



## Rambus and Kingston Co-Develop Threaded Module Prototype for Multi-Core Computing

### *Threaded Module Design Improves Data Throughput by up to 50% While Reducing Power by 20%*

LOS ALTOS, Calif., Sep 17, 2009 (BUSINESS WIRE) -- [Rambus Inc.](#) (NASDAQ:RMBS), one of the world's premier technology licensing companies specializing in high-speed memory architectures, and [Kingston Technology](#), the independent world leader in memory products, today announced a collaborative development of a threaded module prototype using DDR3 DRAM technology. Initial silicon results show an improvement in data throughput of up to 50 percent, while reducing power consumption by 20 percent compared to conventional modules.

As demand grows for throughput-intensive computing in notebooks, desktops and servers, the performance requirements on DRAM memory subsystems rises dramatically. As a result, multi-core computing requires more bandwidth and higher rates of random access from DRAM memory.

"As multi-core computing becomes pervasive, DRAM memory subsystems will be severely challenged to deliver the data throughput required," said Craig Hampel, Rambus Fellow. "Our innovative module threading technology employs parallelism to deliver the higher memory bandwidth needed for multi-core systems while reducing overall power consumption."

"Kingston is at the forefront of memory technology working closely with innovators like Rambus to develop advanced solutions," said Dr. Ramon Co, vice president of Worldwide Test Engineering at Kingston Technology. "The collaboration of our experienced teams produced a memory solution that helps overcome a major challenge with multi-core computing."

Threaded memory module technology is implemented utilizing industry-standard DDR3 devices and a conventional module infrastructure. It is capable of providing greater power efficiency for computing systems by partitioning modules into multiple independent channels that share a common command/address port. Threaded modules can support 64-byte memory transfers at full bus utilization, resulting in efficiency gains of up to 50 percent when compared to current DDR3 memory modules. In addition, DRAMs in threaded modules are activated half as often as in conventional modules, resulting in a 20 percent reduction in overall module power.

Rambus will showcase a static demonstration of this prototype at the Intel Developer Forum, September 22 - 24, 2009 at Moscone West in San Francisco, CA. In addition, Rambus Fellow Craig Hampel will discuss the benefits of threaded modules in multi-core computing applications during a talk at the Intel Developer Forum, September 22, 2009, at 11:15 a.m.

#### **About Rambus Inc.**

Rambus is one of the world's premier technology licensing companies specializing in the invention and design of high-speed memory architectures. Since its founding in 1990, the Company's patented innovations, breakthrough technologies and renowned integration expertise have helped industry-leading chip and system companies bring superior products to market. Rambus' technology and products solve customers' most complex chip and system-level interface challenges enabling unprecedented performance in computing, communications and consumer electronics applications. Rambus licenses both its world-class patent portfolio as well as its family of leadership and industry-standard interface products. Headquartered in Los Altos, California, Rambus has regional offices in North Carolina, India, Germany, Japan, and Taiwan. Additional information is available at [www.rambus.com](http://www.rambus.com).

#### **About Kingston Technology Company, Inc.**

Kingston Technology Company, Inc. is the world's largest independent manufacturer of memory products. Kingston designs, manufactures and distributes memory products for desktops, laptops, servers, printers, and Flash memory products for PDAs, mobile phones, digital cameras, and MP3 players. Through its global network of subsidiaries and affiliates, Kingston has manufacturing facilities in California, Taiwan, China and sales offices in the United States, Europe, Russia, Turkey, Ukraine, Australia, New Zealand, India, Taiwan, China, and Latin America. For more information, please call 800-337-8410 or visit [www.kingston.com](http://www.kingston.com).

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