

SpaceCloudOS & SpaceCloudFW

SpaceCloud® OS and SpaceCloud® FW are Unibap's Linux based operating system and software framework for space. Together with our function toolbox, and a wide application suite, they facilitate simple and reliable execution of Edge Computing, Autonomous Operations, and Cloud Computing in space.



ROBUST



SpaceCloudOS and SpaceCloudFW are designed to bridge the gap between space-grade and Earth-based software. The architecture of the OS shields your applications from the unique challenges of space, and the containerized FW makes them run safe, efficient, and isolated from other spacecraft systems.

OPEN PLATFORM



Leveraging its Linux roots, SpaceCloudOS and SpaceCloudFW open up rapid software creation for all users, regardless of space experience. They are packed with a versatile toolbox for sensor data processing and spacecraft communication and are compatible with AWS's compute and machine learning services.

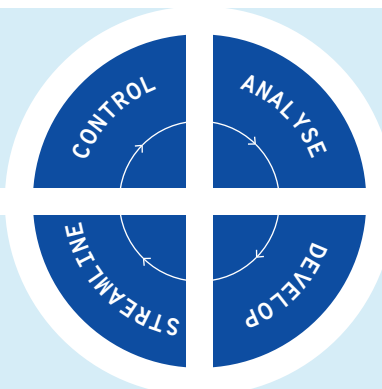
SPACE RESILIENT



Designed to comprehend and counter the harsh space environment, SpaceCloudOS safeguards your operations with its advanced SafetyChip and SafetyBoot features, letting you enjoy excellent data protection and reliable functioning, even amidst the intense radiation of space.

Increase payload control
 Diversify data collection
 Improve mission output

Simplify Machine learning
 Increase data processing
 More actionable information



Reduce mission costs
 Maximize data-driven value
 return

Reduce development time
 Simplify testing
 Improve reusability



UNIBAP

SpaceCloudOS Linux-based Operating System for Open Platform Computing in Space

Model Name SpaceCloudOS

ITEM	VERSION	DESCRIPTION
OS	Ubuntu Server 20.04	
Linux kernel	5.15.32-051532-generic	Linux kernel custom patched to fit iX10.
Linux firmware	1.220.2-ix10	Firmware for Linux kernel drivers, custom patched to fit iX10.
Unibap core components	1.1.2	Unibap driver library for the FPGA.
Protobuf	3.20	Serializing library for gRPC.
OpenCV	4.5.4-2	Computer vision library, compiled with flags optimized for iX10.
Rocm	4.5.2	Software stack for GPU, custom patched to fit iX10.
Tensorflow	2.7.0	ML & AI library, custom patched to fit iX10. Installed via pip.
Tensorflowlight	2.7.0-2	ML & AI library, compiled with flags optimized for iX10, apt package named unibap-tflite-ix10.
Torch	1.11.0	ML & AI library, custom patched to fit iX10. Installed via pip.
Torchvision	0.11.1	ML & AI library. Installed via pip.
Openvino	2021.4.752	ML & AI library, compiled with flags optimized for iX10.
SCOS monitor	1.0.3	SpaceCloudOS Monitoring And Reporting service, Unibap's telemetry library.
SCOS tools	1.0.0	Includes SpaceCloudOS related tools: unibap_ctrl_client. Installed via pip.

This is the typical specification of the installed packages for SpaceCloudOS on the iX10 platform. The list does not include all packages. Additional packages include those that are dependencies to the ones above and common utility packages.

Model Name SpaceCloudFW

SERVICE	DESCRIPTION
Node	Application development tool for Unibap's API, and for handling the execution of applications in space.
Simulator	Tool for testing applications during development.
Ground services	Tools for integrating, delivering and packaging Spacecloud applications.
ARMS	Used to manage application resources, create containers to isolate applications through docker containerization, run multiple containers concurrently, set up store synchronization, etc.
GSIF	Generic sensor interface used to retrieve data from sensors, such as an images.
Trigger	A gRPC service for geographical triggering of application functions.
Mission data	Packaging service for up and down link of data.

Information may change at any time.