General Micro Systems Boasts 12x Performance and Density with 1U Xeon® D Red/Black Rugged Rackmount Server/Switch/Router

Cyber security-ready system isolates SIPRNet/NIPRNet domains or the Navy's NMCI and BLII boundaries, replacing six systems with one 1.75-inch high and 17-inch deep box.

RANCHO CUCAMONGA, Calif., February 14, 2017 – General Micro Systems, Inc. (GMS) today announced the S1U-MD, a 1U rackmount, multi-domain server and managed Ethernet switch/router based on the Intel® Xeon® D server CPU. S1U-MD boasts 12x the performance of traditional blade-servers, but in one-twelfth the size of traditional systems.

Isolating Red and Black domains to ensure security or designing for redundancy is normally accomplished with one full-depth box for each Red and Black domain: 1) two physically separate servers, 2) two separate Ethernet multi-port switches; and 3) two separate routers. Putting this capability into a single, 1U high and 17-inch deep (Short Rack) server blade is another GMS engineering phenomenon in small form factor rugged systems. S1U-MD takes one-twelfth the rack space of a competing multi-domain solution.

The S1U-MD has six network functions in one, making it ideal for the Navy's evolution of secure Navy Marine Corps Intranet (NMCI) and Base Level Information Infrastructure (BLII) networks worldwide. S1U-MD targets all rugged rackmount installations, from ships and ground vehicles, to mobile command posts, mission command centers, first responders and airborne C4ISR platforms. The 1U high, Short Rack box does it all.

General Micro Systems is trusted at sea, in the air and on land and has been supplying Smart Displays and VME boards to the U.S. Navy for shipboard use for more than three decades, and has applied its extensive knowledge of Naval requirements to the design of the S1U-MD. "We took our successfully deployed and proven S2002-SW "Blackhawk" multi-domain server from the U.S. Army's WIN-T battlefield network program and optimized it for rugged, rack-mount applications for the Navy," said GMS CEO Benjamin Sharfi. "You won't find a MILS-ready dual 1U server with 28 Ethernet ports anywhere on the planet. No one else could accomplish all this functionality—and ruggedness—in 1U-Short, but we did it."

S1U-MD Technical Specifications

Each S1U-MD has up to a 16-core Intel® Xeon® D CPU per server domain and can be powered via 110/220 VAC or 28VDC ("dirty power" per MIL-STD-1275). Each domain's CPU can support 32 virtual machines (VMs), or 64 VMs per 1U-Short space. There is up to 64GB of DDR-4 at 2133MTS with ECC RAM per CPU domain, and four removable drives per domain with RAID support (plus another for OS boot): total disk storage is 80 TB per domain, or an incredible total 160 TB in the slim 1U-Short rack. Besides the Red/Black separation, a zeroize function (panic-initiated) is available to securely erase all non-volatile storage in each domain—a non-trivial feature designed to avoid a repeat of the Hainan Island incident.

For each domain, network connectivity includes an integrated managed Layer 2/3 Ethernet switch with up to twelve 1 Gigabit Ethernet ports and two 10 Gigabit Ethernet ports (Fiber or Copper) per domain. Four of the 1 Gigabit ports include Power-over-Ethernet (POE+), supplying up to 25.5W (total) to directly power remote nodes such as sensors and to simplify wiring. The switch handles local routing and virtual LANs and accelerates packet processing to maximize wire speed; the 10 Gigabit ports support inter/intra-rack datacom or WAN reachback. There are two USB 3.0 ports, two USB 2.0 ports and HDMI for a user interface.

Additionally, the Intel® Xeon® D CPU allows a full-featured Cisco® IOS® router to be run in one or more VMs in each domain. Cisco's Embedded Services Router (ESR) series is intended for embedded applications; additionally, Cisco's 1000V™ Series Cloud Services Router (CSR) running on an S1U-MD VM creates a locally hosted, infrastructure-agnostic "single tenant router" capability, uniquely supported on S1U-MD's multi-domain hardware. Routing is available on all 1 Gigabit and 10 Gigabit ports for each of S1U-MD's domains.

Like all GMS products, S1U-MD can accommodate additional I/O such as MIL-STD-1553, CANbus, Serial Ports and custom features. The architecture is U.S. Army VICTORY conformant.

Application Examples

As cyber-security threats grow, the Department of Defense and service branches are hardening worldwide networks. One way to significantly enhance security is by separating secure from insecure networks through Red/Black isolation and Multiple Independent Levels of Security (MILS). In fact, the Navy's PEO Enterprise Information Systems (EIS) identifies boundary isolation as a key upgrade for both NMCI and BLII networks. Running SIPRNet (secure) and NIPRNet (insecure) networks in the same 1U space is a perfect example of efficient isolation.

Red/Black separation is needed in ground-, shipboard- and airborne-based installations. S1U-MDSW's low weight and small size make it deployable on many ground, air and shipboard platforms. S1U-MD is also ideal for enterprise/cloud data centers or server rooms where the 12:1 size/weight/power reduction is a smart upgrade by combining the server/switch/router into one domain, and combining two domains into only 1U shelf. Two S1U-MD boxes can be mounted back-to-back in a 1U shelf.

S1U-MD multi-domain servers with switches are also ideal for field-deployed, shipboard, airborne reconnaissance, first responder command post vehicles, oil/gas exploration or fault-tolerant/redundant industrial controllers.

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

Additional S1U-MD press materials can be found at:
www.gms4sbc.com/press/2017/s1u
High resolution product photos available at:
www.gms4sbc.com/press/S1U2001-MDSW/

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Come See General Micro Systems and S1U2001-MDSW at AFCEA West, San Diego, Booth #741

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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. For more information, visit www.gms4sbc.com

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