

RES Trust XR5 1U *BuiltSECURE™*

20" Deep, 4 Drive, Rear I/O Rugged Secure Server

- RoT enforced boot and configuration management
- Cyber-resilient BIOS, composable security features
- Dual Intel Xeon E5-2600 v4 processors up to 14 cores
- Field proven, approved design
- MIL-STD: 810G, 901D, 167-1, 461
- Designed, manufactured, and tested in the U.S.



A part of the *EnterpriseSeries™* product line, Mercury's RES Trust 1U server employs a U.S. designed and manufactured motherboard with embedded Intel® processors and composable *BuiltSECURE™* framework to deliver trusted performance for the most security-imperative mission critical applications.

Secure Boot

Featuring a U.S. made ATX-style motherboard with built-in security features, up to 60TB of storage in four disk drives, high speed I/O, expansion slots, and enhanced reliability features, RES Trust 1U provides trusted performance, improved interoperability, and flexibility for current and future system requirements. A hardware-based Root of Trust and cyber-resilient BIOS mitigate multiple security threats to the application, in part, by reducing the available attack surfaces to minimize boot devices. Built-in interfaces allow servers to participate in platform-wide security architectures.

Trusted Manufacturing

Board support packages, BIOS, and network stacks are maintained by U.S. personnel and available for inspection by government agencies. Motherboards are manufactured and tested in DMEA-accredited facilities; minimizing the risk of back doors, counterfeits, and trojans.

Mercury Systems is a leading commercial provider of secure sensor and safety-critical processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.

Trusted Supply Chain

A trusted supply chain is utilized for both hardware and software to deliver assurance that commercial IP will be protected. This design also helps system integrators meet Defense industry trust objectives including DoDI 5200.44 "Protection of Mission Critical Functions to Achieve Trusted Systems and Networks."

BuiltSECURE™ Integrity

RES Trust servers can be configured with a variety of nation-state-level security features. Deployed on over **four generations of Intel® microarchitectures**, our BuiltSECURE security suite includes access control, key management, non-volatile memory write protection, data-at-rest protection, sanitization, secure firmware management, physical protection mechanisms, sensors, and cryptographic offload engine capabilities that **mitigate reverse engineering** and provide cyber resiliency.

System security features enable customer Foreign Military Sales (FMS) or Direct Commercial Sales (DCS) program success. Detailed security capability offerings can be requested.



ACQUIRE



DIGITIZE



PROCESS



STORAGE



EXPLOIT

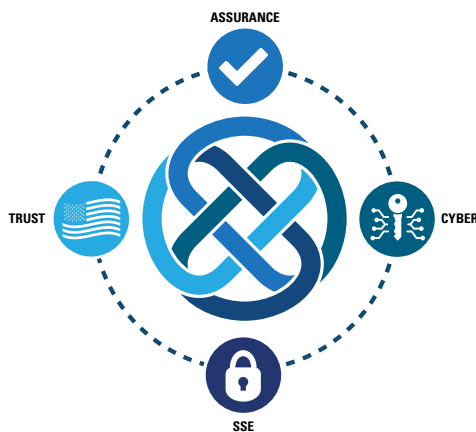


DISSEMINATE



Affordable Composable Security

As threats arise, our extensible security architectures are built to evolve for future-proofing to maintain system-wide integrity. Architectures can be utilized across processor generations, preserving security development to **reduce overall cost** and program risk.



Subject Matter Expertise

Mercury's experienced system security engineers and customer support teams deliver end-to-end product security support services including vulnerability assessments, technical training, classified RMA capabilities, and product-specific protection schemes. With over two decades of delivering **System Security Engineering (SSE)** solutions, Mercury teams with customers to develop affordable systems that safeguard against present and emerging threats.

Secure Virtualization

The RES Trust motherboard addresses threat vectors from the moment of power-on until a secure OS, hypervisor, or application is running. A multi-platform compatible, embedded hypervisor option configures and controls both hardware resources and software execution to further guard against cyberattacks and reverse engineering with **secure boot**, just-in-time decryption, mandatory access control, OS hardening, and runtime software protections.

Data-at-Rest Protection

Optional ASURRE-Stor secure solid state drives deliver data at rest protection for the NSA's Commercial Solutions for Classified (CSfC) program as the only hardware full disk encryption device on the approved components list. Designed and manufactured in one of Mercury's many domestic Advanced Microelectronics Centers, ASURRE-Stor secure storage devices seamlessly integrate **FIPS 140-2** and NIAP certified cryptographic algorithms with user-configurable key management and sanitization protocols that can **purge encryption keys** in <30ms.

Designed for the Field

Optimized for size, weight, and power (SWaP), the system weighs **26.3lbs**, is **20" deep**, and meets military environmental specifications. To further enhance reliability, the system removes socketed components and **solders processors and memory** directly to the motherboard—eliminating disconnect during shock events. The motherboard itself meets IPC-6012 and MIL-STD-810G specifications. RES Trust advanced thermal and mechanical design features provide superior resilience to vibration, shock, dust, sand, and temperature extremes.

Proven Performance

Mercury's EnterpriseSeries RES Servers are trusted worldwide for their high-performance, **long life cycles**, thermal resiliency, compatibility with industry standards, and **SWaP optimization**. With the latest Intel core-count processors and configurable I/O, RES servers are ideally suited to next-gen radar, mission, advanced simulation, command, control, and battle management processing mission critical applications.

Your Reliable Teammate

With over 30 years of technical expertise Mercury Systems works closely with customers to design trusted computing solutions that are easy to integrate, affordable, and reliable for years to come. Mercury's MIL-PRF-38534 Class H/K, MIL-PRF-38535 Class Q, ISO 9001:2015 and AS9100 facilities maintain quality and inspection compliance.



Custom Expertise

For tailor-made systems with specific security and environmental requirements email servers@mrscy.com

Technical Specifications

Dual Intel® Xeon® E5-2600 v4 processors; SKU options:

E5-2618L v4 (10 core, 2.2GHz, 75W)

E5-2648L v4 (14 core, 1.8GHz, 75W)

2 QPI up to 8 GT/s

Up to 128GB DDR4 up to 2400MHz memory

Intel® Trusted Execution Technology with integrated TPM 2.0

Management and Operating System

BIOS: Mercury coded and supported

Mercury maintained Cyber Resilient Baseboard Management Controller

Red Hat® Enterprise Linux® v7 support

Secure Crucible Defense Hypervisor and Titanium Linux Option

Built **SECURE™** Embedded Framework

Built-in composable security feature set options

Expansion and Modular Maintainability

Up to 2 PCIe 3.0 x16 cards, half-height half-length

3 Fixed Fans

Input/Output Versatility

Front Access

Up to 4 Removable, Hot Pluggable, 2.5" drive bays

up to (2) 15mm or (4) 7mm (SATA) high drives

Optional secure storage with military-grade data protection

1 CFM Switch (Optional)

1 Quick Change CMOS Battery

1 USB 3.0

1 CD/Bluray Drive (Optional)

1 Power Switch with Power and Status LEDs

Rear Access

3 RS-232 Serial Interfaces

2 10/100/1000BaseT Ethernet Ports (RJ45)

5 USB 3.0

1 USB 2.0

1 IPMI 2.0

1 10/100BaseT Ethernet Port (RJ45 Management)

Power Supply Options

Single 550W AC Power Supply 90-264 VAC (47/63Hz, 8-4Amps)

Environmental*

Operating

Temperature: 0°C to 50°C, configuration dependent

Humidity: 5% to 95% (non-condensing)

Shock: 3 axis, 35g, 25ms

Vibration: 4.76Grms, 4Hz to 2000 Hz (SSD)

Non-Operating

Temperature: -40°C to 75°C

Humidity: 5% to 95% (non-condensing)

Additional Options (Not included)

Shock Pins

Front Door Filter

Compatible Slide Rails and Brackets

Rails: Jonathan Engineered Solutions; PN 3308190-P

Brackets: Jonathan Engineered Solutions; PN 24908086-KD

Cable Accessories

Micro DB9 to dual DB9 Serial Port Y-adapter; PN 911-92006

Test port cable, Quad USB UART; PN 911-58263-01

Xilinx JTAG adapter cable; PN 911-58264-01

Tamper-Evidence Features

Secure Crucible Defense Hypervisor and Titanium Linux Option

Mechanical

Height: 1U or 1.75" inches (44.45mm)

Width: 17 inches (433.3mm)

Depth: 20 inches (508mm)

Weight (Typical)*: 26.3 pounds (11.9kg)

19" rackmountable

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

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