

Common Module System X08

Open Standards-Based Rugged Blade Servers

Configurable.
Compact footprint.
Zero vendor lock-in.

- Short 18" depth chassis with compute, storage, and 1-100 GbE switching elements
- Compatible with Open Compute Project (OCP), openEDGE ecosystem
- Supports 4th Gen Intel® Xeon® Scalable processors, NVIDIA H100 GPUs, and PCIe 5.0, DDR5
- Superior resilience to shock, vibration, and temperature extremes



Modern applications demand bleeding-edge silicon; users demand *more processing, more bandwidth, and more capabilities*. **Mercury's Common Module System (CMS) X08** answers these demands through a modular, extensible, and open standards-based platform along with a standard board-to-module, module-to-rack, and rack-to-system interface.

Designed for networking, virtualization, big data, and signals intelligence workloads, Mercury's CMS X08 drives the world's most critical applications.

CMS CHANGES THE RULES:

- **Accelerate development** Rapidly test, prototype, and deploy IT infrastructure by tapping into CMS and openEDGE hardware ecosystems
- **Eliminate complexity** Create compute-, storage-, and network-optimized systems by combining common server elements
- **Break vendor lock** Future-proof your architecture by leveraging the Open Compute Project (OCP) as a source of innovation
- **Maximize density** Shrink legacy rackmount deployments by 33% with half-width compute modules capable of aggregating 86 Xeon-SP cores per rack unit
- **Crush bottlenecks** Tackle spiraling data bandwidth requirements with a toolkit of modern protocols like 100-400 G Ethernet, PCI Express Gen 5.0, and Gen 5 NVMe
- **Survive at the edge** Bring data center capabilities to the field with the only OCP-based platform designed to MIL-STD-810H and MIL-STD-167-1A standards

Open
standards-
based

High-density,
half-width
form factor

Gen 5 PCIe
and NVMe
support

Designed
for the
field

TECHNICAL SPECIFICATIONS

Module Mainboard

Mercury Systems rugged motherboard

Single socket E (LGA-4677)

4th Gen Intel® Xeon® Scalable processor

8 DIMM slots, 1 DPC, 4800 MT/s ECC DDR5

Trusted Platform Module (TPM) 2.0

Intel Virtual RAID on CPU (VROC)

Module Input/Output (I/O)

(1) USB 3.1 Type A port (5 V/900 mA)

(1) Mini display port (1920x1080)

(1) IPMI port (RJ45)

(1) Debug port (USB Mini-B)

Module OS Support

Red Hat Enterprise Linux

Windows Desktop & Server

VMware ESXi

Module Management

Redfish and IPMI 2.0 support

Dedicated IPMI port

Chassis Management

Dedicated RMC for multi-node control

RMC may be excluded to airgap nodes

Chassis Form Factor

1U, 1-slot, 18" depth (CMS000-1U18F)

2U, 3-slot, 18" depth (CMS000-2U18F)

3U, 5-slot, 18" depth (CMS000-3U18F)

Front I/O, front-to-back airflow

Reverse airflow option available

Chassis Power

Option 1:

- 2400 W 120-240 VAC
- Dual redundant N+1 power supplies
- MIL-STD-461G, CE102, above and below deck
- MIL-STD-461G, RE102, below deck

Option 2:

- 2000 W - 48 VDC
- Dual redundant N+1 power supplies

Chassis Accessories

1U rail kit for 4-post threaded racks

2U/3U rail kit for 4-post threaded racks

Rail kits are compatible with cabinets and transit cases up to 23" depth

Environmental (Operating)*

Shock:

- MIL-STD-810H
- Half sine pulse
- 30 G, 20 ms, 3 axis

Vibration:

- MIL-STD-167-1A
 - Sinusoidal sweep and dwell
 - 4-33 Hz
- MIL-STD-810H
 - Random vibration
 - 10-2000 Hz, 4.75 Grms

Altitude:

- MIL-STD-810H
- 0-15,000 ft

Temperature:

- 0°C to 55°C at sea level

Humidity:

- MIL-STD-810H
- 5-95% RH, non-condensing
- Conformal coating available

Warranty

Mercury Systems 3-year warranty

Extended warranty available

* Mercury Systems designs all products to meet or exceed listed data sheet specifications. Some specifications including I/O, weight and thermal profiles are configuration dependent. Contact Mercury for information specific to your desired configuration requirements.

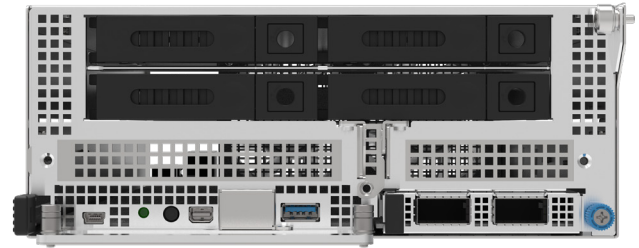


MODULES LIBRARY



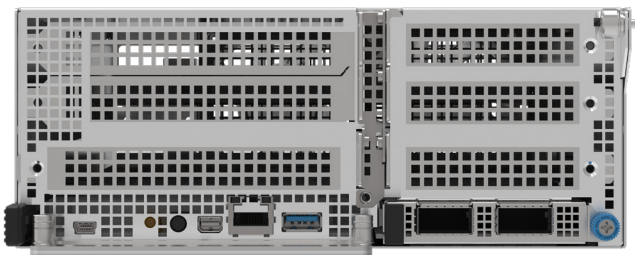
1U Single-Slot x86 Compute Module (CMSX08-1H18FA)

- Processor: (1) 4th Gen Intel® Xeon® Scalable processor up to 300 W TDP
- Memory: (8) DIMM slots, 4800 MT/s ECC DDR5
- Storage: (2) 9.5 mm E1.S (Gen 5 x4) up to 7.68 TB per SSD (Fills HHHL x16 slot)
- Expansion: (1) HHHL x16, (1) FHHL x16, (1) OCP 3.0
- Typical weight (no cards): 8.7 lb



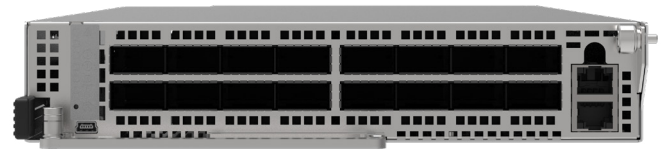
2U Double-Slot x86 Storage Module (CMSX08-2H18FA)

- Processor: (1) 4th Gen Intel® Xeon® Scalable processor up to 300 W TDP
- Memory: (8) DIMM slots, 4800 MT/s ECC DDR5
- Storage: (2) 9.5 mm E1.S (Gen 5 x4) up to 7.68 TB per SSD (Fills HHHL x16 slot), (4) 15 mm U.2 (Gen 5 x4) up to 30.72 TB per SSD, FIPS140-2 options available
- Expansion: (1) HHHL x16, (1) FHHL x16, (1) OCP 3.0
- Typical weight (no cards): 9.0 lb



2U Double-Slot x86 Peripheral Module (CMSX08-2H18FB)

- Processor: (1) 4th Gen Intel® Xeon® Scalable processor up to 300 W TDP
- Memory: (8) DIMM slots, 4800 MT/s ECC DDR5
- Storage: (2) 9.5 mm E1.S (Gen 5 x4) up to 7.68 TB per SSD (Fills HHHL x16 slot)
- Expansion: (1) HHHL x16, (1) FHHL x16, (1) OCP 3.0
- Additional expansion:
 - Option 1 - (1) FHFL double-width x16, (1) FHFL x16
 - Option 2 - (1) FHFL double-width x16, (2) FHFL x8
 - Option 3 - (4) FHFL x8
- Typical weight (no cards): 9.0 lb



1U Single-Slot 40/50/100 GbE Switch (CMS100-1H18F)

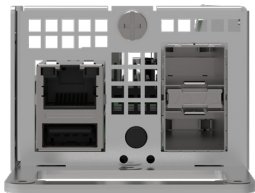
- Based on Mellanox SN2100 open Ethernet switch
- Ethernet ports: (16) splittable 100 GbE SFP28 40/100 GbE ports
- Other ports: RJ45 serial port, RJ45 Ethernet management port
- Throughput: Non-blocking bidirectional 3.2 Tb/s
- Latency: 300 ns for 100 GbE, consistent latency
- Layer 2/3 features: 10/25/40/50/56/100 GbE, multi chassis LAG (MLAG), Q-In-Q, 802.1 W rapid spanning tree, 802.1 s multiple STP, 802.3 ad link aggregation (LAG) & LACP, jumbo frames (9216 B), IPv4 & IPv6 route maps including BGP4, OSPFv2, BFD (BGP, OSPF, Static Routes), DHCPv4/v6 relay router port, int VLAN, NULL interface for routing
- OS options:
 - Mellanox Onyx (CMS100-1H18FA)
 - Cumulus Linux (CMS100-1H18FB)
 - ONIE (CMS100-1H18FC)
- Typical weight: 7.2 lb

MODULES LIBRARY (CONT.)



1U Single-Slot Spectrum-Based 1/10/25 GbE Switch (CMS025-1H18F)

- Based on Mellanox SN2010 open Ethernet switch
- Ethernet ports: (18) 10/25 GbE SFP+, (4) splittable QSFP28 40/100 GbE ports
- Other ports: RJ45 serial port, RJ45 Ethernet management port
- Throughput: Non-blocking bidirectional 1.7 Tb/s
- Latency: 300 ns for 100 GbE, consistent latency
- Layer 2/3 features: 10/25/40/50/56/100 GbE, multi chassis LAG (MLAG), Q-In-Q, 802.1 W rapid spanning tree, 802.1 s multiple STP, 802.3 ad link aggregation (LAG) & LACP, jumbo frames (9216 B), IPv4 & IPv6 route maps including BGP4, OSFPv2, BFD (BGP, OSFP, Static Routes), DHCPv4/v6 relay router port, int VLAN, NULL interface for routing
- OS options:
 - Mellanox Onyx (CMS025-1H18FA)
 - Cumulus Linux (CMS025-1H18FB)
 - ONIE (CMS025-1H18FC)
- Typical weight: 7.2 lb



Rackmount Controller (CMS000-RMC)

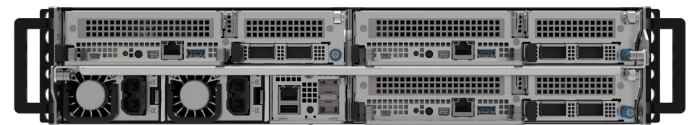
- Aggregates IPMI interfaces from all x86 nodes
- Ethernet ports: (1) RJ45 and (2) SFP+
- Typical weight: 0.9 lb

CHASSIS LIBRARY



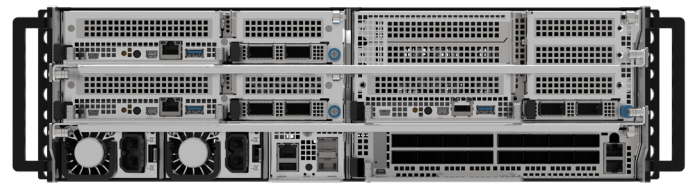
1U 1-Slot Front I/O Chassis (CMS000-1U18FA)

- Accepts both CMS and openEDGE modules
- Supports (1) Single-slot module, (2) Power supplies, (1) Rackmount controller
- Max node density: 1.0 nodes per RU
- Typical weight (empty): 11.8 lb



2U 3-Slot Front I/O Chassis (CMS000-2U18FA)

- Accepts both CMS and openEDGE modules
- Configuration options:
 - (3) Single-slot modules, (2) Power supplies, (1) Rackmount controller
 - (1) Double-slot module, (1) Single-slot module, (2) Power supplies, (1) Rackmount controller
- Max node density: 1.5 nodes per RU
- Typical weight (empty): 14.8 lb



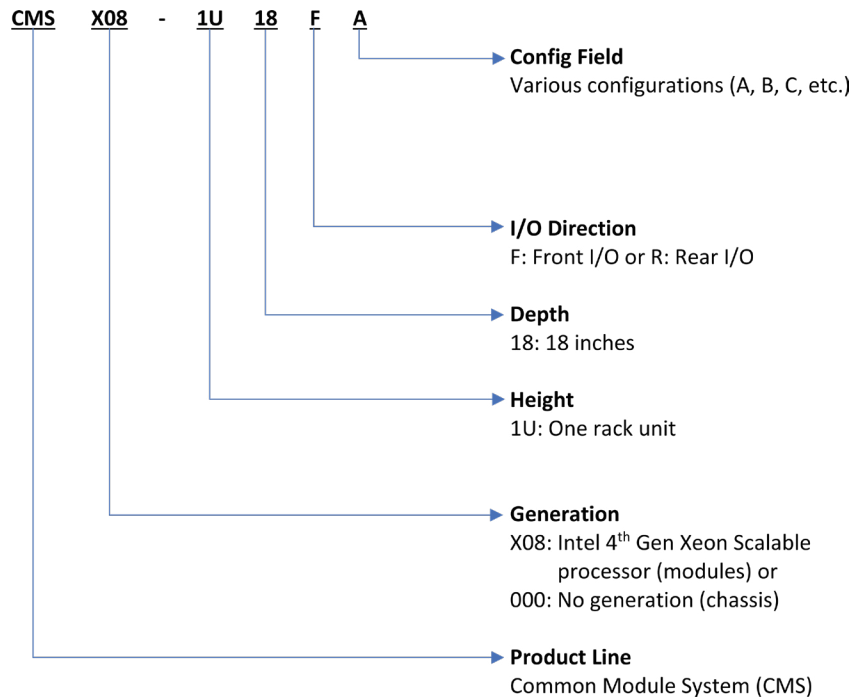
3U 5-Slot Front I/O Chassis (CMS000-3U18FA)

- Accepts both CMS and openEDGE modules
- Configuration options:
 - (5) Single-slot modules, (2) Power supplies, (1) Rackmount controller
 - (1) Double-slot module, (3) Single-slot modules, (2) Power supplies, (1) Rackmount controller
 - (2) Double-slot modules, (1) Single-slot module, (2) Power supplies, (1) Rackmount controller
- Max node density: 1.7 nodes per RU
- Typical weight (empty): 17.8 lb

APPLICATIONS

- Artificial Intelligence (AI)
- Machine Learning (ML)
- Deep Learning (DL)
- Big Data Analytics
- High Performance Computing (HPC)
- 5G
- Virtualization
- Industrial Automation
- Virtual Reality (VR)
- Image Processing
- Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR)
- Signals Intelligence (SIGINT)
- Sensor Fusion

CONFIGURATION MODEL CHART



A member of the



Partnering with



Corporate Headquarters

50 Minuteman Road
Andover, MA 01810 USA
+1 978.967.1401 tel
+1 866.627.6951 tel
+1 978.256.3599 fax

International Headquarters

Mercury International

Avenue Eugène-Lance, 38
PO Box 584
CH-1212 Grand-Lancy 1
Geneva, Switzerland
+41 22 884 51 00 tel

Learn more

Visit: mrcy.com/cms-x08

Contact: servers@mrcy.com



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