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Enhancing System Architecture Implementation for AI Applications, Microchip Delivers its Analog Embedded SuperFlash® Technology

Microchip Technology's SuperFlash memBrain™ neuromorphic memory solution provides substantial reduction in compute power to improve AI Inference at the edge

CHANDLER, Ariz., Aug. 06, 2019 (GLOBE NEWSWIRE) -- As artificial intelligence (AI) processing moves from the cloud to the edge of the network, battery powered and deeply embedded devices are challenged to perform AI functions—like computer vision and voice recognition. Microchip Technology Inc. **(Nasdaq: MCHP)**, via its **Silicon Storage Technology (SST)** subsidiary, is addressing this challenge by significantly reducing power with its analog memory technology, the memBrain™ neuromorphic memory solution. Based on its industry proven SuperFlash® technology and optimized to perform vector matrix multiplication (VMM) for neural networks, Microchip's analog flash memory solution improves system architecture implementation of VMM through an analog in-memory compute approach, enhancing AI inference at the edge.

As current neural net models may require 50M or more synapses (weights) for processing, it becomes challenging to have enough bandwidth for an off-chip DRAM, creating a bottleneck for neural net computing and an increase in overall compute power. In contrast, the memBrain solution stores synaptic weights in the on-chip floating gate—offering significant improvements in system latency. When compared to traditional digital DSP and SRAM/DRAM based approaches, it delivers 10 to 20 times lower power and significantly reduced overall BOM.

"As technology providers for the automotive, industrial and consumer markets continue to implement VMM for neural networks, our architecture helps these forward-facing solutions realize power, cost and latency benefits," said Mark Reiten, vice president of the license division at SST. "Microchip will continue to deliver highly reliable and versatile SuperFlash memory solutions for AI applications."

The memBrain solution is being adopted by today's companies looking to advance machine learning capacities in edge devices. Due to its ability to significantly reduce power, this analog in-memory compute solution is ideal for any AI application.

"Microchip's memBrain solution enables ultra-low-power in-memory computation for our forthcoming analog neural network processors," said Kurt Busch, CEO of Syntiant Corp. "Our partnership with Microchip continues to offer Syntiant many critical advantages as we

support pervasive machine learning for always-on applications in voice, image and other sensor modalities in edge devices."

SST will showcase this analog memory solution and present Microchip's memBrain product tile array-based architecture at the AI/ML session track on flash performance scaling at the 2019 Flash Memory Summit from August 6-8, 2019, at the Santa Clara Convention Center in Santa Clara, California.

For more information on the memBrain solution, please send an email to info@sst.com.

Development Tools
SST offers design services for both its memBrain solution and SuperFlash technology, along with a software toolkit for neural network model analysis.

About Silicon Storage Technology (SST)
Microchip Technology's SST subsidiary is a leading provider of embedded flash technology. SST develops, designs, licenses and markets a diversified range of proprietary and patented SuperFlash memory technology solutions for the consumer, industrial, automotive and Internet of Things (IoT) markets. SST was founded in 1989, went public in 1995 and was acquired by Microchip in April 2010. SST is now a wholly owned subsidiary of Microchip, and is headquartered in San Jose, Calif. For more information, visit the SST website at **www.sst.com**.

About Microchip Technology
Microchip Technology Inc. is a leading provider of smart, connected and secure embedded control solutions. Its easy-to-use development tools and comprehensive product portfolio enable customers to create optimal designs which reduce risk while lowering total system cost and time to market. The company's solutions serve more than 125,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing markets. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at **www.microchip.com**.

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