GENERAL MICRO SYSTEMS, INC.
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MUSTANG *S402-LC*

Rugged, Fully Sealed, Intel® Xeon® E5 CPU Server with Removable Drive(s), and Switch

Intel®
Xeon® E5
Up to 18 Cores

Nvidia® Quadro®
1.32 TFLOPS
M2000M MXM

Layer 2/3
14 Port
Managed Switch

Add-in I/O
7 I/O Sites
SAM™ I/O, MXM or XMC

SYSTEM HIGHLIGHTS

- Intel® Xeon™ E5 v4 CPU with up to 18 cores
- Hyper-Threading on each core for total of 36 logical cores
- Supports up to 256GB of DDR4 memory with ECC
- Up to four removable 2.5" SATA or NVMe SSD
- Up to two fixed mSATA SSD
- Optional fixed M.2 or NVMe SSD for OS boot
- Up to four 10 GbE plus 12 1GbE Ethernet ports
- Personal Profile Module™ (PPM) uses SD card authentication
- Drive(s) and SD card secured behind EMI/IP-rated door
- SSD drives support optional encrypt/secure erase/write-protect
- Optional AMD® Radeon® GPU E8860, up to 768 GFLOPS
- Optional NVIDIA® Quadro® GPU M2000M, up to 1.32 TFLOPS
- Intel® Virtualization Technology (VT-x/VT-d2)
- Intel® Trusted Execution Technology (TXT)
- Trusted Platform Module (TPM) 2.0 for secure operation
- Converged Platform Power Management (CPPM) for power saving

SYSTEM OVERVIEW

The S402-LC "Mustang" is a third-generation, fan-less (conduction cooled) fully rugged, low cost Intel® Xeon® E5 server. It is designed to provide the highest level of server-class performance possible in a fully ruggedized, conduction-cooled system, operating up to -40°C to +85°C. Mustang simplifies local data processing tasks that require an ultra-fast, Xeon®-class server with vast amounts of high-speed, ECC-protected RAM and storage in one ultra-rugged chassis.

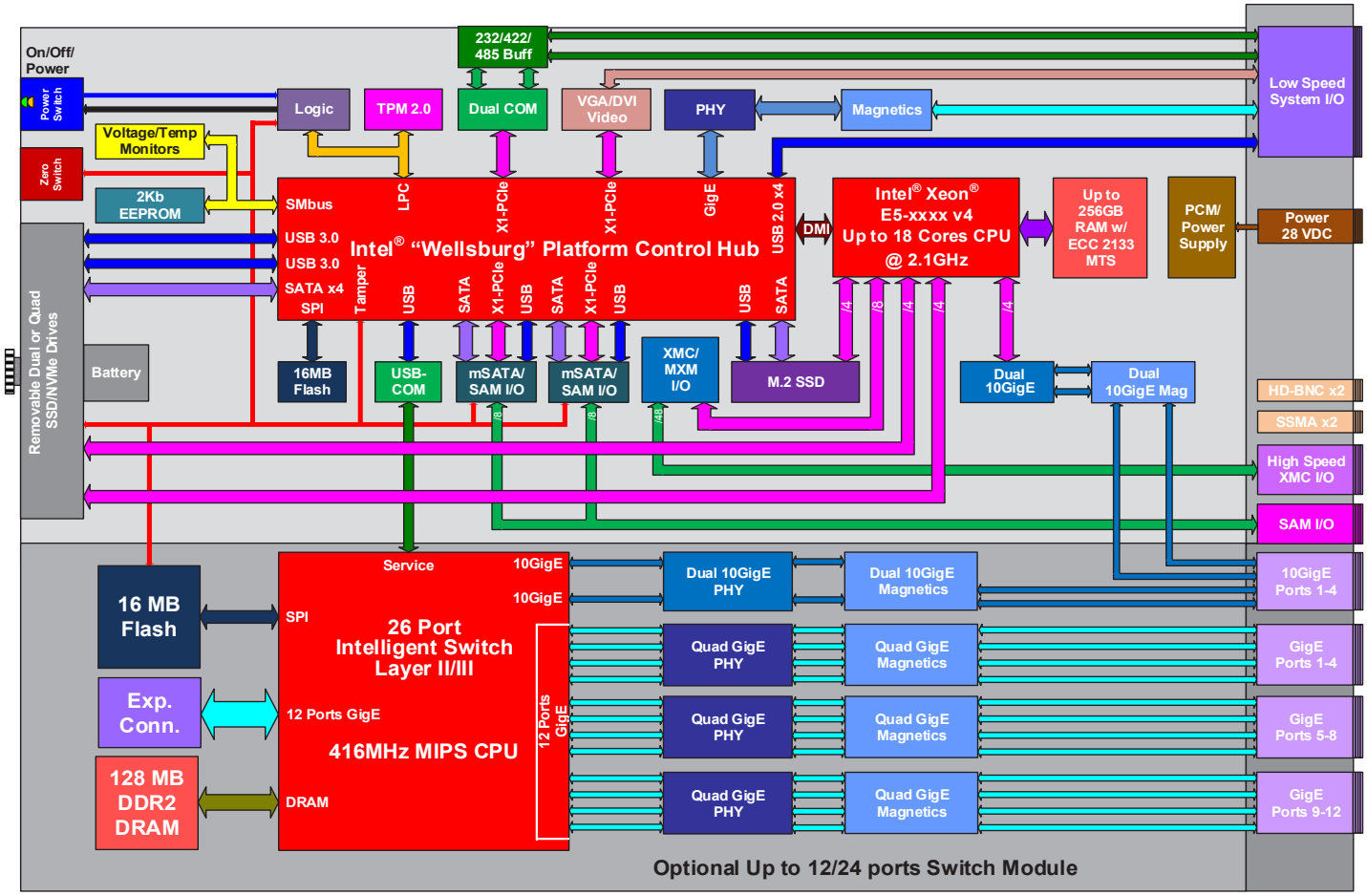
S402-LC is ideal for the application that requires the horsepower of a high-performance server, but doesn't require the expensive MIL-Circular high-speed interfaces. When equipped with the optional intelligent Ethernet Switch(es), Mustang becomes a compact server/router/switch/NAS subsystem that weighs about 10 pounds.

APPLICATIONS

The Mustang is an 8 to 18-core Xeon® E5 server intended for military/defense/aerospace with greatest SWaP-Efficiency (SWaP-E) on the market due to its compact size and robust computing and I/O performance. Mustang is an ideal forwardly-deployed vehicle-mounted battlefield/airborne/shipboard server/router/switch/NAS that offers the greatest reliability in the smallest packaging. Mustang can also be used in industrial and commercial platforms since it has server-class performance, significant networking options, exceptional I/O capabilities and removable storage.

The S402-LC is fully compliant to MIL-STD-810G, MIL-STD-1275D, MIL-S-901D, DO-160D, MIL-STD-461F and has ingress protection up to IP66. This system may also be ordered from the factory with operating systems such as Windows® or Linux® pre-installed.

BLOCK DIAGRAM



ENVIRONMENTAL SPECS

SWaP-E:	Unmatched computing density (cores and RAM) in the industry
Size:	11.75" x 7.75" x 2"
Weight:	10 lbs.
Power:	As low as 175W
MIL-STD:	MIL-STD-810G, MIL-STD-1275D, MIL-S-901D, MIL-STD-461F DO-160D, up to IP66 compliant
Temperature:	Operates up to extended temp -40°C to +85°C (Optional)
Ruggedness:	Available in ruggedization levels R1-R5

I/O AND EXPANSION OPTIONS

- One Gigabit Ethernet port with TCP/IP offloading
- Optional Layer 2/3 Switch with dual 10GbE and up to 12 1GbE
- Up to four 10 GbE plus 12 1GbE Ethernet ports
- Four USB 2.0 and two Serial ports with RS-232/422/485 options
- Eight GPIO lines for user-defined control
- One console video (1920 x 1080) via DVI or VGA
- Optional two HD-SDI SMPTE 292M video out via mini-BNC
- Two SAM I/O™ sites plus one XMC, MXM, SAM I/O™ site
- 16MB flash BIOS with optional write-protect/secure erase
- Panic support for system Zeroize via Secure Erase

RUGGEDIZATION LEVELS

	TEMP	SHOCK	VIBRATION	MAX IP LEVEL
RUGGED 1	0° - 55°C	20G	.0001 g^2/Hz	54
RUGGED 2	-20° - 55°C	20G	.0008 g^2/Hz	64
RUGGED 3	-20° - 75°C	52G	.003 g^2/Hz	64
RUGGED 4	-40° - 85°C	100G	.003 g^2/Hz	66
RUGGED 5	-40° - 85°C	100G	.1125 g^2/Hz	67

* Vibration frequency for systems tested between 5Hz – 2000Hz

GMS COMPUTING ENGINES