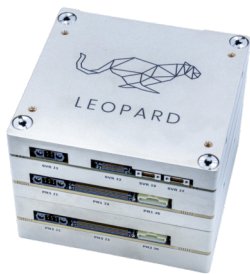


When advanced optics meet powerful onboard processing, real insights start in orbit.

By combining HyperScape100 hyperspectral imaging with Leopard DPU, **this integrated solution enables faster, smarter, and more efficient Earth Observation** — with key data acquired, processed, and stored directly onboard the satellite.

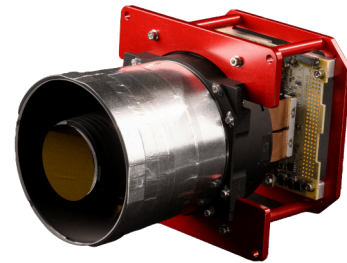
Leopard DPU

Designed for **Micro and Nano Satellites** in a compact PC-104 form factor, offering **powerful on-board data analysis** using Artificial Intelligence.



HyperScape100

Covers the **visible and near-IR spectral range in up to 32 bands** at an unprecedented spatial resolution and form factor.



Processor: Quad ARM Cortex-A53 + Dual Cortex-R5	Resolution: 4096 pixels across track
FPGA: Zynq UltraScale+ ZU6EG, ZU9EG, ZU15EG	Spectral bands: 32 Bands
Computer performance: Up to 3 TOPS	GSD: 4.75 m
Software: 64-bit Linux + AI model support (PyTorch TF, Caffe)	Focal length: 580 mm
Power consumption: 7.5-40W (load-dependent)	Power consumption: 7.75 W
Mass: <900 g/<1200 g (single/dual configuration)	Mass: 1.26kg
Volume: 90.17 × 95.86 × 50 mm/78 mm (1U single/1.5U dual configuration)	Volume: 98 x 98 x 176 mm (1.5U)
Storage: Up to 2×256 GiB flash + 4–16 GiB DDR4 RAM (single/dual configuration)	Storage: 128 GB
Interfaces: CAN, SPI, UART, RS422/485, LVDS, GTY, GTH, SpaceWire	Interfaces: Control - I ² C, SPI, RS-422, SpaceWire, Data - LVDS, SpaceWire

■ Combined Specification

Volume: 2.5U (single configuration)/ 3U (dual configuration) in total

Interface compatibility: SpaceWire, RS-422, LVDS, SPI - fully supported on both ends

Typical power budget : 15,25W (combined operation, typical load)

Platform alignment : Micro and Nano Satellites compatible

■ Key Applications

Cloud & Object Detection

Real-time AI-based detection of clouds, surface changes, and orbiting objects.

Hyperspectral Compression

Onboard reduction of 32-band data to cut downlink volume.

Onboard Data Storage

Provides additional flash memory for buffering and storing mission data.

Smart Data Handling with OBDP

Filtering and prioritizing data onboard to reduce transmission load.

■ Use Case

OPS-SAT VOLT is an ESA mission dedicated to in-orbit testing of advanced technologies, **including optical and quantum communications, onboard computing,** and intelligent payloads.

As part of this mission, KP Labs and Simera Sense jointly **deliver a payload combining the HyperScope100 hyperspectral camera and the Leopard Data Processing Unit (DPU),** led by Craft Prospect's AI demonstration.

Key outcomes include:

- **Real-time inference** (e.g., cloud masking, object detection)
- **Environmental analysis** (e.g., NDVI)
- **Reduced data transmission** via onboard filtering
- **Coordinated payload operations** using Leopard's control features

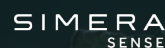
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