



NXP Debuts i.MX Applications Processor with Dedicated Neural Processing Unit for Advanced Machine Learning at the Edge

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The new i.MX 8M Plus heterogeneous application processor with dedicated neural network accelerator, independent real-time sub-system, dual camera ISP, high-performance DSP and GPU for edge applications

LAS VEGAS, Jan. 06, 2020 (GLOBE NEWSWIRE) -- **(CES 2020)** – NXP Semiconductors N.V. (NASDAQ: NXPI) today expanded its industry-leading [EdgeVerse portfolio](#) with the i.MX 8M Plus application processor – the first i.MX family to integrate a dedicated Neural Processing Unit (NPU) for advanced machine learning inference at the industrial and IoT (Internet-of-Things) edge.



The range of applications made possible with the cost-effective i.MX 8M Plus spans people and object recognition for public safety, industrial machine vision, robotics, hand gesture, and emotion detection with natural language processing for seamless human-to-device interaction with ultra-fast response time and high accuracy.

The i.MX 8M Plus combines a high-performance NPU delivering 2.3 TOPS (Tera Operations Per Second) with a Quad-core Arm® Cortex-A53 sub-system running at up to 2GHz, an independent real-time sub-system with an 800MHz Cortex-M7, a high-performance 800 MHz audio DSP for voice and natural language processing, dual camera Image Signal Processors (ISP), and a 3D GPU for rich graphics rendering. With the combination of high-performance Cortex-A53 cores and NPU, edge devices will be able to make intelligent decisions locally by learning and inferring inputs with little or no human intervention. The range of applications made possible with the cost-effective i.MX 8M Plus spans people and object recognition for public safety, industrial machine vision, robotics, hand gesture, and emotion detection with natural language processing for seamless human-to-device interaction with ultra-fast response time and high accuracy.

“The edge is the perfect destination to deploy machine learning applications, especially as technology advancements are enabling accurate localized decision-making,” said Martyn Humphries, vice president and general manager of i.MX application processors for consumer and industrial markets at NXP. “With the i.MX 8M Plus we are enabling leading companies to transform the ‘smart’ edge to an ‘intelligent’ edge in the consumer and industrial IoT marketplace, and we look forward with great excitement to the innovative products they will be introducing based on this new trendsetting solution.”

Driving an Intelligent Breed of Edge Devices with Immersive Multi-media

Built in advanced 14nm LPC FinFET process technology, the NXP i.MX 8M Plus can execute multiple, highly-complex neural networks simultaneously, such as multi-object identification, speech recognition of 40,000+ English words, and medical imaging. For example, the powerful NPU is capable of processing MobileNet v1, a popular image classification network, at over 500 images per second.

Developers can off-load machine learning inference functions to the NPU, allowing the high-performance Cortex-A and Cortex-M cores, DSP, and GPUs to execute other system-level or user applications tasks. The vision pipeline is anchored by dual integrated ISPs that support two high-definition cameras for real-time stereo vision or a single 12 MPixel resolution camera and includes High Dynamic Range (HDR) and fisheye lens correction. These features enable real-time image processing applications such as surveillance, smart retail applications, robot vision, and home health monitors.

To enable voice applications, the i.MX 8M Plus integrates a high-performance HiFi 4 DSP that enhances natural language processing with pre- and post-processing of voice streams. The powerful Cortex-M7 domain can be used to run real-time response systems while the applications processor domain executes complex non-real-time applications to reduce the overall system-level power consumption by turning off the application processor domain while keeping only the Cortex-M domain alive for wake word detection. The i.MX 8M Plus extends advanced multimedia, and video processing

with a system that can compress multiple video feeds using the H.265 or H.264 HD video encoder and decoder for cloud streaming or local storage and a rich user experience enabled by 3D/2D graphics, and Immersiv3D audio with Dolby Atmos® and DTS:X®.

Elevating Intelligence for Industrial IoT

The i.MX 8M Plus advances industrial productivity and automation with machines that can inspect, measure, precisely identify objects, and enable predictive maintenance by accurately detecting anomalies in machine operation. In addition, the factory human-machine interfaces can be made more intuitive and secure by combining accurate face recognition with voice/command recognition and even gesture recognition. Supporting Industry 4.0 IT/OT convergence, the i.MX 8M Plus integrates Gigabit Ethernet with Time-Sensitive Networking (TSN), which combined with Arm Cortex® M7 real-time processing provides deterministic wired network connectivity and processing. NXP also offers tailor-made, optimized Plus Power Management Solutions PMIC (PCA9450C) to support the i.MX 8M Plus.

To meet the high quality and reliability standards required for industrial applications, the i.MX 8M Plus features Error Correction Code (ECC) for internal memories and the DDR interface. The family is expected to be qualified to meet the stringent industrial temperature range (-40C to 105C ambient), power-on profile (100 percent power-on), and is planned to be part of NXP's industry-best longevity commitment (15 years).

Product Availability and Demonstration

NXP is sampling the i.MX 8M Plus applications processors to customers now. The company will showcase its i.MX applications processor families at CES 2020 in its booth, CP-18, in Las Vegas between January 8-11.

For more information, please contact a local NXP sales representative.

NXP CES 2020 Press Kit: <https://media.nxp.com/press-kit>

About NXP Semiconductors

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A photo accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/a00dfd5-6f22-4e92-8131-80ead4b1648b>



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