



AstroCore - R

Reliable High-Performance
On-Board Computing

Intelligence in Orbit, Decisions in Real Time.



About

ASTROCORE-R CLOSES THE GAP BETWEEN SENSING AND KNOWING

Satellites generate vast amounts of imagery and mission data, but limited in-orbit computing forces critical decisions to happen on the ground. The result is delayed response, reduced autonomy, and missed opportunities in orbit.

ASTROCORE-R SOLVES THIS

By enabling complex calculations In-Orbit, your imagination is the limit.

BUILT DIFFERENT, WHERE IT COUNTS

A Combination of 248 TOPS of AI performance with a **radiation-tolerant architecture**, ECC memory, independent **FDIR**, and native **space interfaces**. To support reliability in **LEO** missions.

Applications

COMMERCIAL EARTH OBSERVATION

Detect fires, floods, and agricultural change in real time.



MARITIME SURVEILLANCE & DEFENCE

Maritime incidents are flagged in real time - not after the vessel has moved on.



RF & OPTICAL INTELLIGENCE

Enabling Ground Station Selection, Data Manipulation, Quantum Encryption & Spectrum Analysis .



FORMATION FLYING

Perform Complex Estimations for Orbital Mechanics.



Highlights

Integration Simplicity

We reduce your integration burden, CubeSat/MicroSat Compatible.

Reliability

We don't cheap out on reliability, everything is included. Hardware/Software provisions.

Very High Compute

We deliver unmatched GPU and CPU performance.

Simple Development

We simplify development, pre-integrated software stack included. OTA updates, configurable pipelines, etc.



Specifications*

AI Compute

Jetson ORIN AGX INDUSTRIAL

- 248 TOPS
- 64 GB ECC RAM
- 2048-core NVIDIA
- 64 Tensor Cores
- 12-core Arm®

Power

- Unregulated 12-28V
- Configurable 5-70W
- Power Supervisor
- Latch-up Protection

Interface

Commanding:

- 2x CAN
- 2x I2C
- 2x RS-422
- 1x SPI

Data:

- 2x SpaceWire (200Mbps)
- 1x LVDS
- 1x Ethernet (1Gbps)

RADHARD MCU

- ARM Cortex M3

Monitoring

- Jetson Watchdog
- Boot Sequence/Dual Boot
- Memory Corruptions
- Temperature
- Power
- Radiation
- FDIR

Storage

- 64 GB Unprotected
- 128 GB Dual Boot RADHARD
- 1 TB Data MilGrade

Mechanical

- < 0.5 U
- Aluminum Radiation Shield
- Copper Thermal Heatsink

*Subject to change



Qualifications

- Vibration Tests [**Falcon 9 levels**]
- Radiation Tested [**TID 30krad**]
- TVAC Tested [**ECSS-E-ST-10-03C**]
- Software Quality [**ECSS-Q-ST-80C**]
- Space Engineering [**ECSS-E-ST-40C**]
- Magnetically Characterized
- Thermally Characterized



Add-Ons

Real Time AI Applications for EO

GPU Accelerated Space Toolbox

Hardware/Software Modifications

Custom Application Development

Interface Expansion Service

AstroCore in your Mission Roadmap

1

Conceptualization

Q: How can I increase the value of my mission?

Real-time on-board intelligence, turn data into decisions in orbit.

2

System Architecture

Q: How to reduce integration risks?

Standardized interfaces and pre-validated architecture. (OBC, payload, TMTC.)

3

Engineering Design

Q: Can my system survive and operate reliably in orbit?

R for Reliable. Radiation-aware, fault-tolerant design.

4

Verification & Simulation

Q: Will my mission actually perform as expected?

Integrated simulation link (Budgets, optical, power, ConOps validation.)

5

Payload & Application

Q: Will my application work under real mission constraints?

High performance characterized with power and thermal-aware execution profiles.

6

Testing

Q: Can I trust the system under real conditions?

Validated through Radiation, TVAC, Vibration, and functional testing.

7

Integration & Qualification

Q: Will everything work together?

Pre-integrated system with defined interfaces and complete documentation.

8

Operations & Scaling

Q: How do I scale operations?

On-board AI applications and autonomous operations in collaboration.

