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EMASS Pushes the Edge Further with 16nm ECS-DoT

Next-generation ultra-low-power Edge AI SoC for always-on intelligence

LOS ANGELES (Dec. 17, 2025) – EMASS, a Nanoveu subsidiary with next-generation semiconductor technology, today announced that its next-generation ECS-DoT SoC built on a 16nm process node has entered the final phases of development, headed toward graphic data system (GDS) sign-off, tape-out and fabrication at TSMC. This new device builds on EMASS's existing 22nm ECS-DoT offering and strengthens the company's leadership in ultra-low-power Edge AI by extending always-on intelligence into more demanding and highly integrated applications.

The new 16nm ECS-DoT builds on the 22nm's performance, energy consumption, compute capability and on-chip resources, while preserving the architectural concepts, developer workflow and ultra-low-power mission that define the ECS-DoT family. It continues to advance edge technology by integrating an on-chip Bluetooth Low Energy (BLE) subsystem, expanding on-chip SRAM with a new power management system and AI and processing acceleration enhancements.

"With the 16nm ECS-DoT, we reach a defining moment for EMASS as we scale our architecture into new classes of applications demanding more intelligence, more speed and even lower power," said Mark Goranson, CEO of EMASS. "By migrating to 16nm, we've unlocked all new use-cases and identities that allow customers to push machine learning to the absolute edge, without sacrificing battery life or form-factor constraints."

Enabling the Next Stage of Edge Intelligence

The 16nm ECS-DoT advances EMASS's edge AI capabilities through higher integration, expanded on-chip resources and improved power efficiency, enabling more capable always-on intelligence without increasing system complexity or energy demand. Key enhancements include:

- **Fully integrated BLE subsystem** — Eliminates the need for external wireless ICs, reducing board area, bill-of-materials cost and design complexity.
- **Expanded on-chip memory** — Supports larger AI models and higher-throughput workloads while minimizing off-chip memory access for improved efficiency.
- **Adaptive fine-grained power-management architecture** — Optimizes energy use for always-on, battery-powered and energy-harvesting applications.
- **Dedicated object-detection accelerator** — Offloads vision workloads to increase throughput and reduce inference latency for edge vision use cases.
- **Integrated floating-point unit (FP16/FP32)** — Accelerates DSP and mixed-precision AI workflows while simplifying developer toolchains and code migration.

Seamless Upgrade Path for Developers

The new SoC maintains complete software and workflow compatibility with the current ECS-DoT family. This allows developers to deploy applications on either the 22nm or 16nm version with minimal redesign, while supporting larger and more demanding workloads without compromising ultra-low-power operation.

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Strengthening EMASS's "Atoms-to-Apps" Vision

The 16nm ECS-DoT also advances EMASS's "Atoms-to-Apps" methodology, connecting application requirements, algorithm design, silicon architecture and real-world deployment into a unified development philosophy.

"This next generation of ECS-DoT represents a significant architectural advance for EMASS, bringing together always-on intelligence, deeper on-chip resources and higher levels of integration within a single ultra-low-power Edge AI platform," said Dr. Mohamed Sabry, founder and CTO of EMASS. "By extending our architecture to support more demanding workloads without sacrificing energy efficiency, we are strengthening EMASS's leadership in ultra-low-power Edge AI and expanding what's possible at the edge for our partners and customers."

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About EMASS

EMASS – a subsidiary of Nanoveu Ltd (ASX: NVU) – is an advanced semiconductor company specializing in ultra-low-power AI system-on-chip (SoC) solutions for edge computing. The company's flagship ECS-DoT chip delivers high-performance AI processing for vision, audio, and sensor data directly on-device, maximizing energy efficiency through its RISC-V architecture and non-volatile memory technologies. This always-on intelligence solution is optimized for power- and space-constrained applications including drones, wearables, healthcare devices and industrial IoT systems. For more information, visit nanoveu.com/emass.

About Nanoveu

Nanoveu is a listed company advancing human–machine experiences at the edge through a portfolio that spans ultra-low-power AI and glasses-free 3D technologies. Its subsidiary EMASS designs advanced system-on-chip (SoC) solutions that deliver efficient, scalable on-device AI for smart devices, IoT applications and 3D content transformation – enhancing Nanoveu's reach across rapidly growing AI, edge computing and 3D content markets. EyeFly3D™ is Nanoveu's end-to-end platform for glasses-free 3D, uniting proprietary screen technology with sophisticated content processing software and, now, EMASS's ultra-low-power SoC to bring immersive 3D to a wide range of devices and industries. The Company also develops and markets an advanced range of self-disinfecting and hydrophobic films and coatings under the Nanoshield™ brand, designed for applications including large-scale CSP and photovoltaic solar installations. Together, Nanoveu's businesses deliver practical innovation that makes devices smarter, environments safer and experiences more immersive.

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