

Press release 2020-08-11

Unibap receives trademark protection for SpaceCloud and introduces SpaceCloud OS

Unibap is developing SpaceCloud Services (USS) with the support of the European Space Agency (ESA) as previously communicated. Unibap has now been granted European trademark protection for SpaceCloud as a priority basis for expanded international trademark protection. Unibap has put a lot of effort into the advancing cloud services in space and has now release the development environment SpaceCloud OS v1.0 to customers. The SpaceCloud OS forms the foundation for the completion of the cloud service interfaces within SpaceCloud and the development of services together with partners.

Testing and evaluation of SpaceCloud OS has been carried out in Sweden by Unibap and in the United States by Moog and Troxel Aerospace. The SpaceCloud OS update will now be offered to existing national and international customers' development environments. The customer benefit of SpaceCloud is faster and flexible distribution of timely information.

The SpaceCloud OS is also the basis for the continued development of Unibap's SpaceCloud Services (USS) within the ESA InCubed project, where tests with third-party applications will begin in autumn 2020. Among other things, applications for 3D modeling from satellite images, data encryption, data compression, object detection and object classification will be tested. Further, applications for satellite communications based on the space standards ECSS PUS and CCSDS will be finalized, which will offer turnkey solutions.

As previously communicated, Unibap is preparing documentation within the ongoing ESA InCubed project for a follow-on phase covering demonstration of SpaceCloud in space. The demonstration is expected during the period 2021 - 2022. Further information regarding SpaceCloud is available on our website, <https://unibap.com/en/our-offer/space/>

The SpaceCloud OS includes key features such as:

- Prepared for features from major cloud service providers, such as the Amazon S3 API
- Future-compatible with next-generation hardware products under development with the support of the Swedish National Space Agency (SNSA)
- Support for machine learning with frameworks such as TensorFlow and pyTorch
- Management of the radiation effects from space environment on computer memory and protection of PCIe communication
- Reduced and configurable power consumption
- Hardware-accelerated data analytics and artificial intelligence with processors and graphics cards (GPUs) from AMD, reprogrammable logic (FPGA) and image processing modules (VPUs) from Intel.
- Support for standards such as OpenGL 4.6, OpenGL ES 3.2, Vulkan 1.2, OpenCL 1.2

- SpaceCloud OS is an important milestone that brings together the experience and work done in recent years to maximize the performance of our hardware products such as the iX5-100 and upcoming iX10-100. By offering a platform with the same tools and computer architecture that developers are used to from their daily development environment on earth, we can drastically reduce development time and enable the development of applications that were not previously possible on satellites, says Oskar Flordal, Chief Technology Officer at Unibap.

- It is a significant milestone that has now been achieved and it has been well received during the testing phase. Our customers are now offered to download and install SpaceCloud OS. It is especially fun to mention that we have focused on quickly upgrades for our customers in the US, in relation to ongoing deliveries, proposal investigations and implementations, says Fredrik Bruhn, CEO of Unibap.

Unibap has also published a peer-reviewed article in the CEAS Space Journal¹ describing applications, performance benchmarks and evaluations.

.....

Uppsala 2020-08-11

For more information, please contact

Dr. Fredrik Bruhn
CEO
vd@unibap.com
+46 70 783 32 15

.....

About Unibap

Unibap is a high-tech company that aims to automate and streamline industries on earth as well as in space. With smart solutions based on AI and robotics, we want to increase quality and productivity for our customers while eliminating dangerous tasks that today are performed manually. Unibap strives to have a positive impact on both society and the environment. The company's Quality Management System is certified according to SS-EN ISO 9001:2015. The company is listed at Nasdaq First North Growth Market. SpaceCloud® and Unibap® are registered trademarks of Unibap.

For more information, please visit Unibap's website, unibap.com/en/.

FNCA Sweden AB, +46 8-528 00 399, info@fnca.se, is the Company's Certified Adviser.

¹ Bruhn, F.C., Tsog, N., Kunkel, F. *et al.* Enabling radiation tolerant heterogeneous GPU-based onboard data processing in space. *CEAS Space J* (2020). <https://doi.org/10.1007/s12567-020-00321-9>