

# XR6 Rugged Secure Servers

## 20" Deep, 4 Drive, Rear I/O Rugged Servers with BuiltSECURE

Maintain data integrity and safeguard IP at the edge

- Root of Trust (RoT) enforced boot and configuration management
- Cryptography, secure boot and advanced physical protections
- Cyber-resilient BIOS, secure virtualization and data-at-rest protection options
- Latest data center caliber CPUs



When configured as a boot server, XR6 rugged secure servers ensure only authorized personnel can modify the cluster.

### Protect intellectual property and confidential data at the edge

Mercury's rugged secure servers are designed specifically to guard against local and remote attacks. Maintaining system-wide integrity, they protect sensitive data and technology from loss or compromise.

Deployed on over four generations of Intel® microarchitectures, Mercury's XR6 rugged secure servers can be configured with a variety of nation-state level security features that mitigate reverse engineering and deliver cyber resiliency. A hardware-based Root of Trust and cyber-resilient BIOS mitigate multiple security threats to your application by reducing attack surfaces and minimizing boot devices. Built-in interfaces allow the servers to participate in platform-wide security architectures.

Mercury's experienced system security engineers and customer support teams deliver affordable, end-to-end product security services including vulnerability assessments, technical training, classified capabilities and product-specific protection schemes.

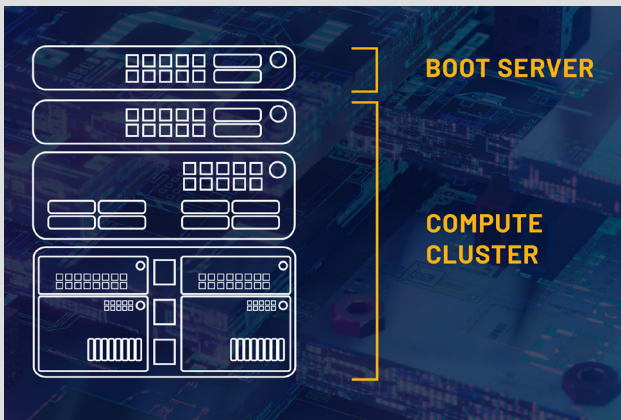
### Highlights

- Mitigate reverse engineering, bolster cybersecurity and safeguard critical IP with Mercury's proven BuiltSECURE™ technology
- Reduce cost and preserve security development with extendable architecture proven across multiple processor generations
- Safeguard against present and emerging threats with secure processing and end-to-end system security engineering (SSE) services
- Minimize risk of back doors, counterfeits and trojans with secure manufacturing and supply chain integrity



## Secure Your Server Cluster

When configured as a boot server, XR6 rugged secure servers ensure only authorized personnel can modify the cluster. Built-in cryptography and physical security delivers assurance and maintains data integrity even when the stack is offline or remotely accessed, making it ideal for edge applications.



Built-in board volatility features ensure no classified data is unintentionally stored on the hardware, avoiding the need to station physical security guards.

Our extensible BuiltSECURE security architectures evolve to mitigate current and future threats. Architectures work across processor generations, preserving security development and reducing overall cost and program risk.

Optional FIPS 140-2, NIAP-certified, rugged secure solid state drives with key purge, fast erase, sanitization and self-destruct protocols protect data at rest for NSA's CSfC program, even if the system is compromised. An

optional secure hypervisor efficiently manages resources and minimizes attack surfaces so systems can efficiently respond and recover from compromise.

## Supply Chain Integrity for Trusted Performance

Board support packages, BIOS, and network stacks are maintained by U.S. personnel and are available for inspection by government agencies. MIL-PRF-38534 Class H/K, MIL-PRF-38535 Class Q, ISO 9001:2015 and AS9100 facilities maintain quality and inspection compliance. Motherboards are manufactured and tested in DMEA-accredited facilities; minimizing the risk of back doors, counterfeits, and trojans.

Utilizing a trusted supply chain for both hardware and software ensures commercial IP is protected. This also helps system integrators meet Defense industry trust objectives including DoDI 5200.44 "Protection of Mission Critical Functions to Achieve Trusted Systems and Networks."

## Field-Proven, Rugged Design

To further enhance reliability and eliminate disconnect during shock events, XR6 rugged secure servers remove socketed components and solder processors and memory directly to the motherboard. Advanced thermal and mechanical design features provide superior resilience to vibration, shock, dust, sand, and temperature extremes.

With over 40 years of technical expertise, Mercury Systems works closely with customers to design trusted computing solutions that are easy to integrate, affordable, and reliable.



## TECHNICAL SPECIFICATIONS

### BuiltSECURE Technology Options

Access control and key management  
Non-volatile memory write protection  
Data-at-rest protection  
Sanitization  
Secure firmware management  
Physical protection mechanisms  
Sensors  
Cryptographic offload engine

### SSE Services and Support

12-month warranty for service/repairs and continuous support included  
Cybersecurity partner pre-integration  
Program Protection Planning Assistance  
Red team/Blue team vulnerability analysis

### Processing\*

Dual Intel® Xeon® Scalable processors  
▪ Gold 6238T (22 core, 1.9 GHz, 125 W)  
3x UPI links up to 10.4 GT/s  
384 GB DDR4-2400 MHz or higher  
Intel® Trusted Execution Technology (TXT) with integrated TPM 2.0

### Management and Operating System

BIOS: Mercury-specialized, supported  
IPMI 2.0 management; optional remote management module  
Red Hat® Enterprise Linux® v7 support  
Secure hypervisor and Linux options

### Expansion and Maintainability\*

Up to 2 x16 PCIe cards, Gen 3.0, full-height, half-length  
8x PCIe 3.0 card configuration  
(Riser B, C designed for two dual-slot GPU cards)  
▪ Riser C- full-height/ half-length  
x8, CPU0, x16, CPU0/x0, x16, CPU0

▪ Riser B- full-height/ half-length  
x16, CPU1, x8, CPU1, x16, CPU1

▪ Riser A- half-height/ half-length  
x8, PCH, x8, CPU1

Front-panel removable drive sleds  
(4x 7 mm or 2x 15 mm available)

1U: 3 fixed fans (2-piece cover facilitates replacement in-situ)

2U: 5x fixed fans (2-piece cover facilitates replacement in-situ)

8x internal SATA 3 ports (one consumed by optional optical drive)t

SAS3, U.2 NVMe storage with RAID option available via PCIe

### Input/Output Versatility\*

Multi-format optical drive  
CD/DVD/Blu-ray R/W  
5x USB 3.0 ports  
1x USB 2.0 port  
4x 10 GbE ports  
1x 10/100 Ethernet port  
GPIO test port  
VGA port

### Power Supply Options

1U: Single 550 W power supply 90-264 VAC (47/63 Hz)  
2U: Redundant, hot-swappable 750 W power supply, 90-264 VAC, 47-63 Hz

### Environmental - Operating\*

Temperature\*\*: 0°C to 50°C per MIL-STD-810H, Methods 501.5 and 502.5 Procedure II

Altitude: 0 ft - 12,500 ft per MIL-STD-810H, Method 500.5, Procedure II

Humidity: 5% to 95% (non-condensing), MIL-STD-810H, Method 507.6, Modified

Shock: 3 axis, 20 g, 11 ms 1/2 sine pulse per MIL-STD-810H, Method 516.8, Procedure I

Vibration: Per MIL-STD-167-1A, Type 1

EMI/EMC: CE10 2& RE102, MIL-STD-461G

ABN: <85 dB A under max operating conditions, MIL-STD-1474D

### Environmental - Non-Operating\*

Temperature: -40°C to 70°C, MIL-STD-810H, Methods 501.5 & 502.5, Procedure I

Humidity: 5% to 95% (non-condensing), MIL-STD-810H, Method 507.6, Modified

Altitude: 0 ft - 30,000 ft per MIL-STD-810H, Method 500.6, Procedure I

Random Vibration: 4.67 Grms vertical, 4.5 Grms longitudinal/lateral 5 Hz to 2000 Hz per MIL-STD-810H, Method 514.8, Procedure I Composite profile of category 4 (Composite Wheeled Vehicle) and Category 7 (C-17)

### Additional Options

Shock pins  
Front door filter  
Compatible slide rails and brackets/shelf system  
Cable accessories  
Tamper-evidence features

### Mechanical\*

Height:  
▪ 1U or 1.75" (44.45 mm)  
▪ 2U or 3.5" (88.9 mm)  
Width: 17.2" (436.9 mm)  
Depth: 20" (508 mm)  
Weight\*:  
▪ 1U: 26.5 lb (12 kg)  
▪ 2U: 34 lb (15.4 kg)  
19" rackmountable

### Configurations

RTB XR6 1U  
RTB XR6 2U

\* All products designed to meet or exceed listed data sheet specifications. Some specifications including I/O, weight and thermal profiles are configuration dependent. Contact Mercury for specific configuration requirements.

\*\* To reach temperatures above 40°C, additional measures such as throttling or enhanced airflow may be necessary.



## TECHNICAL DATA SHEET

### XR6 Rugged Secure Servers



HDS6705 functional block diagram

## FRONT VIEWS



## REAR VIEWS



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