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# Nuvoton Unveils New Production-Ready Endpoint AI Platform for Machine Learning

## *M55M1 Microcontroller With Secure On-Device AI Capabilities for Embedded Applications*

**Hsinchu, Taiwan, January 5, 2024 –** Nuvoton is pleased to announce its new Endpoint AI Platform to accelerate the development of fully-featured microcontroller (MCU) AI products. These solutions are enabled by Nuvoton’s powerful new MCU and MPU silicon, including the NuMicro® M55M1 equipped with Ethos U55 NPU, NuMicro® MA35D1, and NuMicro® M467 series. These MCUs are a valuable addition to the modern AI-centric computing toolkit and demonstrate how Nuvoton continues to work closely with Arm and other companies to develop a user-friendly and complete Endpoint AI Ecosystem.

Development on these platforms is made easy by Nuvoton’s NuEdgeWise: a well-rounded, simple-to-adopt tool for machine learning (ML) development, which is nonetheless suitable for cutting-edge tasks. Together, this powerful core hardware, combined with unique rich development tools, cements Nuvoton’s reputation as a leading microcontroller platform provider.

These new single-chip-based platforms are ideal for applications including smart home appliances and security, smart city services, industry, agriculture, entertainment, environmental protection, education, highly accurate voice-control tasks, and sports, health, and fitness.

### New ML-Focused Hardware With NPU: NuMicro M55M1

The NuMicro M55M1 series microcontroller is targeted at machine learning applications, aided by its Ethos-U55 NPU (Neural Processing Unit) and on-device AI features suitable for embedded applications. This MCU lets the system watch for events – based on image sensor, microphone, and sensors – while in low-power mode, without waking up the central processor. The M55M1 MCU includes an ML model protection mechanism that enhances security by safeguarding ML intellectual property against potential malicious hacking attempts. These are some of the first processors to support Arm Helium technology, which provides a significant performance boost for machine learning (ML) and digital signal processing (DSP) applications in small, low-power embedded systems.

### Edge IIoT Gateway Solution: NuMicro MA35D1

The [MA35D1 series](https://www.nuvoton.com/products/microprocessors/arm-cortex-a35-mpus/ma35d1-high-performance-edge-iiot-series/?utm_source=pr&utm_medium=pr) is a heterogeneous multi-core microprocessor for high-end Edge IIoT Gateway, based on a dual-core 64-bit Arm Cortex-A35 core at 800 MHz and a 180 MHz Arm Cortex-M4. These high-performance cores facilitate Tiny AI/ML edge computing.

### The Versatile M467, With IoT Applications and Great Connectivity

The [M467 series](https://www.nuvoton.com/products/microcontrollers/arm-cortex-m4-mcus/m467-ethernet-crypto-series/?utm_source=pr&utm_medium=pr) is a 32-bit microcontroller based on the Arm Cortex-M4F core with a built-in DSP instruction set and single precision floating point unit (FPU). It is ideal for a wide range of applications: smart home appliances, IoT gateways, industrial control, telecommunications, and data centers.

In IoT tasks, the M467 can be enhanced with a rich set of connectivity, I/O, and security peripherals, from Ethernet 10/100 MAC to hardware encryption, decryption, and key storage. With the M467’s broad built-in I/O support, users can choose only the precise hardware extensions they need for their particular applications. The M467 also supports HyperRAM. In AI/ML applications, the 64MB of HyperRAM provides the flexibility to handle different ML models with varying memory size or density requirements. HyperRAM also offers power-saving, suitability for available bandwidth, ease of use, and flexible expansion of memory options.

### Strong Development Support

Fully-featured development boards are available for all of the above hardware applications. These are supported by Nuvoton’s deep development tools, development environment, and enthusiastic support. For example, AI application development with [NuMaker MA35D1](https://www.nuvoton.com/products/gui-solution/gui-platform/numaker-hmi-ma35d1-s1/?utm_source=pr&utm_medium=pr) not only enables efficient machine learning projects, such as image classification but also presents analysis to the user intuitively via the Human Machine Interface (HMI). Meanwhile, the [NuMaker-IoT-M467](https://www.nuvoton.com/board/numaker-iot-m467/?utm_source=pr&utm_medium=pr) development board is specifically designed for IoT applications of the M467 MCU.

### NuEdgeWise ML IDE Makes TinyML Development Simple

Nuvoton’s NuEdgeWise IDE (Integrated Development Environment) is a machine-learning tool designed for TinyML development. The IDE supports the four key stages of ML application development: labeling, training, validation, and testing. NuEdgeWise leverages the popular Jupyter Notebook platform, allowing developers to train and deploy models on Nuvoton chips using TensorFlow Lite. This makes TinyML applications more accessible and easier to implement.

Nuvoton develops a comprehensive website to distill information and provide applications for Nuvoton machine learning solutions at [www.nuvoton.com/ai](https://www.nuvoton.com/ai?utm_source=pr&utm_medium=pr).

### About Nuvoton Technology

Nuvoton Technology Corporation (Nuvoton) was founded to bring innovative semiconductor solutions to the market. Nuvoton was spun-off as a Winbond Electronics affiliate in July 2008 and went public in September 2010 on the Taiwan Stock Exchange (TWSE). Nuvoton focuses on the development of microcontroller, microprocessor, smart home, cloud security IC, battery monitoring IC, components, visual sensing and IoT with security. The company has a strong market share in Industrial, Automotive, Communication, Consumer and Computer markets. Nuvoton owns 6-inch wafer fabs equipped with diversified processing technologies to provide professional wafer foundry services. Nuvoton provides products with a high performance/cost ratio for its customers by leveraging flexible technology, advanced design capability, and integration of digital and analog technologies. Nuvoton values long term relationships with its partners and customers and is dedicated to continuous innovation of its products, processes, and services. Nuvoton has established subsidiaries in the USA, China, Israel, India, Singapore, Korea and Japan to strengthen regional customer support and global management. For more information, please visit [https://www.nuvoton.com](https://www.nuvoton.com/).