



850 Kacena Rd., Hiawatha, IA 52233 Ph. 319-378-1636  
AS9100 Certified QMS

# RS378P Rugged 3U Carbon Fiber Server

The **MOST TRUSTED** provider of computer architecture for operational, deployable, and high-reliability applications



## Tested to Extreme Environments Performance, Reliability, Scalability, and Longevity

- ☑ Ultra light weight carbon fiber chassis— 22-36 lbs., Easily mounted— Delrin glides or Jonathan® rails
- ☑ Rugged 3U, rack mounted 20" depth
- ☑ Expandable with multiple slot configurations
- ☑ Up to 512 GB of memory
- ☑ Versatility with sixteen (16) removable 2.5" drives or eight (8) removable 3.5" drive bays
- ☑ Leading edge Intel® Sandy Bridge, Ivy Bridge, or Haswell CPU options

### Compact, Powerful, and Ultra-Lightweight

Weight relates to mission duration and fuel costs. Whether discussing UAVs, transit case mobility, or airborne workstations, weight has a significant impact on operational performance. Smaller, lighter, lower power is always better when it comes to high-end mobile computing. Crystal Group gives your mission these capabilities with a composite carbon fiber construction server boasting a mere 60% of the weight of a 20" deep rugged chassis.

### Rugged and Dependable

Using our extensive avionics experience, we've created the next generation of computing. This game-changing technology provides advanced computer capability in a durable and compact package. This server is MIL-STD-461 compliant. We don't just design to a specification, we test to it. When we put our name on the Crystal RS Carbon Fiber Series, you can be sure it is both rugged and dependable.

### High Reliability at a Fraction of the Cost

Innovative packaging techniques and attention to the smallest of detail protect against high temperatures and extend the life of components. So much so, our products can run at 100% loading and duty cycle at elevated temperatures. A superior chassis design limits fatigue damage and further extends service life. We provide incredible processing power in a durable package with exceptional life at a fraction of the cost.

### Want to Work with a Company that Listens to You?

We don't sell servers, we sell successful solutions. We measure our value by helping customers succeed. That means we are most interested in helping you meet your individual needs. We are fast, flexible, and responsive. We guarantee you will never work with a more responsive, customer focused computer company.

**CONTACT A CRYSTAL GROUP BUSINESS DEVELOPMENT MANAGER AT:  
800.378.1636 / info@crystalrugged.com / crystalrugged.com**

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# RS378P Rugged 3U Carbon Fiber Server

**Testing Standards\* see [www.crystalrugged.com](http://www.crystalrugged.com) for certification reports**

## Mechanical 3U

Height: 5.25" (13.34 cm)  
Width: 17.5" (44.5 cm) [accepts Crystal Slides and Jonathan Rails] EIA-310 Rack Compliant  
Depth: 20" (50.8 cm)  
Weight: 22-36 lbs. (10-16 kg)\*\*

## CPU

Intel® CPU architecture options from Intel embedded long-life roadmap

Option 1: Sandy Bridge or Ivy Bridge LGA 2011, X9DRL-IF  
Option 2: Sandy Bridge or Ivy Bridge LGA 1155, X9SAE-V  
Option 3: Haswell LGA 2011, X10SRL-F or X10DRL-I  
Dual, Quad, Hexa, Octa, Deca, or Dodeca Core options (dependent on CPU)

## Expansion

Seven (7) full-height slot, 3/4 length PCIe or PCI slot

## External Bays

Option 1: Sixteen (16) removable SATA or SAS 2.5" SSD  
Option 2: Eight (8) removable SAS or SATA 2.5" or 3.5" HDD  
Option 3: (can be combined with hard drive options): One (1) CD/DVD/BD (R/W)

## Memory

8-512 GB

## Mounting

Option 1: Ultra light mounts on Delrin glides  
Option 2: Jonathan rails, 128QD

## Power Supply

Option 1: 600W 120/240VAC 50/60Hz w/PFC, 115VAC 400Hz  
Option 2: 1200W 1+1 120/240VAC 50/60Hz w/PFC, 115VAC 400Hz  
Option 3: 585W 18-36VDC

## System Board

Option 1: X9DRL-IF, LGA2011 Xeon®, ATX, 2LAN1000, VGA, 1 PCI 3.3V, 4 PCI-E X8, 1 PCI-E X1, IPMI, IPKVM, SATARAIDX8, SATA3X2  
Option 2: X9SAE-V, LGA1155, Xeon® & i3/5/7, ATX, 2LAN1000, VGA, 2XHDMI, AUDIO, 1 PCI 5V, 2 PCI-E X1, 1 PCI-E X8, 2 PCI-E X16, SATA4X, SATA3X2  
Option 3: X10SRL-F, Single LGA2011 R3 Xeon®, ATX, 2LAN1000, VGA, 2 PCI-E X16, 5 PCI-E X8, IPMI, IPKVM, SATA3X10  
Option 4: X10DRL-I, DUAL LGA2011 R3 XEON, ATX, 2LAN1000, VGA, 5 PCI-E X8, 1 PCI-E X16, IPMI, IPKVM, SATA3X10

## Kit Options

Option 1 - Shock/Vibe: Power supply mods, card stabilization (as required), and DIMM retention, SSD only  
Option 2 - EMI: Input filtering and additional shielding/grounding. Excludes 1200W 1+1  
Option 3 - Humidity: Conformal coatings and sealing of unused contacts and connectors

## Environmental Standards

MIL-STD-810, Operational Temperature, Method 501, Procedure I/II: -15°C to +55°C, capable of -40°C to +71°C with select processors  
MIL-STD-810, Storage, Method 501, Procedure I/II: -55°C to +85°C  
MIL-STD-810, Humidity, Method 507, Procedure II: 240 hours with humidity kit  
MIL-STD-810, Altitude, Method 500: 12,500ft operation, 40,000ft transport  
MIL-STD-810, Vibration, Method 514, Procedure 13: 4.43 g  
MIL-STD-810, Crash Hazard Shock for Flight Vehicle Equipment, Method 516, Procedure V: 40G 20 ms  
MIL-S-901, Grade A, Class 2, Type B  
MIL-S-901, Grade A, Class 2, Type A: With solid state drives + vibration kits

## Electromagnetic Compatibility Standards

Some standards may require an internal kit

MIL-STD-461, EMC, CE102 (conducted) & RE102 (radiated) emissions, CS101, RS103, CS114, CS115, and CS116, RTCA DO-160 Sections 20 and 21  
AC, FCC Compliant  
AC, MIL-STD-461, RE102, CE102 compliant  
DC, MIL-STD-461, RE102, CE102 compliant  
RTCA DO-160 Section 21, Category M

## 14 CFR 25 - Airworthiness Standards

Flammability Airworthiness Test 14 CFR Part 25: Amendment 25-83 and 25-116, Appendix F, Part I, Para a(1), subparagraphs i, ii, and iv

## Export Compliance

ECCN: 5A992

Classification is dependent on configuration and is subject to change. Please contact your Business Development Manager to receive the classification of your product.

## Cooling

High speed, high volume fans (6) CPU temperature controlled

## Software Compatibility

Accepts Windows 7®, Windows 8®, Windows Server 2008®, Windows Server 2012®, VMware®, or Linux®

\*Crystal Group designs all servers to meet or exceed the specifications listed herein. Due to the sheer number of models and combinations of components (memory, CPU, peripheral cards, hard drives), it is not practical to test every combination of servers offered. Please ask your Crystal Business Development Manager for data on qualification testing for configurations similar to the desired configuration for your application.

\*\*Weight depends largely on hard drive components selected (SSD=0.2 lbs. ea., HDD=1.5 lbs. ea.)

Need something different? We customize!

Contact a Crystal Group Business Development Manager at:  
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