Micron Announces Shipment of 1γ (1-gamma) DRAM: Pioneering Memory Technology Advancements for Future Compute Needs

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Micron delivers superior performance and power efficiency to data center, client and mobile platforms with the industry's first high performance 1γ node

BOISE, Idaho, Feb. 25, 2025 (GLOBE NEWSWIRE) -- Micron Technology, Inc. (Nasdaq: MU), today announced it is the first in the industry to ship samples of its 1γ (1-gamma), sixth-generation (10nm-class) DRAM node-based DDR5 memory designed for next-generation CPUs to ecosystem partners and select customers. This 1γ DRAM milestone builds on Micron's previous 1α (1-alpha) and 1β (1-beta) DRAM node leadership to deliver innovations that will power future computing platforms from the cloud to industrial and consumer applications to Edge AI devices like AI PCs, smartphones and automobiles. The Micron 1γ DRAM node will first be leveraged in its 16Gb DDR5 DRAM and over time will be integrated across Micron's memory portfolio to meet the industry's accelerating demand for high-performance, energy-efficient memory solutions for AI. Designed to offer speed capabilities of up to 9200MT/s, the 16Gb DDR5 product provides up to a 15% speed increase[1] and over 20% power reduction compared to its predecessor.[2]

Media Snippet accompanying this announcement is available by clicking on this link.

Why this matters:
With the introduction of AI across the data center and the edge, the demand for memory has never been greater. Micron's transition to the 1γ DRAM node helps address the key challenges customers are looking to resolve:

- **Enhanced performance** — Micron 1γ-based DRAM provides improved performance that will support the scaling of compute across a variety of memory offerings from data centers to edge devices to meet the demands of future AI workload requirements.
- **Power savings** — Micron's 1γ node, using next-generation high-K metal gate CMOS technology paired with design optimizations, enables greater than 20% lower power, which leads to improved thermal profiles.
- **Improved bit-density output** — Micron's 1γ node, leveraging EUV lithography, design optimizations and process innovations, results in greater than 30% more bits-per-wafer output over the previous generation[3] and the ability to scale memory supply efficiently.

"Micron's expertise in developing proprietary DRAM technologies, combined with our strategic use of EUV lithography, has resulted in a robust portfolio of cutting-edge 1γ-based memory products poised to propel the AI ecosystem forward," stated Scott DeBoer, executive vice president and chief technology & products officer at Micron. "The enhanced bit density output of the 1γ DRAM node underscores Micron's manufacturing prowess and efficiency, enabling us to scale memory supply to meet the growing industry demand."

Micron's proven DRAM technology and manufacturing strategy over multiple generations has enabled the creation of this optimized 1γ node. The 1γ DRAM node innovation is supported by CMOS advancements, including next-generation high-K metal gate technology that improves the transistor performance for better speed capability, design optimization and feature size shrink, all of which unlock the benefits of power savings and performance scaling. Additionally, by optimally incorporating leading edge EUV lithography, along with advanced high aspect ratio etch technology and industry leading design innovations, the 1γ node delivers industry-leading bit density advantages. By developing the 1γ node for manufacturing across global sites, Micron is helping to ensure better technology and supply resiliency for the industry.

"Micron has once again led the industry in introducing the world's most advanced memory technology. Micron's 1γ DRAM node is a groundbreaking achievement with its unmatched power efficiency and extraordinary performance," said Sumit Sadana, executive vice president and chief business officer of Micron Technology. "Micron 1γ DRAM products are set to revolutionize the AI ecosystem by delivering scalable memory solutions across all segments, from data centers to the edge, enabling our customers to stay ahead of the rapidly evolving industry demands."

Transforming products from cloud to edge
Serving as the foundation for future products, the 1γ node will be integrated across the Micron memory portfolio:

- **Data center** — 1γ-based DDR5 memory solutions for the data center, which enable up to 15% faster performance, deliver increased energy efficiency and help enable continued server performance scaling allowing data centers to optimize within future rack-level power and thermal design.
- **Edge AI** — 1γ low-power DRAM solutions offer improved power savings and increased bandwidth, enhancing the user experience with Edge AI solutions.
    - **AI PCs** — 1γ DDR5 SODIMMs increase performance and reduce power usage by 20%,[4] extending battery life and improving the overall notebook user experience.
    - **Mobile** — 1γ LPDDR5X will enable exceptional AI experiences at the edge and continues Micron's leadership in mobile technology.

- **Automotive** — 1γ-based LPDDR5X memory extends capacity, longevity and performance, while achieving speeds up to 9600MT/s.

Industry quotes:
"We are excited to see Micron's progress with their 1γ DRAM node and we have already begun validation efforts for Micron 1γ DDR5 memory," said Amit Goel, Corporate Vice President, Server Platform Solutions Engineering, AMD. "Our close collaboration is crucial as we continue to advance the compute ecosystem with next-generation AMD EPYC products for the data center as well as consumer processors across our portfolio."

"Micron's 1γ node advancements bring solid power and density improvements to Intel servers and AI PCs. We are excited to see Micron's continued innovation in DRAM technology and look forward to augmenting server system performance and PC battery life based on these capacities," said Dr. Dimitrios Ziakas, vice president and general manager of Memory & IO Technologies at Intel Corporation. "Intel is working diligently through its rigorous server validation process for Micron's 1γ DDR5 memory samples, to deliver server systems with the highest quality and best-in-class experiences for our customers."

Qualified customers and partners may take part in the Micron Technology Enablement Program (TEP) for DDR5, which offers early access to technical information and to electrical and thermal models, as well as support to aid in the design, development and introduction of next-generation computing platforms.

Additional Resources:

- 1γ web page
- DDR5 web page
- DDR5 TEP page
- 1γ infographic

About Micron Technology, Inc.
Micron Technology, Inc. is an industry leader in innovative memory and storage solutions, transforming how the world uses information to enrich life for all. With a relentless focus on our customers, technology leadership, and manufacturing and operational excellence, Micron delivers a rich portfolio of high-performance DRAM, NAND, and NOR memory and storage products through our Micron® and Crucial® brands. Every day, the innovations that our people create fuel the data economy, enabling advances in artificial intelligence (AI) and compute-intensive applications that unleash opportunities — from the data center to the intelligent edge and across the client and mobile user experience. To learn more about Micron Technology, Inc. (Nasdaq: MU), visit micron.com.

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[1] Increase in data rate speeds are based on expected future speeds for 1γ DDR5 memory offerings.

[2] Power savings calculated based on power used in watts by 1γ-based DDR5 memory compared to 1β-based DDR5 memory.

[3] Increased bits-per-wafer percentage calculation is based on the comparison between the 1β and 1γ process overall wafer bit density results.

[4] Power savings calculated based on power used in watts by 1γ-based DDR5 SODIMM memory compared to 1β-based DDR5 SODIMM memory.