



The FORCE to fight and win. Next-generation Crystal Group Rugged Servers are the new FORCE — Fully Optimized Rugged Computer Equipment — to tackle the toughest workloads in the most challenging environments. Crystal Group FORCE™ servers provide a whole new level of bandwidth, scalability, flexibility, and security to the field. These rugged rack-mount servers accelerate compute-intensive workloads in today's most demanding applications, including machine learning, sensor fusion, artificial intelligence, unmanned systems, signals intelligence, electronic warfare, and intelligence, surveillance, and reconnaissance (ISR). With vital cybersecurity features, like rugged FIPS 140-2 SAS SSDs, optional key management, intrusion detection and instant data destruction, Crystal Group FORCE ensures your critical, confidential data is protected from potential threats.

Crystal Group FORCE servers are offered with single or dual 2nd Gen Intel® Xeon® Scalable processors, each supporting up to 24 cores and 48 PCIe lanes adding significant compute capability. AVX-512 ultra-wide vector processing accelerates repetitive tasks, while the PCH offers high-speed communication, expanded storage capacity, and enhanced security and compression.

Crystal Group's FORCE line is easily customizable with module options for securing data, networking, audio and various drive carriers. Engineered with more standard rugged features and advanced thermal management to deliver the most computer power and brawn to the edge.

Reliability matters. Crystal Group delivers with **FORCE**.

FEATURES

- Rugged, lightweight chassis, 23-29 lbs.
- Rack mounted 19" and 22" depths
- Liquid cooling option for 22"
- 2nd Gen Intel® Xeon® Scalable processors
- Easily mounted – Delrin glides, fixed mount, or Jonathan® rails
- 16GB–2TB or 32GB–4TB DDR4 ECC RDIMM/LRDIMM memory
- Up to four module options for fast, flexible customization
- Optional: Chassis intrusion switch
- Optional: EMI compliance

A clear advantage.



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Specifications

	RS1104 Air Cooled	RS1104L22 Air Cooled	RS1104L22 Liquid Cooled
Height	1.75" (4.45 cm)		
Width	17" (44.45 cm)		
Depth	19" (48.26 cm)	22" (55.88 cm)	
Weight	23 - 26 lbs (10.43 - 11.79 kg)	26 -29 lbs. (11.79 - 13.15 kg)	
CPU	2nd Gen Intel® Xeon® Scalable processors		
	Up to 18 core options per socket (dependent on motherboard)		Up to 22 core options per socket
Expansion	One low profile or full-height PCIe slot (dependent on motherboard)	One full height PCIe slot	One low profile or full-height PCIe slot (dependent on motherboard)
External Bay	Option 1: Up to 4 bays populated with FORCE module accessories Option 2: Optical Drive with up to 2 bays populated with FORCE module accessories		Option 1: Up to 3 bays populated with FORCE module accessories Option 2: Optical Drive with 1 bay populated with a FORCE module accessory
Memory	16 GB - 2TB DDR4 ECC RDIMM/LRDIMM	32 GB - 4 TB DDR4 ECC RDIMM/LRDIMM	16 GB - 2TB DDR4 ECC RDIMM/LRDIMM
Mounting	Option 1: Mounted on Delrin glides; Option 2: Fixed mount, front and rear; Option 3: Jonathan rails		
Power Supply	Options: 460WAC, 505W 18-36VDC		
Max CPU Power (each)	105W		125W
System Board	Option 1: X11SPi-TF, ATX 2nd Gen Intel® Xeon® Scalable processors Option 2: X11DPL-i, ATX 2nd Gen Intel® Xeon® Scalable processors	X11DPI-NT, eATX 2nd Gen Intel® Xeon® Scalable processors	Option 1: X11SPi-TF, ATX 2nd Gen Intel® Xeon® Scalable processors Option 2: X11DPL-i, ATX, 2nd Gen Intel® Xeon® Scalable processors
Designed to (testing in progress) Environmental Standards	MIL-STD-810, Operational temperature: -40°C to +55°C¹ MIL-STD-810, Storage, Method 501, Procedure I/II: -40°C to +85°C¹ MIL-STD-810, Humidity, Method 507, Procedure II: 240 hours (with optional conformal coating kit) MIL-STD-810, Altitude, Method 500: 12,500ft operation, 40,000ft transport² MIL-STD-810, Shock, Method 516, Procedures I/V: 20g, 11msec–functional shock; 40g, 11msec crash hazard shock¹ MIL-STD-810, Vibration, Method 514, Procedure I: 4.7G, 5-2,000Hz, 60 min/axis, 3 axis MIL-STD-167-1A, Vibration, Type 1 MIL-S-901, Grade A, Class II MIL-S-901, Grade B²		
Electromagnetic Compatibility Standards	Some standards may require an internal kit AC, FCC Compliant² AC, MIL-STD-461, RE102, CE102 compliant¹ DC, MIL-STD-461, RE102, CE102 compliant² RTCA DO-160 Section 21, Category M²		
Software Compatibility	Supports Windows 10, Windows Server 2016, Windows Server 2012, VMware, or Linux		

STANDARD FEATURES

- MIL-STD-810 shock and vibe
- 7, 9.5, 15mm drive capability
- Backlit power/reset/UID switch
- High-speed, high-volume fans
- Lightweight billet aluminum chassis
- Up to 4 TB DDR4 ECC memory
- Up to 22 core, Intel Xeon Scalable processors

OPTIONAL FEATURES

- EMI compliance
- Chassis intrusion switch
- Humidity protection
- DVD + 2x USB ports + CMOS battery tray
- Dust filter
- Liquid cooling
- 4-Key LCD panel
- 2x eSATA

- 2x USB 3.0
- 2x USB 2.0
- MIL-CIRC I/O
- 8-16 port Layer 2+ switch
- Audio modules
- Data sanitize
- Card reader
- Fluid pump and reservoir



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1 - Test report available 2 - Designed to meet standard

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