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Micron Announces Development of New Parallel Processing Architecture

Automata Processor Addresses Application Domains at the Frontier of High-Performance Computing

DENVER, Nov. 18, 2013 (GLOBE NEWSWIRE) -- **Supercomputing 2013** — Micron Technology, Inc. (Nasdaq:MU), one of the world's leading providers of advanced semiconductor solutions, today announced the development of a fundamentally new computing architecture capable of performing high-speed, comprehensive search and analysis of complex, unstructured data streams. Micron's Automata Processor (AP) is an accelerator that leverages the intrinsic parallelism of memory and aims to dramatically advance computing capabilities in areas such as bioinformatics, video/image analytics, and network security which pose challenges for conventional processor architectures because of the amount of complex, unstructured data.

Automata processing exploits the natural parallelism found in Micron's semiconductor devices to deliver a level of parallelism previously unattainable with legacy architectures. Unlike conventional CPUs, the AP is a computing fabric comprised of tens of thousands to millions of processing elements interconnected to create a task-specific processing engine capable of solving problems with unprecedented performance. "Micron has an intense focus on the development of innovative and advanced silicon solutions that help our customers solve their most challenging computing problems," said Brian Shirley, vice president of Micron's DRAM Solutions Group. "This announcement is a huge step forward for Micron and has the potential to unleash unprecedented levels of computing power."

"The Automata Processor is a breakthrough technology that is designed to use advanced memory-based processing to solve complex computing challenges that existing solutions are not able to tackle effectively," said Chirag Dekate, IDC Research Manager, HPC. "This technology has the potential to solve some of the world's most complicated data-intensive challenges, including real-time security that could dramatically affect anti-terrorism efforts, or the highly efficient analysis of complex plant genomes that could allow scientists to rapidly advance their research agendas beyond what is possible today."

Micron is working closely with ecosystem partners and research institutions to grow awareness and engagement for this new technology. Srinivas Aluru, professor of computational science and engineering at Georgia Institute of Technology and a leader in the field of high-performance, computational biology, has been deeply involved in early research efforts using the AP to solve problems associated with applications in bioinformatics. "Micron's Automata Processor offers a refreshingly new way of solving problems that is very different from all other accelerator technologies," said Aluru. "By deploying this in interesting ways, we have been able to solve a much larger instance of the NP-hard biological motif-finding problem than was previously reported, using the resources within a single Automata Processor board."

Michela Becchi, an assistant professor in the Department of Electrical and Computer Engineering with joint appointments in Computer Science and the Informatics Institute of the University of Missouri, has focused her efforts on using the AP to address the challenges involved with implementing high-speed regular expression matching engines. "Micron's Automata Processor combines the advantages of NFA-based designs and memory-based solutions to achieve regular expression matching," said Becchi. "Specifically, it efficiently supports large sets of complex regular expressions, while providing worst-case processing guarantees and support for multiple input streams. In addition, it comes with a user-friendly programming tool-chain that can be easily integrated with existing tools for regular expression processing." Additionally, Micron and the University of Virginia today [announced](#) an agreement to establish the Center for Automata Computing at the University of Virginia.

Availability

Graphic design and simulation tools, along with a software development kit (SDK), to enable developers to design, compile, test, and deploy their own applications using the AP will be available in 2014.

Note to Editors

To learn more about the AP, visit the Micron booth #1322 at Supercomputing 2013 or stop by Booth #3547 during the Emerging Technologies [session](#) throughout the week-long event. Additional materials on the AP are located at www.micron.com/automata.

About Micron

Micron Technology, Inc., is a global leader in advanced semiconductor systems. Micron's broad portfolio of high-performance memory technologies—including DRAM, NAND and NOR Flash—is the basis for solid state drives, modules, multichip packages and other system solutions. Backed by more than 35 years of technology leadership, Micron's memory solutions enable the world's most innovative computing, consumer, enterprise storage, networking, mobile, embedded and automotive applications. Micron's common stock is traded on the NASDAQ under the MU symbol. To learn more about Micron Technology, Inc., visit www.micron.com

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