



## Smarter with Intel®. Stronger with Crystal Group.

Crystal Group **ES™ — Energy Series** — delivers rugged solutions, powered by Intel®, to ensure long-lasting, high performance in the most extreme, remote, unpredictable conditions. This includes our rugged, powerful and compact embedded computers. Completely and easily configurable, the ES product line boasts advanced thermal management and an all-aluminum chassis, field -tested to withstand electrical surge, airborne contaminants and humidity in harsh environments. Crystal Group embedded computer systems follow the Intel embedded roadmap to ensure access to the latest in long life, 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 industrial IEEE, EN and IEC standards, and provide the latest COTS technologies to best manage cost, availability, scalability, and flexibility.

**Dependable services.** When a computing application requires a custom solution, Crystal Group delivers with vertically-integrated 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. Count on Crystal Group for prompt response times, quick turnaround, 5+ year warranties, and quality service around the clock and around the globe.

## FEATURES

- Compact construction with a 2.4"H x 16" x 11" footprint
- Panel or rack mounting options
- Six core Intel® Xeon® D-1528 CPUs
- Dual 2.5" SSD hard drives
- Billet construction from milled and strain hardened 6061-T6511 structural aircraft aluminum
- IEEE 1613 and IEC 61850-3 certification ready
- Fanless; no moving parts drives higher reliability

*A clear advantage.*

## Specifications

### Mechanical rack or panel mount

Height: 2.4" (6.1 cm) max  
Width: 16" (40.6 cm)  
Depth: 11" (27.9 cm) excluding connectors  
Weight: 7.52 lbs. (3.4 kg)  
Power: 55-80W with select configurations; CPU dependent

### Expansion

One PCIe X16 low profile

### Internal Bay

Two internal SATA 2.5" SSD (not externally removable), one M.2 internal SSD

### Cooling

Fanless; passive cooling through heatpipe technology with no moving components

### Mounting

Panel mounting via ears on base  
19" rack mount kit

### Power Supply

Option 1: 90-250 VAC 50/60 Hz with locking power cord  
Option 2: 18-36 VDC  
Option 3: 48 VDC  
Option 4: 130 VDC

### System Board (Note - These features are at the board level and may not all be available in the standard configuration.)

X10SDV-6C-TLN4F, Xeon D-1528 CPU, up to 128 GB ECC DDR4, 2-USB 2.0, 2-GBLAN, IPMI, VGA, 1-PCIe x16

### Environmental Standards

Operational temperature: -40°C to +40°C<sup>1</sup>  
Storage temperature: -40°C to +85°C<sup>1</sup>  
Humidity: 95% non-condensing with humidity kit<sup>1</sup>  
Altitude: 12,500ft operation, 40,000ft transport<sup>1</sup>  
Vibration: 5.5g, 10-2,000Hz, 60 min/axis, 3 axis<sup>1</sup>  
Shock: 20g, 11msec-- functional shock; 40g, 11msec crash hazard shock<sup>1</sup>

### Electromagnetic Compatibility Standards (Note - some standards may require an internal kit.)

IEC 61850-3, International Standard Communication Networks and Systems for Power Utility Automation (covers environment and EMC concerns)<sup>1</sup>  
IEEE 1613, Standard Environmental and Testing Requirements for Communications Networking Devices in Electric Power Substations<sup>1</sup>  
Emissions: Radiated FCC Part 15. 109, Class A; conducted FCC Part 15. 107, Class A<sup>1</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.

### Software Compatibility

Windows 10®, RHEL®, or VMware® 6+



Metromatics

For further information or pricing, please contact us:

Melbourne 03 9872 4592 Sydney 02 9460 4355  
Brisbane 07 3868 4255 Adelaide 08 8343 8516

sales@metromatics.com.au  
www.metromatics.com.au



1 - Designed to meet standard

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.



info@crystalrugged.com | 800.378.1636 | 855 Metzger Drive, Hiawatha, IA 52233 USA | [crystalrugged.com](http://crystalrugged.com)

All trademarks are property of their respective owners. Design and specifications are subject to change.

DOC-00738 Rev B 4/20

©2020 Crystal Group, Inc. All rights reserved.