



RS112 Rugged 1U Server



Rugged Series Structural Features

All Aluminum Construction

- 6061T-651 strain hardened structural aircraft aluminum
- 0.187 to 0.500" thk. cross-sections
- MIL-C-5541E Class 3 Chem Film protection

Built to Survive Shock and Vibe

- Multiple attachment points on motherboard and CPU heatsink stabilize PWB
- All fasteners and connectors retained with locking mechanisms
- Cabling dressed and secured to prevent chafing
- Removable HDD, shock isolated



Key Features

- Rugged 1U in a 19" rack or transit case EIA form factor, short depth, 20"
- Light weight, 16-20 lbs depending on content
- Intel Harpertown and Nehalem offerings available
- One (1) full-height, 3/4 length slot; combination is configuration dependent
- Extended temperature range, -15°C to +55°C, -40°C optional SSHDD, +71°C option with higher temp CPU
- Kits available for MIL-STD-810F Vibration, MIL-STD-810F Humidity, MIL-STD-810F Shock, MIL-S-901D Shock, MIL-STD-167-1 Vibration, MIL-STD-461E EMC
- Configuration Management available, designed for long-life thru Intel® Roadmap partner
- Front mounted with Delrin glides, fixed mount or Jonathan rails

Superior Cooling and EMI Performance

Cooling

- High speed, high volume, thermostatically controlled fans offer maximum airflow and are designed for long life
- Custom cabling reduces internal pressure drop to increase airflow
- Conduction and convection cooling techniques optimized for each CPU design

EMI/EMC

- Internal compartments segregated to isolate EMI emissions
- Finish applied maintains superior EMI/EMC characteristics throughout life of the unit.
- Superior grounding paths



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Military Standards (*designed to or tested to)

Operational Temperature, MIL-STD-810F, Method 501.5, Procedure I/II	-15°C to +55°C, +71°C option, with higher temp CPU -40°C with solid state drive
Storage, MIL-STD-810F, Method 501.5, Procedure I/II	-55°C to 85°C
Humidity, MIL-STD-810F, Method 507.4	48 Hour, 95% RH 40-65C— w/humidity kit
Altitude, MIL-STD-810F, Method 500.4	12,500ft operation, 40,000ft transport
Vibration, MIL-STD-810F, Method 514.5, Procedure I	5GRMS, 5-500Hz, 75 min/axis— w/vibe kit (and SSHDD)
MIL-S-901D, Grade A, Class 2, Type B	

Mechanical (1U)

Height	1.75" (4.45 cm)
Width	17.75" (45.1cm)
Depth	20.125" (51.11 cm)
Weight	15-21 lbs (6.80-9.52 kg) (excludes vibe kit mods)

CPU

Intel® CPU Architecture	Dual Dual Core or dual Quad Core Options
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Expansion Slots (1)

Option 1	One Full-Ht PCI-X Slot, 3/4 length
Option 2	One Full-Ht PCIe x16 Slot, 3/4 length
Option 3	One Full-Ht PCIe 2.0 x16 (x8 signals) Slot, 3/4 length

External Bays (2)

Option 1 (std)	Two (2) removable SATA or SAS 2.5" or 3.5" HDD
Option 2	Four (4) 2.5" SATA or SAS HDDs
Option 3 (can be combined with HDD option)	One (1) CD/DVD (R/W) or Blu-ray

Cooling

Option 1 (std)	High speed, high volume fans (6 + 2 PS)
Option 2	Thermostatically controlled, low noise fans

Mounting Options

Option 1 (std)	Mounted on Delrin glides
Option 2	Fixed mount, front and rear
Option 3	Jonathan rails

Power Supply Options

Option 1 (std)	120/240VAC w/PFC
Option 2	24VDC

System Board

Option 1—PCI-X	X7DVL-E, Socket 771, 1333MHz FSB, 2-24GB FBD ECC DDR2, PS/2 KB/M, DB9 Serial, VGA, 2-USB, 2-GBLAN
Option 2—PCIe x16	X7DAL-E, Socket 771, 1333MHz FSB, 2-24GB FBD ECC DDR2, PS/2 KB/M 2-DB9 Serial, 4-USB, 2-GBLAN, Audio-in, out, Mic (requires off-board Video)
Option 3—2 (x8) PCI-E; (x4) PCI	X8DTL-3F, Socket 1366, 2-24 GB ECC Reg. DDR3, PS/2 KB/M, DB9 Serial, VGA, 2-USB, 2-GBLAN, On-board SAS, IPMI w/ KVM over IP

* 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.