

SiPearl and Open-Silicon Research collaborate to accelerate custom silicon for HPC applications

Massive increase in HPC application performance and interconnect speeds with high bandwidth memories and highly integrated system-on-a-chip in a multi-chip package.

Maisons-Laffitte, France, February 23, 2021 – SiPearl, the company designing the high-performance, energy-efficient microprocessor for the European exascale supercomputer and **Open-Silicon Research**, the India based entity of **OpenFive**, a leading provider of custom silicon solutions with differentiated IP, today announced a multi-year joint collaboration to enable expansive development of innovative High Performance Computing (HPC) applications. Specifically, SiPearl is relying on Open-Silicon Research's expertise in deep-submicron physical design implementation, advanced 2.5D packaging and global supply chain management to develop the highly integrated, high-performance 6nm system-on-a-chip (SoC) named Rhea.

SiPearl's Rhea SoC is designed in a leading-edge 6nm process node and will be implemented by Open-Silicon Research and manufactured at Taiwan Semiconductor Manufacturing Company (TSMC). OpenFive is a long-standing partner of TSMC through its Value Chain Aggregator (VCA) program. Applications using artificial intelligence (AI) such as autonomous driving, facial recognition, and genomics are generating vast amounts of data, and driving demand for new HPC systems with massive increases in compute performance and interconnect speeds. The Rhea 6nm SoC is purpose built for HPC applications and provides a powerful, highly scalable solution with tremendous improvements in memory bandwidth enabled by Open-Silicon Research's High Bandwidth Memory (HBM2E) IP subsystem, die-to-die (D2D) interconnect, and HBM memory die into a single 2.5D advanced package.

Open-Silicon Research will also contribute leading-edge deep-submicron physical design methodology that will make it possible to efficiently implement the very large and complex 6nm SoC, together with advanced 2.5D packaging expertise to manage the very high thermal dissipation, and supply chain experience to ensure a smooth ramp up to volume production.

"We highly regard our partnership with Open-Silicon Research, and we're excited to utilize the company's experience implementing very large deep-submicron custom silicon designs, together with their global supply chain management track record shipping production volumes, to deliver this highly complex 6nm SoC solution with differentiated HBM2E IP in a highly advanced 2.5D package," said **Philippe Notton**, Founder of SiPearl. *"We are confident that this partnership will enable vast opportunities to develop new HPC applications with our mutual customers."*



"SiPearl is a global leader in HPC, and we're extremely proud to be partnering with them in the development of this next-generation SoC solution," said **Huzefa Cutlerywala**, Vice President of International Sales and Managing Director of Open-Silicon Research in India. *"This initiative leverages the collaborative advanced silicon expertise of both companies and will greatly advance the adoption of custom SoCs in sub-6nm process nodes, with 2.5D packaging and unleash the very high memory throughputs needed for HPC applications."*

Availability

The SiPearl Rhea SoC is expected to ship in Q4, 2022.

About OpenFive

OpenFive is uniquely positioned to deliver highly competitive SoCs with its spec-to-silicon design capabilities, customizable IP for AI/Cloud/HPC/storage/networking applications, and processor agnostic domain-specific architectures. The OpenFive IP portfolio includes High-Bandwidth Memory (HBM2/E), Die-to-Die (D2D) interface IP for multi-die connectivity including chiplets, low-latency, high-throughput Interlaken interface IP for chip-to-chip connectivity, 400/800G Ethernet MAC/PCS subsystems and USB controller IP.

OpenFive offers end-to-end expertise in architecture, design implementation, software, silicon validation and manufacturing to deliver high-quality silicon in advanced nodes down to 5nm. For more information, please visit openfive.com.

About SiPearl

Created by Philippe Notton, SiPearl is the Franco-German company that is bringing to life the European Processor Initiative (EPI) project, designing the high-performance, low-power microprocessor for the European exascale supercomputer. This new generation of microprocessors will enable Europe to set out its technological sovereignty on the strategic markets for high performance computing, artificial intelligence and connected mobility. SiPearl is developing and will market its solutions through close collaboration with its 26 partners from the EPI - scientific community, supercomputing centres and leading names from the IT, electronics and automotive industries - which are its stakeholders and future clients. It is supported by the European Union ¹.

SiPearl is also a member of the Mont-Blanc 2020 consortium to equip Europe with a dedicated modular and energy-efficient high performance computing microprocessor, and is a member of the PlayFrance.Digital collective for Europe to lead the field for digital technology.

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