ARTERIS IP

menta

Case Study

Scalable Network-on-Chip Enables a Modular Chiplet Platform

Customer Overview

Menta, founded in 2007, is a pioneering semiconductor company that has been redefining the standard for delivering programmable logic in electronic design within SoC and ASIC architectures. The company designs embedded FPGA (eFPGA) IP cores that seamlessly integrate into custom silicon. As a leader in eFPGA IP, Menta delivers highly configurable, production-proven solutions with exceptional reliability and optimal quality. The development efforts prioritize measurable performance gains while addressing power efficiency and long-term sustainability requirements. The company delivers unmatched flexibility across most technology nodes with a complete, in-house-developed toolchain. Menta focuses on high-value embedded markets such as edge AI systems, robotics and industrial automation, vision systems and smart cameras, and complex B2B embedded platforms.

"In the high-end HPC and AI space, especially for data centers, you need something that can guarantee quality-of-service (QoS) between cores. You also need error detection and correction technologies, and future applications may require functional safety (FuSa) technologies. Arteris NoCs have all these capabilities."

Dmitriy Gusev
Technical Director, Chiplet Platform Lead
Menta

Business Challenges

- Support a modular, chiplet-based platform requiring scalable on-chip communication.
- Deliver power-efficient operation across bandwidth-intensive and latency-sensitive traffic.

Design Challenges

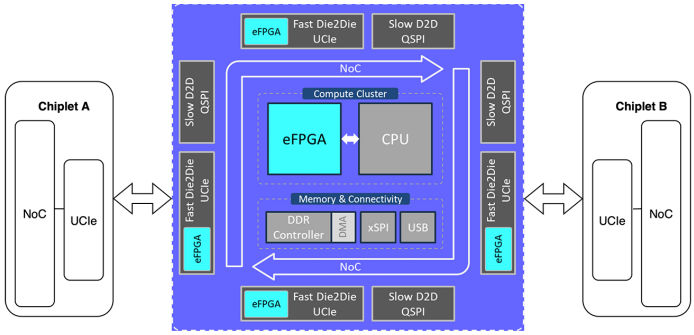
- Meet performance and area-efficiency requirements for the MOSAICS Hub.
- Establish a NoC foundation spanning multiple chiplet generations and system configurations.
- Integrate a mature, silicon-proven interconnect supporting a broad range of initiators and targets.

Arteris Solution

- FlexNoC® interconnect IP

Results

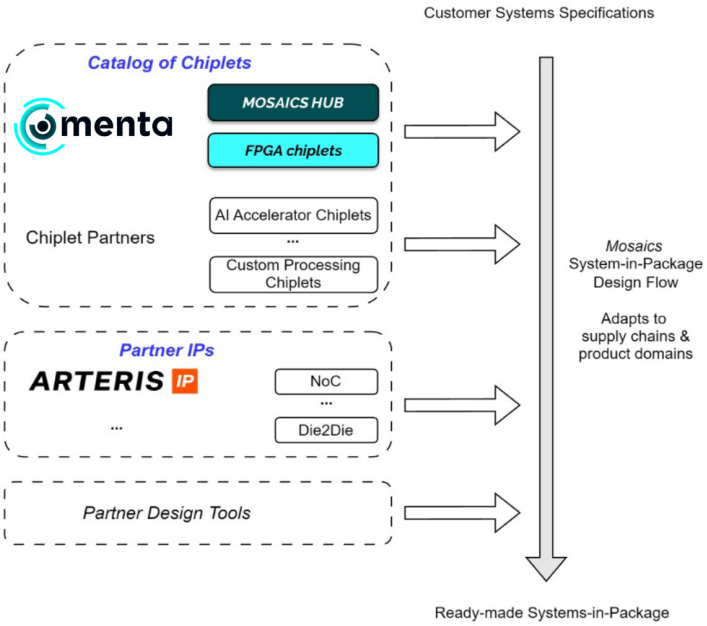
- Enabled rapid prototyping, testing, and validation of the architecture.
- Integrated into Menta's broader design framework, accelerating MOSAICS Hub development.
- Delivered faster development cycles, reduced integration complexity, and a scalable NoC foundation.



Mosaics Block Diagram

Menta differentiates itself through a highly configurable platform combined with accelerated development cycles and an architecture purpose-built for next-generation silicon innovation.

In addition to the platform itself, Menta offers design services to support customers developing compatible chiplets and accelerating the integration into MOSAICS-based systems. The platform will be providing silicon-proven and production-ready chiplets as well as tooling, software and reference designs. MOSAICS Platform enables customers to rethink what is possible with custom silicon, delivering up to 10× lower system costs and up to 4× faster time-to-market. The platform allows the creation of systems-in-package (SiP), with significantly reduced risk. The first product in the portfolio, the MOSAICS Hub, is delivered as a Known Good Die to ensure predictable system integration.



Mosaics Ecosystem and Design Flow

The Challenge

As Menta expanded its programmable logic expertise, new system-level integration challenges emerged. The company needed a network-on-chip (NoC) interconnect architecture to support a modular, chiplet-based design. It also had to deliver power-efficient operation from bandwidth-intensive data movement to latency-sensitive transactions.

These requirements posed significant challenges for the MOSAICS-LP chiplet platform, particularly in meeting performance and area-efficiency specifications. The NoC architecture needed to establish a scalable foundation capable of spanning multiple chiplet generations, customers, and market segments. At the same time, Menta required a wide range of system configurations while avoiding redesign effort and increased integration risk to sustain the MOSAICS platform roadmap.

To support the MOSAICS platform, the interconnect technology needed to be mature, silicon-proven, and highly configurable to integrate a broad set of initiators and targets. Performance requirements ranged from high-throughput data interfaces to lower-bandwidth control paths.

The Solution

Menta's MOSAICS Hub acts as the central integration point for orchestrating communication among multiple heterogeneous chiplet-based systems. To ensure seamless, predictable, efficient, and scalable data movement within the hub, the company selected Arteris FlexNoC interconnect IP as the on-chip communications fabric backbone.

Using FlexNoC, Menta implemented a high-performance interconnect within the MOSAICS Hub designed to support more than 30 initiators and targets operating at frequencies of 500+ MHz.

The configurable NoC architecture enabled our team to balance scalability, performance, and silicon efficiency while accommodating a wide mix of bandwidth-intensive and latency-sensitive traffic.

"FlexNoC's proven IP interconnect easily integrated into Menta's broader design framework and served as a foundational building block of the broader MOSAICS platform."

Dmitriy Gusev
Technical Director, Chiplet Platform Lead
Menta

Results and Future Plans

Menta used Arteris FlexNoC to build a high-performance interconnect for its MOSAICS Hub chiplet, which acts as the central integration point of the platform. This demonstrated that FlexNoC met the requirements of a heterogeneous chiplet integration environment handling concurrent high-bandwidth and low-latency data flows.

FlexNoC's configurability facilitated incorporation into Menta's existing design framework, supporting predictable data movement while aligning with broader performance and area constraints. Additionally, the ease of use enabled the engineering team to rapidly prototype, test, and validate the implementation, reducing overall integration complexity and accelerating development design. This contributed to meeting performance and area targets for the edge AI–focused chiplet platform.

Looking ahead, MOSAICS represents more than a chiplet initiative. It introduces a new model for designing, building, and deploying custom silicon. To bring this vision to life, Menta relies on strong partnerships with trusted technology leaders such as Arteris.

"Arteris provides a well-supported NoC solution that integrates seamlessly into complex chiplet architectures. With Arteris as a key partner, we established a solid interconnect foundation for our current and next-generation chiplet-based platforms."

Dmitriy Gusev
Technical Director, Chiplet Platform Lead
Menta

About Arteris

Arteris is a leading provider of semiconductor technology that accelerates the creation of high-performance, power-efficient silicon with built-in safety, reliability, and security. Arteris network-on-chip (NoC) interconnect intellectual property (IP), system-on-chip (SoC) software for integration automation and hardware security assurance are used by the world's top technology companies to optimize data movement and ease complexity while improving overall performance and engineering productivity, reducing risk, lower costs, and bringing cutting-edge designs to market faster. Learn more at arteris.com.

ARTERIS IP

arteris-support@arteris.com +1 408 470 7300

Rev 04/26