NEWS RELEASE

General Micro Systems (GMS) Demonstrates X9 Spider Manpack Mobile, Rugged Tablet, X9 Artificial Intelligence Computer and Mission Computer at AUSA 2023

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Live demonstrations of revolutionary wearable X9 Spider Manpack computer and ruggedized tablet, optimized for dismounted soldier/Marines use, merge unprecedented battlefield processing of video, sensors, data and comms with mobile artificial intelligence (AI) embedded at the “tip of the spear”

WASHINGTON--(BUSINESS WIRE)-- At AUSA 2023 today (booth 8307), **General Micro Systems** unveiled multiple live demonstrations of its X9 Spider open distributed computing architecture (DCA) products, including the X9 Manpack, the X9 Thunderbolt Rugged Display, the X9 AI (artificial intelligence), and the X9 Mission Computer. Intended for wearable, mobile, portable and mounted applications on body, in a vehicle or in airborne-, ship- or ground-based applications, X9 Spider products, first introduced at AUSA 2022, are small enough to fit anywhere. Interconnected via Thunderbolt™ 4 on GMS LightBolt™ fiber or copper cables, X9 small form factor systems and displays can be standalone, separated for convenient system installation, or physically connected to form rigid stacks.

X9 Spider Manpack

Running off a standard soldier battery, the X9 Spider Manpack mobile computer is intended for dismounted soldiers and Marines who need on-the-move, high-performance processing, communications, video, database access and artificial intelligence (AI). Designed from the ground up to offer the most compute power and I/O in the smallest, lightest weight battery-powered package, **X9 Spider Manpack** can drive up to four on-body displays such as the X9 Rugged Thunderbolt Display; connect to wireless LANs and personal area networks (PANs); uplink to

mounted assets like vehicles or command posts; store up to 20TB of onboard data, and connect to high-rate body sensors while processing on-board AI algorithms such as image/facial recognition, target tracking or sensor fusion. GMS is also developing other soldier-wearable technologies to accompany X9 Manpack.

“Combining our X9 Spider Mission Computer with a manpack housing creates our X9 Spider Manpack computer,” said Ben Sharfi, CEO and Chief Architect of GMS. “This light but rugged mobile computer can run all day on a soldier battery, directly drive our X9 Rugged Thunderbolt Display, power it on a single cable, combining most of the functions found in a tactical operations center (TOC) into a backpack for squad use. This isn’t like any other battlefield wearable. It’s command post capability with multiple radio interfaces, LAN ports, data recorder, and GPGPU AI processing, but entirely dismounted-mobile.”

Modern warfare is digital, connecting air, sea, ground and continental US (CONUS)-based assets to soldiers and Marines as never before. A dismounted warrior needs access to the digital battlefield, but also needs wearable, autonomous compute power. A warrior’s modern equipment includes high-resolution range finder, NVIS HMD, smart weapon, moving maps with Blue Force Tracking, “buddy display” for squad members, and on-the-fly voice and facial recognition. These work best with local, on-the-body compute resources since wireless, RF and SATCOM links can be congested, denied or compromised. The X9 Spider Manpack is the first product to provide this level of battery compute resources to soldiers and Marines in a manpack (MP) form factor.

At AUSA 2023, GMS will showcase the Manpack running on battery power, a portable display, and various I/O devices, including camera and audio.

X9 Spider Rugged Thunderbolt Display

For dismounted applications, GMS will showcase the X9 Rugged Thunderbolt Display family, **announced today**. Shown at AUSA 2023 in 12-inch size, in both aluminum and carbon fiber, the handheld display is large enough to provide meaningful solider information from moving maps, call-for-fire menus, sensor constellation, EW / SIGINT readouts, and even face-to-face (F2F) video conferencing. Available in portable sizes 12- and 17-inch, with mountable versions up to 36 inches, the display uses Thunderbolt technology to connect to any X9 host computer, including the Manpack. It gets data and power over Thunderbolt—including over GMS LightBolt fiber optic cable—and can act as a multi-function peripheral of the Manpack by adding radios, GPS, APNT, removable drive, voice activation and audio, and even high brightness and NVIS stealth.

Unique to GMS and using the PCI Express host “bus” built into Thunderbolt 4, the X9 Thunderbolt Rugged Display can accept add-in I/O and storage for system integration convenience. Should the main computer need to be distant from the display (as in the case of the Manpack demonstration), it can be advantageous to add functions to the display instead of in the host computer. As well, the removable drive can be used for mission profiles, data

recorder storage, or can declassify the system by removal.

X9 Spider AI System

At-the-edge and on-battlefield processing shortens the decision-making loop and improves sensor-to-shooter timing. The **X9 AI system** is the smallest and only portable/mobile rugged AI engine that can directly connect with—and even power—so many smart sensor interfaces at the same time. This truly makes it the sensor/processing/output hub of every battlefield AI system.

The X9 AI system is based on the NVIDIA® AGX Jetson Orin GPU SoC and includes high-rate sensor interfaces to CameraLink, 3G-SDI, CoaXPress, USB 3.2, 1Gb Ethernet, 10 Gb Ethernet and 100Gb Ethernet. All these interfaces can receive high bandwidth data from sensors simultaneously, and the X9 AI can keep up in real time. Power over CoaXPress and 10Gb Ethernet means a single cable will connect a sensor and power it, saving complex wiring, weight and individual sensor power supplies. In addition, GMS rugged mezzanine carriers (RMC) uniquely allow additional I/O, storage, co-processing and other customer-specific functions, making the product exceptionally flexible and small enough for portable or embedded use.

At AUSA 2023, the X9 AI will show live target tracking and identification from three in-booth high-definition cameras. This demo is 100% analogous to real-world, real-time battlefield applications.

X9 Spider Mission Computer

The heart of the X9 Manpack and every host-based X9 Spider system, the **X9 Spider Mission Computer** offers nearly 400Gbits/s of maximum throughput I/O. Four Thunderbolt 4 ports connect to various X9 Spider peripherals or displays, and each port can provide 100W of power over GMS LightBolt fiber or copper cables. The Mission Computer is based upon Intel's latest 11th-generation Core i7 Xeon® W eight-core (8C Tiger Lake-H) laptop processor, capable of real-time high-resolution 4K video processing to four simultaneous independent displays connected via quad Thunderbolt 4/USB4 40Gbits/s I/O "LightBolt" ports.

At AUSA 2023, an optional on-board NVIDIA A4500 GPGPU co-processor is closely coupled to the processor for AI-intensive tasks. Together, the two embedded processors in the X9 Spider Mission Computer represent server-class cloud processing in a battery-powered wearable computer that weighs less than three pounds. The X9 Spider Mission Computer can be equipped with maximum I/O in addition to the four Thunderbolt 4/USB4/LightBolt ports and can also be equipped with dual rugged mezzanine carriers of either 50W or 100W for add-in I/O such as dual 100Gbit Ethernet. The AUSA 2023 demonstration shows the X9's open distributed computing architecture (DCA) connected via LightBolt or Ethernet to several X9 peripherals, including X9 Workstation I/O, X9 Storage and X9 Switch.

Introduced at AUSA 2002, the X9 Spider family of rugged, open distributed computing architecture (DCA) small form factor systems is designed to reduce the development barriers to rugged high-performance computing, high-definition video, sensor processing, AI, battlefield edge processing, storage, display and intelligent I/O.

About General Micro Systems:

Over 45 years, General Micro Systems (GMS) has built a reputation as the industry expert in highest-density, modular, compute-intensive, and rugged small form-factor embedded computing systems, servers and switches. These powerful systems, all built in America, are ideal for demanding C5ISR defense, aerospace, medical, industrial, and energy exploration applications. GMS is an IEC, ISO, AS9100, NIST-800-171, and MIL-SPEC supplier with infrastructure and operations for long-life, spec-controlled, and configuration-managed programs. For more information, visit **www.gms4sbc.com**.

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