

Rhea1 brought to life, one giant leap for EU sovereignty

News highlights:

- The most complex server CPU ever designed in Europe, the key component for a sovereign comprehensive compute/AI stack
- Fulfilment of the mission entrusted to SiPearl by the European Union: the return to Europe of high-end processor technology and expertise
- The bring up of Rhea1 launched with great success
- General availability of Rhea1 scheduled end of 2026 to equip JUPITER, Europe's first exascale⁽¹⁾ supercomputer



Maisons-Laffitte, Grenoble, Massy, Sophia Antipolis (France), Barcelona (Spain), Bologna (Italy) - May 26, 2026 – SiPearl, the fabless designer of European high-performance energy-efficient CPUs built for supercomputing, AI and data centre has reached a historic milestone for Europe digital sovereignty on May 13 with the power-on of its Rhea1 processor.

The bring up of Rhea1, SiPearl's first-generation CPU dedicated to sovereign supercomputing and AI, was successfully launched. Initial results are very positive, confirming that the European high-performance energy-efficient CPU is behaving as designed.

The 12-week functional bring-up process will continue in the company's laboratories to progressively validate all the hardware and software functionality, interfaces and

⁽¹⁾ Exascale : 1 billion billion calculations per second

performance characteristics of Rhea1. The general availability of the CPU is scheduled for the end of 2026. Rhea1 will equip the CPU cluster module of JUPITER, Europe's first exascale supercomputer which is owned by EuroHPC, hosted and operated by Jülich Supercomputing Centre in Germany.

With more than 61 billion transistors (7.8 billion equivalent gates), Rhea1 is the most complex server CPU ever designed in Europe. It includes in a single package:

- 80 arm® Neoverse V1 cores ensuring high compute performance and efficient performance per watt. Each core includes 2 x 256-bit Scalable Vector Extension (SVE) engines, enabling fast vector computations while optimizing area and energy use;
- Built-in High Bandwidth Memory, with 4 stacks of HBM, to provide a balanced solution ideal for supercomputing, big data and AI Inference applications, which are often memory bandwidth bound;
- 4 DDR5 interfaces supporting 2 DIMMs Per Channel (2DPC);
- 104 lanes of PCIe Gen5 interface: up to 6 x 16 lanes + 2 x 4 lanes;

As the unique high-performance server CPU designed in Europe, Rhea1 is the key component for a sovereign comprehensive compute/AI stack. In addition to performance, customers are targeting it for back-door free and kill switch free security, energy-efficiency, flexibility and a mature software ecosystem.

"With Rhea1, we are fulfilling the mission entrusted by the European Union to the European Processor Initiative consortium, and subsequently to SiPearl: to bring high-end processor technologies and the associated expertise back to Europe. Since SiPearl's launch in 2020, we have assembled and trained a team of experts - seniors mentoring juniors - the likes of which had not been seen in Europe since the mid-1980s. I am immensely proud of every one of them. As there can be no digital sovereignty without sovereign hardware, we are all contributing to Europe's sovereignty. SiPearl is a tremendous technological, human and patriotic adventure", concluded Philippe Notton, CEO and Founder of SiPearl.

In June, the SiPearl team will be showcasing Rhea1 at key global trade-shows:

- Innovex-Computex (Taipei, Taiwan) – June 2-5, 2026 – French Pavilion (#S1216)
- Vivatech (Paris, France) – June 17-20, 2026 – PwC booth (#2D36 – June 17-19) and Business France booth (#3G13 - June 17)
- ISC High Performance (Hamburg, Germany) – June 22-26, 2026 – SiPearl booth (#K20)

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About... SiPearl

SiPearl is the European fabless designer of secure high-performance energy-efficient CPUs built for sovereign HPC, AI and data centre. These CPUs will help address strategic challenges in the fields of security, defence, medical research, energy, climate and engineering with a reduced environmental footprint.

Featuring 80 Arm Neoverse V1 cores with 61 billion transistors, SiPearl's first-generation CPU, Rhea1, will be released end of 2026. Sipearl's CPUs will equip the two first European exascale supercomputers: Rhea1 will be integrated into the JUPITER machine based in Germany and Rhea2 will be part of Alice Recoque in France.

Supported by the European Union and France, SiPearl employs 200 people in France, Spain, and Italy. Following a €130 million Series A, the company has launched its Series B round.

