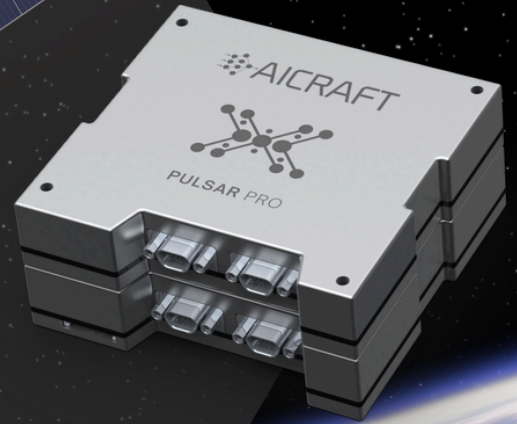


SPACE EDGE COMPUTING MODULE



PULSAR PRO



This data processing unit brings server computing capacity on orbit.

Pulsar Pro turns raw data into actionable signatures that can be pre-loaded and augmented over time as new data is acquired, effectively training the Artificial Intelligence (AI) engine on the go.

A massive 300 TOPS peak AI performance will satisfy ultra-fast inferencing demands of transformers, convolutional neural networks and many other advanced machine learning models.

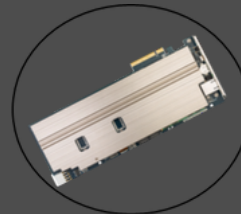
The module can be scaled up in performance to meet the computing demands of large satellites while having compact size, weight and lower power consumption. The design can be made compliant to the SpaceVPX standard.

Pulsar Pro Flight Model and Engineering Models are supplied with:

1. Board support package
2. Built-in machine learning compiler
3. Tailored application libraries.

Pulsar Pro comes in two Engineering Models (same performance, different form factor):

1. Pulsar Pro (0.5U)
2. Fanless server rack (1U) with high-performance NEXUS-1 data processing card (below). This has additional Ethernet ports for a greater networking solution.



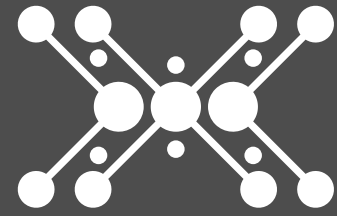
Pulsar Pro development kit with NEXUS-1 high-performance computing card



More info
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Key benefits

- AI-capable ultra-fast Big Data processing
- World-leading AI engine for training on the go
- One-time development (ground = space)
- Unlimited on-orbit reconfiguration
- Small SWaP.

Technical specifications

Computing performance

Processor	Multi-core ARMv8, 64-bit operations
ML co-processor	300 TOPS peak performance (max 1200 TOPS)
RAM	4 GB DDR4 SDRAM with ECC (up to 8 GB)
Storage	256 GB SSD with ECC (up to 2 TB) 16Mb rad-hard-equivalent memory with EDAC

Interfaces

High speed	USB 3.0, Ethernet, LVDS, SpaceWire, CML, CoaXPress
Low speed	SPI, UART, CAN 2.0

Software

Operating system	Custom Linux
ML compiler	All common frameworks

Sensors

Vibrations	3-axis lateral and 3-axis longitudinal
Temperature	Device, processor, co-processor
Power monitors	Device (total power), processor, co-processor

Other properties

Input voltage	12V
Power consumption	< 40W
Mass	800g
Dimensions (L x W x H)	95mm x 90mm x 50mm
Operating temperature	-40°C to +100°C
Storage temperature	-55°C to +125°C