed interfaces support multiple payloads such as cameras, radios, and IMUs.



Technical Sheet

Processing core	•Versal AI Edge VE2302 •Dual-core Arm Cortex-R5F real-time processor •Dual-core Arm Cortex-A72 application processor •FPGA for custom function implementation
Memory	•8 GiB DDR4 with ECC •Up to 960 GiB 3D TLC flash-based data storage (NVMe) in cold-redundant configuration •Dual NOR Flash (cold-redundant boot, in-flight reconfiguration)
Data / TMTC Interfaces	•CAN, SPI, I2C, RS422/485, UART, 1 GigE, LVDS, GTYP transceivers •Additional customisable interfaces upon request: SpaceWire, SpaceFibre, Multi-Gig Ethernet
Specifications	•Supply Voltage: 6.5 to 14 V (VBAT) •Power Consumption: up to 20 W – depending on workload and processing speed
Software ecosystem	•64-bit Linux •Fully reconfigurable in orbit

Contact Us

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