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ASX: NVU

Nanoveu to Commence Next Phase of Benchmarking for EMASS System-on-a-Chip (SoC) Semiconductor Technology

Benchmarking to assess crucial AI metrics for advanced 2D to 3D Applications

Highlights:

- Second Benchmark testing for the ECS-DOT chipset by Embedded A.I Systems Pte. Ltd (EMASS) scheduled to commence 7th November, 2024, with results expected within a week
- The tests will focus on two critical applications, **Anomaly Detection and Keyword Spotting**, using standardised workloads from the MLPerf Tiny AI suite[1]
- The EMASS ECS-DOT's chipset performance will be compared against current SoC semiconductor leaders, STMicroelectronics **(~US24.8B Market Cap[2])** and Syntiant **(~US$500m valuation[3])**
- Benchmarking results will be released to the market upon completion.
- These tests provides an accelerated framework for commercialisation using the EMASS SoC technologies. `

Nanoveu Limited ("Nanoveu" or the "Company") (ASX: NVU) is pleased to announce the commencement of the next phase in benchmark testing for the ECS-DOT chipset, developed by Embedded A.I Systems (EMASS). This step reinforces the company's strategy to leverage EMASS's edge AI semiconductor chip technology and demonstrate its potential for industry-leading AI performance and energy consumption efficiency.

The benchmarking process, as done previously, will evaluate the ECS-DOT System on Chip (SOC) using MLPerf Tiny benchmarking suite, an industry-standard suite providing reproducible, reliable assessments of SoC performance in speed, accuracy, and energy efficiency. The focus will be on two key applications: Anomaly Detection and Keyword Spotting, tasks that are crucial for real-time AI applications in fields ranging from industrial IoT and consumer electronics to 2D-3D visual data transformation.

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[1] Benchmark MLPerf Inference: Tiny | MLCommons V1.1 Results

[2] https://www.nasdaq.com/market-activity/stocks/stm

[3] Syntiant - Funding, Financials, Valuation & Investors

- **Anomaly Detection:** Identifying and recognizing unusual patterns in real-time, key for applications in industrial IoT, enabling detection of defective products or predictive maintenance for machinery, which enhances operational efficiency and cost savings.
- **Keyword Spotting:** Vital for consumer electronics as a primary interface for interactive AI tools, allowing devices to recognize user commands, which supports natural, human-like interaction in generative AI-powered applications like virtual assistants and smart home systems.

The significance of Anomaly Detection and Keyword Spotting within the ECS-DOT benchmark cannot be overstated. Anomaly Detection serves as an essential function beyond industrial IoT applications by actively monitoring and understanding user interactions, especially in systems that transform 2D data into immersive 3D contexts, such as eye-tracking technologies. This feature is pivotal in identifying any deviation in user behaviour or interaction patterns, creating a seamless and intuitive experience that feels natural to the user.

Similarly, Keyword Spotting functions as an indispensable foundation for speech-based AI systems, where it serves as an energy-efficient 'wakeup' trigger. This targeted activation mechanism prevents systems from idling unnecessarily, enabling responsive interactions only when required. This feature is particularly valuable for voice-activated AI, as it conserves energy while maintaining high responsiveness. In prioritizing both low power consumption and instant reactivity, the ECS-DOT chipset aligns with a more human-centric and eco-friendly approach to generative AI. Together, these benchmarks emphasize ECS-DOT's commitment to pushing the boundaries of sustainable, user-centric AI, enhancing the value of applications across voice and 3D platforms with reliable, low-latency technology.

Figure I. Illustrative rendering of a tablet utilizing Eyefly3D^{TM}

Commenting on the benchmarking, Alfred Chong, Managing Director, and CEO of Nanoveu said *"As we continue to expand the EyeFly3D™ platform's reach, these benchmarking tests are a pivotal step in preparing for EMASS chipset integration. This phase enables us to validate the performance of ECS-DOT chipset in powering next-generation 3D experiences. By demonstrating the chipset's strengths in tasks like anomaly detection and keyword spotting, we're positioning EMASS to meet the growing demand for powerful, energy-efficient SoCs with advanced image processing capabilities across industries like smart home systems, robotics, autonomous driving, and medical imaging."*

The benchmarking objective for ECS-DOT is crucial for validating its role in converting 2D visual data into 3D formats, particularly through detecting anomalies in user eye movement and head alignment. These capabilities are essential for enhancing user interactions and enabling real-time virtual assistant support. The anticipated results from this benchmarking will demonstrate ECS-DOT's energy-efficient, low-latency performance, improving AI-powered features on the EyeFly3D™ platform for delivering glasses-free 3D experiences. Additionally, the findings will emphasize the chipset's suitability for applications such as:

● **Autonomous Driving Systems**: Monitoring driver behavior and identifying deviations to enhance safety and performance.
● **Self-Navigation of Drones**: Detecting flight path anomalies for reliable, autonomous operation.
● **Robotics**: Recognizing operational inconsistencies to maintain smooth, adaptive task execution.
● **Smart Home Systems**: Keyword detection to activate voice commands efficiently and monitor user activity for tailored responses.
● **Security and Surveillance**: Real-time anomaly detection to identify unusual movements or behavior patterns for increased safety.
● **Medical Imaging**: Spotting irregularities in scans or user interactions to support accurate diagnostics and patient care.

Benchmark testing will commence on November 7th and NVU will provide updates to the market and shareholders with results once available.

This announcement has been authorised by the Board of Directors of Nanoveu Limited

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About Nanoveu Limited

Nanoveu is a company specialising in advanced films and coatings. https://www.nanoveu.com/.

Further details on the Company can be found at https://wcsecure.weblink.com.au/pdf/NVU/02656570.pdf.

EyeFly3D™

The EyeFly3D™ platform is a comprehensive 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.

Nanoshield™ Solar, designed to prevent surface debris on solar panels, maintaining optimal power output.

EMASS

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.

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', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', '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.