



**Field tested, failsafe and long life performance in extreme conditions.** Feature rich Crystal Group Embedded Computer Systems are powerful, compact, and rugged. Completely and easily configurable, the Embedded product line boasts advanced thermal management and a carbon fiber chassis, are field-tested to withstand shock and vibration, extended temperature ranges, harsh elements and harsh environments. Crystal Group Embedded Computer Systems follow the Intel® Roadmap to ensure access to the latest, powerful Intel chipsets and processors.

**Innovative solutions.** Crystal Group's portfolio of rugged and industrial computing products are engineered and tested to withstand challenging environments, meet and exceed military and industrial standards, and provide the latest COTS technologies and benefits, such as cost, availability, upgradability, and flexibility.

**Dependable services.** When a computing application requires a custom solution, Crystal Group delivers – on time and on budget – with professional services, including product design and development, testing, systems engineering and integration, mechanical and electrical engineering, configuration management, and product lifecycle planning.

**Dedicated support.** Crystal Group's expert staff and global network provide fast and effective product support when and where it is needed, whether in-house or in the field. Count on Crystal Group for fast response times, quick turnarounds, 5+ year warranties, and quality service around the clock and around the globe.

## FEATURES

- Light weight aluminum construction – 15lbs. (6.8kg)
- Tray or wall mounted
- Thermostatically controlled fans for quiet operation
- MIL-C-26482 military circular I/O connectors
- Up to eight 2.5" SSD removable drives
- Intel® Xeon® D, or Skylake CPU
- Modular power supply for multiple input options
- One PCIe x16 expansion slot
- Ultra rugged compact for extreme ambient conditions

*A clear advantage.*

## Specifications

Mechanical rack or panel mount
Height: 4.1" (10.41 cm)
Width: 10" (26.04 cm)
Depth: 14.4" (36.58 cm) excluding connectors
Weight: 14.5 - 16 lbs. (6.54 - 7.26 kg) depends on card content (fully loaded)

Storage
Up to eight removable 2.5" drives

Mounting
Fixed mount or tray mount

Power Supply
Option 1: 9-18VDC (144W) with MIL-STD-461 filtering, MIL-STD-704
Option 2: 18-36VDC (200W) with MIL-STD-461 filtering, MIL-STD-704
Option 3: 36-75VDC (200W) with MIL-STD-461 filtering, MIL-STD-704
Option 4: 120/240VAC (200W) 50/60Hz/115VAC 400Hz with MIL-STD-461 filtering, MIL-STD-704

Software Compatibility
Windows 10®, Redhat® 6.5/6.6, Windows Server® 2016, VMWare®, Linux®

Cooling
High speed, high volume thermostatically controlled fans, air over components cooling design

Environmental Standards
MIL-STD-810, Operational Temperature: -40°C to +60°C, with solid state drives <sup>1</sup>
MIL-STD-810, Storage, Method 501, Procedure I/II: -55°C to +85°C <sup>1</sup>
MIL-STD-810, Humidity, Method 507, Procedure II: 240 hours with humidity kit <sup>2</sup>
MIL-STD-810, Altitude, Method 500: 12,500ft operation, 40,000ft transport <sup>2</sup>
MIL-STD-810, Vibration, Method 514, Procedure I: 7.18GRMS x- and y-axis, 4.63GRMS z-axis, 5-2000Hz, 60 min/axis <sup>1</sup>
MIL-STD-810, Shock, Method 516, Procedures I/IV: 20g, 11msec - functional shock; 40g, 11msec - crash hazard shock <sup>1</sup>

Electromagnetic Compatibility Standards
<b>Some standards may require an internal kit</b>
MIL-STD-461 CE102 (conducted) & RE102 (radiated) emissions, EMC <sup>2</sup>
Emissions: radiated FCC Part 15. 109, Class A; conducted FCC Part 15. 107, Class A <sup>2</sup>
Testing with solid state drives

Export Compliance
ECCN: 5A992
Classification is dependent on configuration and is subject to change. Please contact your Program Manager to receive the classification of your product.

Motherboard	Motherboard Description	Processors	Maximum Memory
*X11SSV-Q	LGA 1151, DP, HDMI, DVI-I, 2x 1G LAN, 1x PCI-E 3.0 x16	Variable, various options	32GB DDR4
X10SDV-6C-TLN4F	FCBGA1667, VGA, IPMI, 2x 1G + 2x 10G LAN, 1x PCI-E 3.0 x16	XEON D-1528, 2.2GHz/2.6GHz	128GB DDR4

1 - Test report available  
2 - Designed to meet standard

\*Default Option

Certification reports for select products are available on [Crystalrugged.com](http://Crystalrugged.com). Crystal Group designs all products to meet or exceed the specifications listed herein. Due to the numerous models and component combinations, some configurations are still being tested. Please contact your Crystal Group Program Manager for test data on desired requirements.

