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General Micro Systems Unveils Super-rugged, High-Performance "Server Room in a Box" Family Based on Intel® Xeon® D Processor

First product is S2002-SW "Blackhawk" switch/router with 20 managed ports, 64GB RAM, removable storage, Cisco routing software, and high-level security in compact seven-pound box

RANCHO CUCAMONGA, Calif. – June 29, 2016 – General Micro Systems, Inc. (GMS) announces a new product line of deployable, rugged, small form-factor server systems, based on the Intel® Xeon® D processor, that put data-center processing performance on the battlefield—without the rack. The GMS "**Server Room in a Box" Xeon D family** is designed to provide the ultimate rugged-server, low-cost switch, and low-cost router computer system for defense and unmanned aerial vehicle (UAV) markets as well as mining and industrial applications.

The first product in the family is the S2002-SW "Blackhawk" rugged switch/router, which packs up to 16 CPU cores, 20 managed/Ethernet ports, 64GB RAM, removable storage, Embedded Services Router software from Cisco, and high-level security into a seven-pound box that operates as low as 75W. Future "Server Room in a Box" products will include multiprocessors, image processing, extended storage, and more.

Rugged Data-Center Processing in the Field—No Rack, No Compromises
The Blackhawk server is ideal for defense, mil/aero, industrial, and commercial platforms that value performance density in an exceptionally small space. The powerful combination of Intel Xeon D server-class performance with a low-cost managed switch and plenty of I/O, all in a compact (5.4" x 6.5" x 2.75") system, maximizes performance per dollar per watt. Ideal applications for Blackhawk include vehicle-mounted battlefield tactical operations centers (TOC) that have multiple on-board LANs, displays, virtual machines, and red/black storage. A single rugged Blackhawk can meet the server needs for multiple operators and easily fit under a vehicle's seat.

The considerably diverse customization options offered by Blackhawk also make it an ideal fit for industrial systems and applications such as energy exploration. For example, well-head control and real-time image processing can be enhanced with a local Blackhawk

without requiring that data be captured and transported elsewhere for processing and analysis.

Server-Class Features at Embedded-Power and Price Points
The Intel Xeon D processor, which is designed to fit easily between the Core i7 desktop and Xeon E5 server-room processors (and above the Xeon E3), includes most of the full-fledged server-class features found in the high-end Xeon E5. These features include RAS (reliability, availability, serviceability) and virtual machines, at power and price points ideal for embedded applications.

The Blackhawk server supports the Intel Xeon D processor with hyper-threading for a total of up to 16 logical cores (32 threads) in a single SoC device—12 cores in the extended-temperature version. Each core operates at up to 2.5GHz and can turbo boost up to 3.1GHz. The Xeon D processor boasts two-channel memory, up to 64GB total, 24 lanes of PCI Express Gen 3, and six SATA3 controllers. Blackhawk uses these features for deployable, "server room" performance.

Modular Design Expertise and RuggedCool℠ Technology
To create the new Xeon D family of super-dense, modular, small form-factor systems, GMS capitalized on the success of its existing SB110x "Golden Eye" multi-domain, rugged computer series. The S2002-SW Blackhawk joins the SB1002-xx (Intel Haswell 4th Generation Core i7), SB1102-xx (Intel Broadwell 5th Generation Core i7), and SO302-xx (Intel Xeon E5) system products, all of which are in production today.

GMS builds its multi-tier modular designs with a processor tier and an I/O tier, onto which additional processors and I/O modules can be added, and then incorporates storage, accessories, and legacy interfaces. This proven design yields rapid technology evolution and fast time-to-market. Consequently, GMS was able to quickly introduce the Xeon D-based family, which incorporates the company's RuggedCool℠ system yielding a conduction-cooled, sealed chassis capable of operating at extreme temperatures (–40°C to +85°C) at unthrottled CPU speed. Blackhawk is available in a variety of air- and conduction-cooled versions and multiple temperature-range options.

"Ditch the Rack-Mount Server"
"GMS is known for the industry's densest, most modular, and most rugged systems. Our servers and network switches completely outperform and *outclass* the competition—they just don't know how we do it," said GMS CEO Benjamin Sharfi. "The Blackhawk is a high performance server plus a low-cost router in a small, ultra-rugged enclosure. It delivers the highest possible performance per dollar and per watt in a fully sealed system. It's a real game-changer to find so much, in such a small, conduction-cooled box. Ditch the rack-mount server."

In the Blackhawk, switch functions are controlled by a 416MHz MIPS co-processor with 128MB of DRAM that controls up to 16 Gbps Ethernet ports and four 10 Gbps Ethernet ports, two of which are connected directly to the host CPU. An optional routing engine adds a fully featured Cisco/Palo Alto Embedded Services Router. Additional I/O functions

include USB 2.0, USB 3.0, and two add-in Special Application Modules™ I/O sites for custom I/O such as Wi-Fi/ Bluetooth, GPS, Quad Video Capture, CANbus, MIL-STD-1553, ARNIC-429, and more.

Servers Need Security, Too
The S2002-SW Blackhawk also supports the industry's most secure storage subsystem with up to 16 MB of BIOS Flash with hardware-write protect and a fixed on-board mSATA boot device up to 1TB with optional hardware write-protect, secure-erase, and encryption functions. In addition, the Blackhawk supports one enterprise-class x4 PCIe SSD with up to 2.4GB/s read and 1.2GB/s write speeds or up to four 2.5" SSD drives with hardware write-protect, secure-erase, and encryption functions. The Blackhawk can also support FIPS-140-2 and FIPS-197 encryption standards for ultra-secure data storage, along with the Trusted Platform Module (TPM) and the Trusted Execution Technology (TXT). All of this makes the Blackhawk the most secure deployable router system on the market—all in a small, rugged box.

For more information regarding GMS products, please visit www.gms4sbc.com

Additional press materials can be found at:
www.gms4sbc.com/products/systems/item/s2002-sw
High resolution product photos available here:
www.gms4sbc.com/press/S2002-SW/

About General Micro Systems
General Micro Systems (GMS) is the industry expert in highest-density, modular, compute-intensive, and rugged small form-factor embedded computing systems, servers, and switches. These powerful systems are ideal for demanding C4ISR defense, aerospace, medical, industrial, and energy exploration applications. GMS is an IEC, AS9100, and MIL-SPEC supplier with infrastructure and operations for long-life, spec-controlled, and configuration-managed programs. Designed from the ground up to provide the highest performance and functionality in the harshest environments on the planet, the company's highly customizable products include GMS Rugged DNA™ with patented RuggedCool℠ cooling technology. GMS is also the leader in deployable high-end Intel® processors and a proud Intel partner since 1986.

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