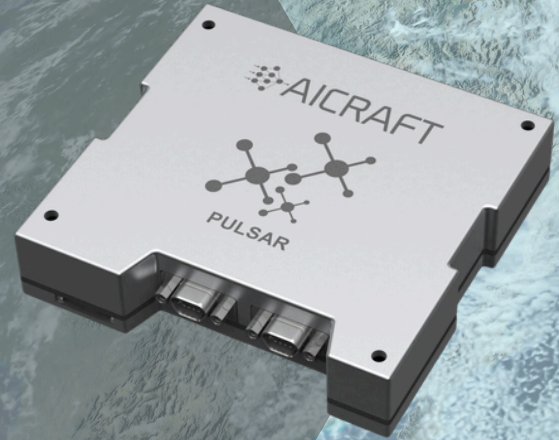


SPACE EDGE COMPUTING MODULE



PULSAR

Pulsar is a world-class edge computing module offering power efficient ultra-high-speed data processing of both conventional algorithms and artificial intelligence (AI) models.

With 20 Gbps internal data bandwidth and 90 TOPS peak AI performance, this device will deliver powerful and timely processing in a small form factor and power consumption.

A unique range of 16 computing levels means power is never overspent and computation time is always optimal.

Another key benefit is a configurable Error Detection and Correction (EDAC) scheme providing lower power, rad-hard level (default) integrity checks of critical data such as ML weights, bootup parameters and more. The scheme trades off reliability, power consumption and computational latency with simplicity through selectable settings.

Custom and third-party libraries can be installed through a software interface to run a variety of models with leading AI frameworks such as Keras, TensorFlow, Pytorch, ONNX, OpenVINO, Caffe2 and more.

Product applications



Earth
Observation



Satellite
Operations



Federated
Learning



Data
Compression



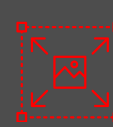
Space Domain
Awareness



Synthetic
Aperture Radar



Radiometric
Calibration



Super
Resolution



More info
www.aicraft.com.au

Email us
hello@aicraft.com.au



Key benefits

- Ultra-high-speed data processing with AI support
- 16 performance levels for most energy-efficient utilisation
- Reliable and consistent with unlimited on-orbit reconfiguration
- Configurable EDAC scheme up to rad-hard level protection to SEEs
- Innovative AI-driven circuitry for power saving and extended device lifespan.

Technical specifications

Computing performance

Processor	Multi-core ARMv8, 64-bit operations
ML co-processor	90 TOPS peak performance
RAM	4 GB DDR4 SDRAM with ECC (up to 8 GB)
Storage	64 GB SLC NAND with ECC (up to 1 TB) 16 Mb rad-hard-equivalent memory with EDAC

Interfaces

UART (RS485 or RS232)	1x 5 Mbps
SPI	1x 40 Mbps
Ethernet	1x 1 Gbps (options: 2.5 Gbps, 10 Gbps)
USB 3.0	1x 5 Gbps (up to 3x USB 3.0)

Software

Operating system	Linux
ML compiler	All common frameworks supported
Custom libraries	Cloud coverage, ship segmentation, compression, others

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	5VDC
Power consumption	5W (nominal)
Mass	250g
Dimensions (L x W x H)	95mm x 90mm x 21mm
Operating temperature	-40°C to +105°C