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Nanoveu Tapes Out 16nm ECS-DoT Edge AI SoC, Advancing Ultra-Low-Power Always-On Intelligence

Next-generation 16nm ECS-DoT SoC enters fabrication at TSMC, marking a major execution milestone in Nanoveu's Atoms-to-Apps silicon roadmap

Highlights

- EMASS, Nanoveu's wholly owned subsidiary, has successfully completed tape-out of its next-generation 16nm ECS-DoT ultra-low-power Edge AI system-on-chip (SoC), with the device now entering fabrication at TSMC.
- Tape-out represents a decisive transition from final design into production silicon, validating EMASS's always-on Edge AI architecture at an advanced process node.
- The 16nm ECS-DoT scales EMASS's proven 22nm ECS-DoT platform, delivering higher computing density, expanded on-chip memory and deeper system integration while preserving ultra-low-power operation.
- EMASS's current 22nm ECS-DoT SoC is commercially available and actively being designed into devices, providing near-term market validation and a clear upgrade path to the 16nm generation across multiple edge AI application segments.
- Architectural enhancements include integrated Bluetooth Low Energy (BLE), expanded on-chip SRAM, dedicated AI acceleration, an integrated floating-point unit (FP16/FP32) and advanced fine-grained power management.
- Full software and workflow compatibility is maintained across ECS-DoT generations, enabling optionality for customers to scale functionality without redesigning platforms or toolchains.
- The milestone further strengthens Nanoveu's Atoms-to-Apps development philosophy, aligning application requirements, silicon architecture and system deployment.

Nanoveu Limited (ASX: NVU, OTCQB: NNVUF) ("Nanoveu" or "the Company"), a technology innovator across advanced semiconductor, visualisation and materials science applications, is pleased to announce that its wholly owned subsidiary, Embedded A.I. Systems Pte. Ltd ("EMASS"), has successfully taped out its next-generation 16nm ECS-DoT Edge AI system-on-chip ("SoC"). The 16nm ECS-DoT has now entered fabrication at Taiwan Semiconductor Manufacturing Company ("TSMC"), marking a critical execution milestone in EMASS's product roadmap and a transition from final design into production silicon. Achieving tape-out at 16nm reflects EMASS's execution capability in scaling its established ECS-DoT architecture at an advanced process node and positions the platform for silicon validation and subsequent customer engagement.

Advancing Ultra-Low-Power Edge AI at 16nm

The 16nm ECS-DoT represents a process-node and architectural scaling of EMASS's proven 22nm ECS-DoT platform. The move to 16nm increases logic density, memory bandwidth and overall system integration, enabling support for more complex always-on workloads while maintaining the constrained power envelopes required for edge, battery-powered and energy-harvesting applications.

EMASS's existing 22nm ECS-DoT SoC is currently in market and being actively designed into customer platforms spanning wearables, industrial sensing, asset tracking, smart infrastructure and other always-on edge AI applications. This commercial adoption validates the ECS-DoT architecture in real-world deployments and establishes a production-ready baseline from which customers can scale to the 16nm ECS-DoT for higher performance, deeper integration and expanded on-chip resources.

By transitioning to 16nm, EMASS has expanded on-chip SRAM capacity, integrated additional system-level functions and enhanced AI and DSP acceleration without altering the underlying programming model or software toolchain. Wireless connectivity, dedicated AI accelerators and fine-grained power-management blocks are tightly integrated within a single SoC, reducing reliance on external components and enabling continuous, low-latency operation at the extreme edge.

Key Enhancements in the 16nm ECS-DoT SoC

- Integrated Bluetooth Low Energy (BLE) Subsystem: The 16nm ECS-DoT integrates a Bluetooth Low Energy subsystem directly on-chip, eliminating the need for external wireless ICs in many designs. This integration reduces board area, bill-of-materials cost and overall system complexity for connected edge devices.
- Expanded On-Chip Memory: A significant increase in on-chip SRAM capacity supports larger neural networks, higher-throughput vision and multi-sensor workloads while reducing off-chip memory access to improve latency and energy efficiency.
- New Adaptive Fine-Grained Power-Management Architecture: The new device introduces EMASS's most advanced power-management fabric to date, incorporating fine-grained power gating, dynamic clock control and autonomous low-power states optimised for always-on operation in battery-powered and energy-harvesting systems.
- Dedicated AI Acceleration Module for Object Detection: A dedicated object-detection accelerator offloads vision workloads from general-purpose compute, increasing throughput and reducing inference latency for edge vision applications.
- Integrated Floating-Point Unit (FPU): For the first time in the ECS-DoT family, the 16nm generation incorporates a hardware floating-point unit supporting FP16 and FP32 operations, accelerating DSP and mixed-precision AI workloads while simplifying developer workflows.

Software Continuity and Developer Scalability

Despite the transition to a 16nm process node, the ECS-DoT architecture maintains full software and workflow compatibility across generations. Developers can migrate applications between the 22nm and 16nm devices with minimal changes, preserving existing investments while unlocking additional performance and system headroom.

Strengthening the Atoms-to-Apps Roadmap

The successful tape-out of the 16nm ECS-DoT further reinforces Nanoveu's Atoms-to-Apps development philosophy, aligning application needs, algorithm design, silicon architecture and real-world deployment within a unified system-level approach.

Dr. Mohamed M. Sabry Aly, Founder of EMASS and Director of Nanoveu, commented: *"Successfully taping out our 16nm ECS-DoT SoC is a major execution milestone for EMASS and Nanoveu. It validates years of architectural decisions and demonstrates that our ultra-low-power Edge AI platform scales effectively to advanced process nodes. This achievement positions us to support a broader range of always-on edge intelligence applications while remaining true to the energy efficiency principles that define our technology."*

Nanoveu will provide further updates as the 16nm ECS-DoT progresses through fabrication, silicon validation and performance characterisation.

This announcement has been authorised for release by the Board of Directors.

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About Nanoveu Limited

Further details on the Company can be found at https://nanoveu.com/.

EMASS is a pioneering technology company specialising in the design and development of advanced systems-on-chip (SoC) solutions. These SoCs enable ultra-low-power, AI-driven processing for smart devices, IoT applications, and 3D content transformation. With its industry-leading technology, EMASS will enhance Nanoveu's portfolio, empowering a wide range of industries with efficient, scalable AI capabilities, further positioning Nanoveu as a key player in the rapidly growing 3D content, AI and edge computing markets.

EyeFly3D™ is a comprehensive platform solution for delivering glasses-free 3D experiences across a range of devices and industries. At its core, EyeFly3D™ combines advanced screen technology, sophisticated software for content processing, and now, with the integration of EMASS's ultra-low-power SoC, powerful hardware.

Nanoshield™ is a self-disinfecting film that uses a patented polymer of embedded Cuprous nanoparticles to provide antiviral and antimicrobial protection for a range of applications, from mobile covers to industrial surfaces. Applications include *Nanoshield™ Marine*, which prevents the growth of aquatic organisms on submerged surfaces like ship hulls, and *Nanoshield™ Solar*, designed to prevent surface debris on solar panels, thereby maintaining optimal power output.

Forward Looking Statements This announcement contains 'forward-looking information' that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to the Company's business strategy, plans, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'ambition', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'mission', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions, and that the Company's actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance, or achievements to be materially different from those expressed or implied by such forward looking information.