

EMASS Bring Always-On Keyword Spotting to Next-Generation Hearables

*Always-on keyword spotting for bone-conduction hearables
using ST inertial sensing and EMASS on-device AI*

LOS ANGELES (Mar. 5, 2026) – EMASS, a Nanoveu subsidiary specializing in next-generation semiconductor technology, today announced a reference design targeting hearable applications. The reference design combines ST's inertial measurement unit (IMU) technology with EMASS's ECS-DoT AI-enabled system-on-chip (SoC), delivering an integrated solution that enables always-on keyword spotting in bone-conduction hearable devices.

The reference design addresses a growing need in the hearable market for hands-free, low-power voice interaction. ST's IMU, the LSM6DSV16BX, provides motion-based wake-up detection — activating the system when jaw movement is sensed — while EMASS's ECS-DoT performs keyword spotting directly on the device. By combining motion-triggered activation with on-device AI inference, the solution dramatically reduces power consumption compared to continuously active voice processing approaches, enabling practical always-on operation in battery-powered wearables.

ECS-DoT is purpose-built for always-on hearable applications, delivering on-device keyword spotting at sub-milliwatt power levels with sub-10ms response latency. This combination of extreme energy efficiency and real-time responsiveness allows engineers to add intelligent voice recognition to hearable designs without impacting battery life or user experience."

"Hearables represent one of the fastest-growing segments for always-on edge AI, and this reference design demonstrates how purpose-built AI silicon can deliver capabilities that weren't previously practical in wearable form factors," said Mark Goranson, CEO of EMASS. "By pairing ST's proven inertial sensing with ECS-DoT's on-device AI, we're giving engineers a clear path to add intelligent, low-power keyword spotting to bone-conduction and other hearable designs.

The hearable reference design demonstrates a complete system pipeline for always-on voice interaction:

- **Motion-Triggered Activation:** ST's IMU monitors jaw movement to detect user intent, waking the audio processing subsystem only when interaction is likely — eliminating idle power draw from continuous microphone monitoring.
- **On-Device Keyword Spotting:** EMASS's ECS-DoT performs real-time audio classification and keyword recognition locally on the device, with no cloud dependency and sub-10ms response latency.
- **Ultra-Low Power Operation:** The combined solution targets sub-milliwatt system power in standby, enabling always-on intelligence in battery-powered hearable devices.

The reference design will be showcased at embedded world 2026 in Nuremberg, Germany. Attendees can view the reference design demonstration at EMASS's booth Hall 4, Booth 4-483.

To schedule a meeting or request a live demonstration during embedded world 2026, please contact Scott Smyser, Vice President of Sales and Marketing, at Scott@nanoveu.com.

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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.

Media Contacts

Kelsey Winter

kelsey.winter@stratacomms.agency

+1 (541) 337-7887

Zach Hynoski

zach.hynoski@stratacomms.agency

+1 (732) 581-6237