September 12, 2017

Micron Reveals Critical Technologies for Autonomous Vehicles

Micron Outlines Highest-Performance Solution for Fully Autonomous Vehicles with GDDR; Extends Security Solution to Auto Market

SAN FRANCISCO, Sept. 12, 2017 (GLOBE NEWSWIRE) -- **MOBILE WORLD CONGRESS (MWC) AMERICAS** -- Autonomous vehicles require safe, secure and highly-responsive solutions, relying on split second decisions powered by enormous amounts of data. To quickly analyze the data necessary for future autonomous vehicles, higher bandwidth memory and storage solutions are required.

By 2020, the storage requirements of the connected vehicle could reach 1 terabyte. Memory system bandwidths of 300 gigabytes per second (GB/s) and beyond will be required to power full autonomous driving. As the memory and storage market leader in automotive, Micron (Nasdaq:MU) is uniquely positioned to help accelerate the industry's pace of innovation.

- **Fastest LPDDR4 shipping to auto manufacturers -** Micron is already deploying automotive-grade low-power DDR (LPDDR) memories to multiple automotive customers. The company announced today that it has commenced shipping LPDDR4x, running at 4266 megatransfers per second (MT/s) — the highest speed grade permitted by the LPDDR4 specification - to key chipset partners. This technology can enable overall system bandwidths of up to 100GB/s and provides a foundation for the next-generation of autonomous vehicle design.
- **High-performance memories for automotive** - Today, Micron is also announcing its commitment to deliver high-bandwidth GDDR6 memory solutions for the automotive market. Graphics memory (GDDR) is a high-performing memory commonly found today in gaming, graphics and virtual reality applications. Micron plans to leverage its strength in graphics memory to provide the highest bandwidth solutions designed to meet stringent auto qualifications. The company is actively engaged with leading automotive partners and customers to enable GDDR technologies that will meet the needs of level 4/5 — full autonomy — and beyond.

Autonomous driving, AI and machine learning are rapidly converging in tomorrow's vehicles, which will become the ultimate Internet of Things and edge computing devices. While cloud connectivity in modern vehicles creates new service opportunities, it also creates security management challenges and vulnerability concerns.

- **Introducing secure boot**: Micron is extending the value of its hardware-based Authenta™ security solution by showcasing the capability to secure boot a system based completely on Authenta-enabled memory. The technology will provide a unique level of protection for the lowest layers of device software in automotive ECUs, starting with a secure boot process.
- **New development kits for Authenta™ security solutions:** At MWC, the company announced that it plans to make Authenta™ software and hardware development kits available to general automotive and IoT customers by the end of the year. This will enable customers to begin evaluating how to integrate Authenta-enabled flash in their security architecture, to implement capabilities like secure boot, cloud-based attestation, authentication and provisioning. This will allow customers to increase the defense in depth of their solutions, all without adding additional hardware components into their design.

Media panel with industry leaders
During a press panel on the eve of MWC Americas, Micron and key industry partners discussed the technologies and solutions that will become increasingly critical enablers for the next wave of intelligent vehicles in the automotive sector. Watch the replay here: https://www.youtube.com/user/MicronTechnology

- *Jeff Bader, VP of Embedded Business Unit, Micron:*
"The automotive segment presents a unique set of requirements that depend on innovation from Micron. High-performance memories such as Micron's GDDR will help accelerate the overall system capabilities of connected vehicles by providing the raw performance that will initially be needed to achieve full autonomy. With the addition of GDDR to our portfolio, Micron is extending our leadership position and continuing to fuel innovation in the automotive industry."

- *Krish Inbarajan, Global Head of Connected Car, Cisco Jasper:*
"At the center of connected car innovation today is the need to consistently enhance the driver's experience by delivering valuable connected services. Auto makers need to be able to deliver compelling new services that drive

recurring revenue, while also making the driving experience safer and more personalized. Cisco Jasper Control Center is the automated connectivity management platform trusted by more than 50 leading car brands to run connected car services reliably, securely, and at a lower cost - globally."

- *Doug Seven, Head of Connected Vehicle Platform, Microsoft Azure:*
  "Security lies at the heart of Microsoft's Connected Vehicle Platform. Vehicles will increasingly make autonomous decisions that affect the safety of its passengers and other drivers and pedestrians, and manufacturers need to be confident in the integrity of these systems. Microsoft is one of only a few companies with a global cloud that has enterprise-security built in. Our commitment to compliance and regulation are the top reasons car manufacturers will rely on and trust Microsoft to help them build future connected vehicles."

- *Tim Wong, Director of Technical Program Management for Autonomous Vehicles, NVIDIA:*
  "Artificial intelligence for self-driving requires a fresh approach to allow vehicles to make sense of, and act on, huge volumes of data flowing into the vehicle in real time. We're working with automakers and suppliers to meet this major industry shift to autonomous vehicles by enabling them to design cars using the most advanced processor and memory technologies."

- *Sanjay Vishin, Director of Automotive Platforms, Qualcomm:*
  "5G/Wireless connectivity to smart vehicles will be a game changer both for enabling vehicle-to-infrastructure and vehicle-to-vehicle communications. It will provide a bridge between the car, its surroundings and the cloud, especially as the car becomes more autonomous. This will enable more efficient machine learning (and hence services) in the Cloud and in the Car, along with more predictive and efficient collaborative control for autonomous cars."

About Micron
Micron Technology is a world leader in innovative memory solutions. Through our global brands — Micron, Crucial® and Ballistix® - our broad portfolio of high-performance memory technologies, including DRAM, NAND, NOR Flash and 3D XPoint™ memory, is transforming how the world uses information. Backed by more than 35 years of technology leadership, Micron's memory solutions enable the world's most innovative computing, consumer, enterprise storage, data center, 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 micron.com.

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