

Alif Semiconductor™ introduces groundbreaking, highly scalable families of power efficient Cellular IoT and AI-enabled fusion processors and microcontrollers

Leveraging the latest in processing technology, Alif Semiconductor debuts its Ensemble™ and Crescendo™ families of embedded controllers

PLEASANTON, Calif. September 1, 2021-- [Alif Semiconductor](#), supplier of, secure, connected, AI-enabled, power efficient microcontrollers (MCUs) and fusion processors, today announced the launch of its Ensemble™ and Crescendo™ product families. Built to power the exponential expansion of next generation always-connected IoT products, the Ensemble and Crescendo families fill the market need for scalable, genuinely power efficient devices that integrate AI/ML acceleration, multi-layered security, LTE Cat-M1 and NB-IoT connectivity, GNSS positioning, and plenty of integrated memory to enable design of products that seamlessly integrate into everyday life, whether the processing is done locally or in the cloud.

The Ensemble family is built on the latest generation embedded processing technology that scale from single Arm® Cortex®-M55 MCUs to a new class of multi-core devices — fusion processors — that blend up to two Cortex-M55 MCU cores, up to two Cortex-A32 microprocessors (MPU) cores capable of running high-level operating systems, and up to two Arm Ethos™-U55 microNPUs for artificial intelligence (AI) and machine learning (ML) acceleration. Ensemble family devices contain an advanced secure enclave that provides multiple layers of security, such as device integrity protection, secure identity and strong root-of-trust, secure lifecycle management, and more. Together with large on-chip SRAM and non-volatile memory, accelerated graphics, imaging, and class-leading power characteristics, the Ensemble family is ideal for smart home products, appliances, point-of-sale, robotics applications, and much more.

“We founded Alif Semiconductor because we wanted to provide an integrated next generation solution for developers that need efficient AI, wireless capabilities, trusted security and long battery life,” says Syed Ali, Alif Semiconductor co-founder and CEO. “This just didn’t exist until now. We expect the Ensemble and Crescendo families will have a significant impact on the market for next-generation IoT devices.”

The Crescendo family offers the same functionality as the Ensemble family, and in addition adds LTE Cat-M1 and NB-IoT Cellular connectivity, optional iSIM for simplified subscriber management, integrated RF, power amplifiers, and a concurrent GNSS receiver for positioning, thus delivering the key capabilities required for next-generation smart city, connected infrastructure, asset tracking, healthcare devices, wearables and more, in a single chip.

“The Ensemble and Crescendo families introduce a scalable, highly integrated architecture that lets developers create secure solutions spanning across multiple applications, with different functional and processing requirements on a common fabric,” commented Reza Kazerounian, Alif Semiconductor co-founder and president. “The innovative approach we are taking is a game-changer and will disrupt the way developers create intelligent machines.”

Many deployed IoT devices are battery powered, and battery life is critically challenged when there is a high requirement for local processing, AI/ML, and wireless communication. To

address this, Alif Semiconductor is introducing its exclusive Autonomous Intelligent Power Management (*aiPM*[™]) technology that allows fine-grained control of when resources in the chip are being powered. This unrivalled technique produces class-leading low-power operation, enabling intelligent devices to last longer on smaller batteries.

“The solution that Alif delivers fills a significant gap in the market,” said Jerome Schang, head of Microsoft Azure Edge Silicon devices strategy. “We are always on the lookout for the most efficient technology platforms for our Edge experiences, and the Ensemble and Crescendo families are very well aligned with our customers’ needs.”

“The next generation of IoT applications requires more intelligent, secure, AI-capable endpoint devices at scale,” said Mohamed Awad, vice president of IoT & Embedded at Arm. “Alif’s new product families, based on Arm’s proven technology, will unleash the potential of AI and enable developers to create innovative solutions that fuel the continued growth of the IoT.”

Ensemble and Crescendo devices are sampling now to lead customers. These devices are supported by Alif Semiconductor’s software, development tools, and kits. Production qualification will be complete in 1Q22. To learn more about Alif Semiconductor and these products, visit <https://www.alifsemi.com/>.

About Alif Semiconductor:

Alif Semiconductor was founded in 2019 with the vision to address the rapidly growing market need for broad, scalable, and connected AI-enabled embedded computing solutions that are genuinely power efficient. This need led to Alif Semiconductor’s creation of a new class of embedded controllers, or fusion processors, that enable seamless integration of technology for everyday life by unlocking innovative low-power techniques, unparalleled functional integration, accelerated AI and ML edge processing, high security, ubiquitous wireless connectivity, and operating system diversity. For more information go to www.alifsemi.com.

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