

OpenCUBE: A key milestone for ready-to-deploy cloud platforms built on European processors

- **Delivery of a first SiPearl' Seine Server unit equipped with Rhea1 CPU to HPE's lab in Grenoble**

Grenoble (France), 23 September 2026 – The OpenCUBE collaborative project (Horizon Europe), which aims to provide a ready-to-deploy cloud platform using European processors built on an entirely open-source software stack, has reached a decisive milestone with the delivery of a first unit of SiPearl's Rhea1-dedicated reference design server, the Seine Server, to HPE's lab in Grenoble.

Previously, SiPearl had successfully carried out tests in its laboratories on the Seine Reference Server, which focused, in particular, on the integration of HPE Slingshot, HPE's Ethernet network technology for data-intensive High Performance Computing (HPC) and AI workloads. These tests will now be carried out on the Seine Server installed within the OpenCUBE pilot system, paving the way for provisioning a cloud platform blueprint based on European technologies, which can be deployed reproducibly.

Combining high-performance with energy-efficiency, the OpenCUBE ready-to-deploy platform will provide a solid foundation for European cloud services, research, and commercial deployments envisioned to be core for federated sovereign digital services.

For memo, OpenCUBE's partners are:

- **KTH Royal Institute of Technology** is the coordinator of the OpenCUBE project. KTH ScaLab leads the technical work on middleware for heterogeneous data-centre architectures, spanning the vector-length-agnostic programming model across Arm SVE and RISC-V RVV, hybrid memory systems, and adaptive schedulers for converged HPC-cloud workloads. KTH also contributes pilot applications in space weather and drug discovery.
- **European Centre for Medium-Range Weather Forecasts (ECMWF)**, a world leader in numerical weather prediction, providing high-quality data for weather forecasts and environmental monitoring. As an intergovernmental organisation, ECMWF collaborates internationally to serve its 35 Member and Co-operating States and the wider community with global weather predictions, data, and training. ECMWF's research and operational centre operates 24/7, focusing on medium and long-range forecasts, and maintains one of the world's largest meteorological data archives, including ERA5, funded by the EU Copernicus programme. ECMWF provides the primary scientific driver applications for the platform: the Integrated

Forecasting System (IFS) and its computational "dwarfs" as HPC benchmarks, cloud-based meteorological post-processing workflows, and coupled Cloud/HPC demonstrations using FDB domain-specific object store exploiting fabric-attached memory.

- **HPE** is a leading provider of enterprise technology across AI, cloud and networking. The company's EMEA Research Lab contributes HPE Slingshot expertise, OpenCHAMI system management software adaption, development of network security features, LLVM compiler infrastructure, and the final system architecture deliverable.
- **Semidynamics**, a Spanish fabless semiconductor company. Built on its Atrevido RISC-V processor core family, the company is extending that architecture into full-stack systems, from RISC-V IP to production silicon and rack-level deployments for next-generation data centres, supported by its Aliado software stack, including the Aliado Toolchain, Aliado Kernel Library and Aliado Emulator.
- **SiPearl**, the fabless designer of European CPUs built for sovereign HPC, AI and data centre. With its first-generation CPU, Rhea1, and its dedicated reference design server, Seine Server, SiPearl is the central industrial hardware partner of the project and also co-leads OS bring-up and profiling tool development.
- **Technische Universität München (TUM)** is one of Europe's top technical universities. It adds particular strength in computer architecture, parallel systems, energy efficiency, and HPC software to the project. TUM is responsible for the programming environment, tooling, as well as the high-speed network middleware.

"Coordinating OpenCUBE has been a privilege, and the installation of the Seine Server at HPE's lab in Grenoble marks a major milestone for European cloud infrastructure. For the first time, we can demonstrate a working blueprint for a next-generation cloud built on European Arm and RISC-V processor technologies. At KTH, our ScaLab team has focused on making this heterogeneous Data Center architecture efficient and practical, through portable vectorisation across Arm SVE and RISC-V RVV, hybrid memory systems, and adaptive schedulers for converged HPC and cloud workloads. Our pilot applications in space weather and drug discovery show that this stack is ready for demanding, real-world workloads." – Ivy Peng, Associate Professor of Computer Science at KTH, and OpenCUBE Project Coordinator

"At ECMWF, research is central to how we innovate with our Member and Co-operating States, and this with the sole focus to strengthen our operational services. Through Horizon Europe collaborations such as OpenCUBE, we can test emerging technologies in realistic forecasting conditions and assess their potential for future weather and climate services. By running real-world meteorological workloads from our IFS forecasting system and FDB high-performance object store on the Seine Server, ECMWF is helping to evaluate how European processor-based platforms could support the next generation of cloud and HPC infrastructure." – Jørn Kristiansen, Director of Forecasts and Services, ECMWF

“European processors are an important step towards reducing technological dependencies, but their value can only be realized through an integrated hardware and software stack. HPE has a strong interest in expanding the technology choices available to our customers, which is why we are working with the OpenCUBE partners to create an open, secure and deployment-ready platform for demanding cloud and HPC environments.” - Andrew Wheeler, Deputy CTO, SVP and Director of HPE Labs

“The delivery of the Seine Server to HPE's lab in Grenoble is a tangible step toward a truly European, open, and sovereign cloud infrastructure, and we're glad to see the ecosystem's software and hardware components coming together in a real-world pilot. Semidynamics is proud to contribute to this milestone through our FPGA-based EPAC emulation platform, our RISC-V cross-compilation toolchain, and our optimised RISC-V libraries, tools that help ensure the OpenCUBE stack is validated and performance-ready ahead of deployment.” - Pedro Marcuello, Fellow Engineer of Semidynamics.

“The delivery of a first unit of our Seine Server to the OpenCUBE collaborative project marks a significant milestone for Europe's digital sovereignty. Indeed, there can be no sovereign cloud – that is, one that guarantees the integrity and security of the strategic data stored and processed within it – without European processors. The turnkey, replicable platform developed thanks to the involvement of all OpenCUBE partners represents a decisive step that will help raise public awareness of this reality.” - Philippe Notton, CEO and founder of SiPearl

“The deployment of the first Seine Server marks an important milestone for the OpenCUBE collaborative project and for European data centre infrastructure. At TUM, the Chair for Computer Architecture and Parallel Systems closely collaborates with SiPearl and the OpenCUBE partners to deliver tooling and middleware that enable the development, execution, and introspection of performing and scalable converged HPC-Cloud workflows. With the arrival of Seine Server at OpenCUBE, we are excited to transfer this work to actual hardware and, with that, to support the creation and deployment of a production-ready European data center platform.” - Martin Schulz, Professor for Computer Architecture and Parallel Systems at TUM

About OpenCUBE

Launched in January 2023, the OpenCUBE project is missioned to deliver the first deployment-ready cloud platform built on processors made in Europe.

In synergy with the efforts of the European Processor Initiative (EPI) in designing and developing European chips, the OpenCUBE project aims to develop a full software stack for promoting performance, energy efficiency, and programming efficacy in heterogeneous data centres.

Together with pilot use cases, OpenCube seeks to streamline and encourage user adoption toward the forthcoming European cloud platform.

OpenCUBE is funded under the Horizon Europe proposal call on “Digital and emerging technologies for competitiveness and fit for the green deal” (Grant agreement No101092984).

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