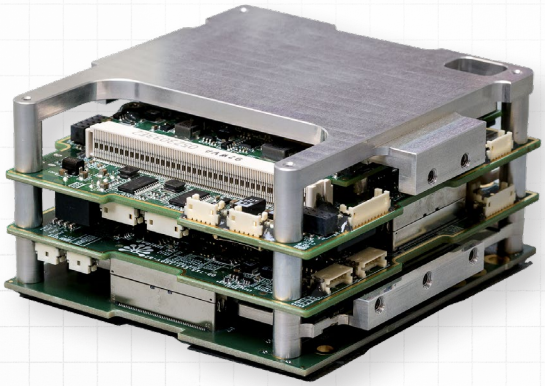
UNIBAP
SPACE SOLUTIONS

Unibap iX5-106

Unibap iX5-106
Radiation Tolerant Edge Computing, Storage, and Analytics Platform in Space

The iX5 family is Unibap's most robust and reliable computer solution for large and small spacecraft. It offers flight-proven processing capabilities, high-speed I/O interfaces, and minimized size and power consumption. Combined with Unibap's open software platform, it offers the perfect vehicle to bring high-performance computing to space.



VERSATILE

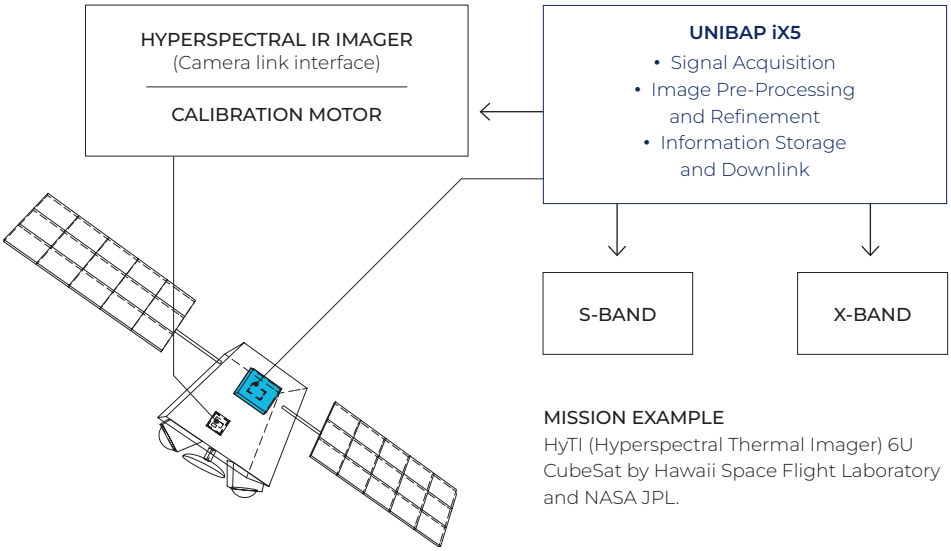
With its multifaceted processing and machine learning capabilities and significant interfacing capabilities, the iX5 is suitable for a wide range of mission profiles, ranging from edge computing and payload control to autonomous operation and cloud computing in space.

EFFICIENT

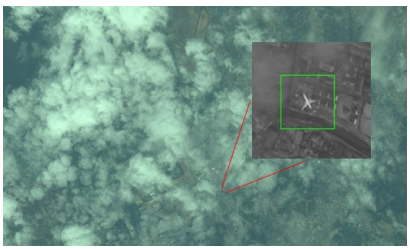
The iX5 is Unibap's most efficient computer solution with respect to power, mass and size. With a form-factor compatible with CubeSat platforms and a power consumption in the range 10-30 W, it is ideal for smaller spacecraft, but it can just as well service larger missions given its considerable computing performance.

RELIABLE

The iX5 is Unibap's most reliable and flight proven computer platform. It has been thoroughly qualified with respect to vibrations, shock and thermal vacuum. More importantly, it has been in space since 2021, on 5 different missions, operating more than 40 different software applications, without any destructive failures.



MISSION EXAMPLE
HyTI (Hyperspectral Thermal Imager) 6U CubeSat by Hawaii Space Flight Laboratory and NASA JPL.



APPLICATION EXAMPLE
Mid-air airplane detection application developed by SaraniaSat Inc for US Space Force leveraging the onboard ENVI/IDL L3 Harris Geospatial software suite. The app scans 100 km2 of World View-3 MSI spectral data and produces geolocated coordinates for detected aircraft in under 1 minute with the iX5.

iX5-106
Technical specifications

PROCESSING & MEMORY	
Intelligent Processing Core	Unibap Qseven e2160 compute module
CPU	AMD Steppe Eagel CPU
GPU	AMD Radeon GPU
VPU	Intel Movidius Myriad X
RAM	2 GB DDR3 ECC (CPU/GPU)
Storage	1 x 120 GB SATA SSD

I/O INTERFACE	
CAN	1 x v2.0b
Ethernet	1 x 1 GbE (1000BASE-T)
12C	2 x isolated
Serial communication	5 x RS232/485/422
SpaceWire	2 x
SPI	1 x
Thermistor inputs	8 x
USB	2 x USB 2.0 and 1 x USB 3.0

MECHANICAL	
Dimensions (est).	100 (W) × 100 (H) × 50 (D) [mm]
Weight	421 g
Enclosure	On request

ENVIRONMENTAL & ELECTRICAL	
Power consumption	10- 30 W (Depending on processing and storage selection and use)
Input power voltage	12 V DC
Operating temperature	-20 °C to 55 °C
Vibration	Qualified for launch, details upon request
Certification	IPC 610-E Class III (RoHS)

SOFTWARE SUPPORT	
Operating system	Unibap OS (Linux)
Unibap functions and applications	Supported