EDGX STERNA

DATASHEET STERNA

- Powered By NVIDIA Jetson Orin
- Unlock In-Orbit Artificial Intelligence
- Power-Efficient Supercomputing
- Mission-Specific Radiation Hardening

Flight Heritage since March 2026
SpaceX Transporter 16

EDGX

NVIDIA

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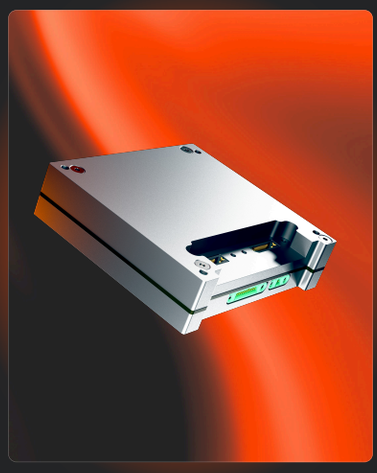
Supercomputing Onboard

Waiting on a downlink is a lost opportunity. Sterna's raw computational power lets you act on critical intelligence the instant it's captured.

01 Deliver up to **157 TOPS** of in-orbit compute

02 Command power modes from **10W** to **45W**

03 Unlock the **NVIDIA ecosystem**



Uncompromising Reliability

Sterna is engineered for mission certainty. It has been validated against every extreme, ensuring it doesn't just survive, but thrives.

01 Qualified for **Launch** Vibrations

02 Proven in **Thermal & Vacuum** Conditions

03 Validated against **Radiation** Effects

Operate with our software stack

Powerful hardware is only half the equation. We provide the essential software ecosystem that provides the functions you need for mission success.

Real-Time Supervisor

Monitors system health and safeguards critical hardware.

Operating System

A custom, mission-specific Yocto Linux operating system.

Application Framework

Deploys and manages your containerised applications in-orbit.

Dynamic Power Modes

Instantly tune power consumption to your mission.

Technical Specifications

STERNA

Sterna is a high-performance **Data Processing Unit (DPU)** bringing the **NVIDIA Jetson Orin NX** to space.
It provides mission-critical compute to CubeSats and SmallSats in Low Earth Orbit (LEO), including Sun Synchronous Orbit (SSO).
An optional interface expansion board stacks on top to add data interfaces, with custom connectors and interface sets available on request.

MAIN COMPONENTS

NVIDIA Jetson Orin NX 16GB + Supervisor MCU
- [CPU] 8-Core ARM Cortex-A78AE (@ 2 GHz)
- [GPU] 1024 CUDA Core Ampere (@ 1GHz)
- [NPU] 2x NVDLA 2.0 (@ 600MHz)

SOFTWARE

- Optimized Linux OS (Yocto / JetPack 7)
- Containerized Applications (Docker, Kubernetes)
- Health monitoring and logging (FreeRTOS)

STORAGE & MEMORY

- 16 GB of 128-bit LPDDR5: Shared System Memory
- 160 GB NVMe SSD (pSLC): Boot Storage
- 2 TB NVMe SSD (TLC): Application Storage

Underwent TID (^{60}Co) and SEE (200 MeV proton) testing

SIZE, WEIGHT & POWER

- Size: 0.27U (96 x 90 x 27 mm)
- Weight: 335 g ± 5 % w/o harness
- Interface expansion: +0.15U, +150 g, power varies
- Form factor: PC/104 (mounting)
- Power: 15W (avg) / 30W (peak) / 45W (super)
  Can be dynamically limited and reconfigured.
- Input: 15V - 30V (Normal) or 23V - 30V (Super)

INTERFACES - SUPERVISOR

Connector(s): Harwin Gecko-SL
- 2x CAN (TM/TC)
- 2x RS422 or 1x RS485 (TM/TC)
- 1x 10/100 Mbit/s Ethernet (TM/TC)
- 1x UART (debug and recovery)
- 1x 1PPS input (time sync)

At least one TM/TC interface is preferred. Configured as CSP by default, other protocols on request.

INTERFACES - NVIDIA JETSON ORIN NX

Connector(s): Harwin Gecko-SL
- 1x Gigabit Ethernet (for OTA, Recovery and Data)
- 1x UART (for Linux Debug)

Interface expansion (optional): Depends on interfaces
- 3x USB 3.2 Gen 1 (data)
- 4x 2-lane MIPI CSI-2, or 2x 4-lane MIPI CSI-2
- 1x PCIe Gen4 x4, or 1x 10 GbE, or 1x SpaceWire/Fiber

Custom data interfaces and connectors on request.

THERMAL & VACUUM

- Operational range –15 °C to +60 °C.
- Qualified in TVAC over –25 °C to +70 °C (+10 °C margin).

VIBRATION & SHOCK

- Qualified for Falcon 9, Ariane 6, Vega-C and other launchers
- Random 20 g RMS (20 Hz–2 kHz), quasi-static 21.25 g sine burst
- Pyroshock SRS 60 g at 100 Hz to 2824 g (Q=10), 1.6–10 kHz, 3 shocks/axis in 3 axes

ELECTROMAGNETIC COMPATIBILITY (EMC)

- Tested for emissions according to MIL-STD-461 standards.
- Tested for immunity according to MIL-STD-461 standards.

Detailed test reports, notch analysis and compliance matrices are available on request.

RADIATION

- Components tested for a Destructive SEE LETth of 38 MeV cm²/mg
- Components selected for a minimum TID resilience of 30kRad
- Board-level validation and characterisation under 200 MeV proton

EDGX

EDGX is a spacetech company on a mission to enable compute in space.

Discover our products on:
www.edgx.space