

Benefits

- » Space Efficiency
- » Cost Reduction
- » Rapid Response Times
- » Cutting Edge Computing
- » Reliability

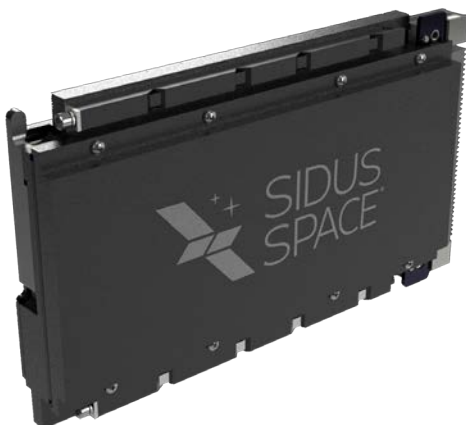
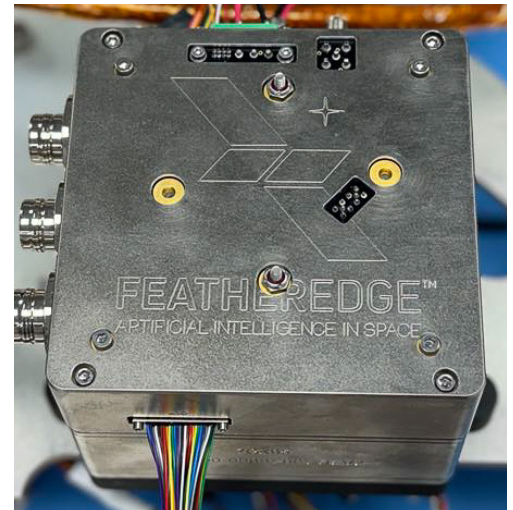
Applications

- » Earth Observation Image Processing
- » Autonomous Satellite Operations
- » Cloud Computing
- » Space Situational Awareness
- » Data Storage and Compression
- » Synthetic Aperture Radar (SAR)

Unparalleled On-Orbit Computing

FeatherEdge™, a compact Data Processing Unit tailored for AI applications in orbit, redefines space efficiency. Its small size and low power design ensure seamless compatibility with diverse satellite platforms. By processing onboard sensor data directly and transmitting only crucial information, FeatherEdge™ slashes downlink costs and significantly bolsters response times for critical events in orbit.

At its core, FeatherEdge™ integrates a robust AI computing module, operating as a fully-integrated Linux system. Capable of trillions of operations per second and boasting precision thermal management within its enclosure, it minimizes reliance on external thermal controls. This device combines cutting-edge computing prowess with space-grade reliability, delivering a complete AI payload in tandem with FeatherEdge™ Software for unparalleled on-orbit edge computing capabilities.



FeatherEdge™ Gen. 3 is a 3U VPX Single Board Computer aligned to the Sensor Open Systems Architecture (SOSA) standard which ensures seamless integration with SOSA-aligned systems.



Specifications

	FeatherEdge™ Gen. 1	FeatherEdge™ Gen. 2	FeatherEdge™ Gen. 3
Performance			
Compute Hardware	Google Coral SoM	NVIDIA Jetson Orin NX	NVIDIA Jetson AGX Orin Indus.
AI Performance	Coprocessor: 4 TOPS	Coprocessor: 100 TOPS	Coprocessor: 248 TOPS
Microcontroller	PIC12 8-bit	Rad-tolerant ARM Cortex M7	Rad-hard ARM Cortex M7
RAM	4 GB LPDDR4 SDRAM	16 GB 128-bit LPDDR5	64 GB LPDDR5 (ECC)
Storage	40 GB SLCNAND Flash (ECC) 16 GB eMMC	680 GB pSLC NVMe SSD (ECC)	680 pSLC NVMe SSD (ECC) 64 GB eMMC 5.1
Interfaces			
Connectors	Micro-D	Nano-D, Micro-B USB	3U VPX SOSA aligned
Ethernet	1x GbE	3x GbE	1x GbE, 1x 10GbE
USB	1x USB 3.1 Gen 1 (5 Gbps)	3x USB 3.2 Gen 1 (5 Gbps)	1x USB 3.2 Gen 2, 1x USB 2.0
UART	2x RS-422	2x TTL, 2x RS-232, 1x RS-422/485	1x TTL, 1x RS-232
Other I/O	2x SPI, 2x IPC, 8x GPIO	1x SPI, 2x I2C, 1x CAN, GPIOs	PCIe x4 Gen 4, GPIOs
Properties			
Mass	1.4 kg	1.5 kg	1.5 kg
Size	96 mm x 96 mm x 50 mm	100 mm x 100 mm x 55 mm	3U VPX SOSA aligned
Power Supply	5V	5V	12V
Power Consumption	3W Idle, 7.5W Typical, 22W Peak (tens of microseconds)	9.3W Idle, 20W Typical, 30W Peak	15W -75W (varies by mode)
Operating Temperature	-25° C to +85° C	-25° C to +85° C	-40° C to +85° C
Storage Temperature	-40° C to +85° C	-40° C to +85° C	-40° C to +85° C
Technology Readiness (TRL)	TRL 9	Launch in Q1 2025	Launch in Q2 2026
Software			
Operating System	Linux Based	Linux Based	Linux Based
AI/ML Model Type	TensorFlow Lite	TensorRT	TensorRT, PyTorch
Software Package	Basic Software Package Included	Basic Software Package Included	Basic Software Package Included



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