VXrack Node

Hardware Specification Sheet

The VxRack™ Node is a block storage node comprised of EMC® ScaleIO® software bundled with an x86 standard server. It delivers the same scale-out block experience as ScaleIO software only deployments, combined with EMC support of the server hardware on which it is loaded. There are four node configurations, as well as optional components which can be ordered from EMC.

Specifications

**VXrack Node Primary Features**

The VxRack Node consists of:

- Full production version of the latest EMC ScaleIO software
- x86 standard server
  - Four x86 standard server configurations, with varying specifications, are available:
    - High-Density Compute (1U1N)
      - “High-Density Compute” (DC100)
      - “High-Density Storage” (DS100)
      - “High-Density All Flash” (DF100)
    - Capacity Compute – 2U, 1 Node (2U1N)
      - “Capacity Storage” (CS100)
      - “Capacity Compute” (CC100)
    - Performance Compute – 2U, 4 Node (2U4N)
      - “Performance Compute” (PC100)
      - “Performance Compute All Flash” (PF100)

Optional components orderable from EMC include:

- Management Server:
  This option is only used with ScaleIO software versions which include the Advanced Management Services (AMS) feature: ScaleIO v1.33.x.
  - 1U server
  - 1 six-core processor
HIGH-DENSITY COMPUTE CONFIGURATIONS – DC100, DS100, DF100

Dense compute servers are designed to maximize storage flexibility and rack density. Server details include:

- **Chassis**: 1U1N = 1 node within a 1U enclosure
- **Processor**: Intel® Xeon® processor E5-2600 v3 product family
- **Drives**: 10 drives per node, consisting of SSDs and / or HDDs
  - **SSDs**: 400GB,800GB, or all flash 1.6TB eMLC SAS
  - **HDDs**: 1.2TB 10k RPM SAS
- **RAID Controller (Dependent upon the 1U1N model)**:
  - LSI3108 w/1GB RAM, 8x PCIe
  - LSI3008 8x PCIe
  - Supports 12GB/s SAS interface to disks
- **Boot drive**: 32GB SATADOM, SLC
- **Networking**:
  - Intel X520 network cards
  - 4 x 10GbE + BMC network ports
  - Additional Option: Node optical transceiver kit: 4x Optical SFP+ SR transceivers
- **Power**:
  - Maximum Heatload: 1,692 BTU / hr
  - Maximum Power: 496 VA at 35°C
  - Input Voltage Range: 100 – 240 V AC power (C13)
  - Frequency: 60 Hz (North America), 50 – 60 Hz (International)
- **Dimensions**:
  - Width: 17.244 in / 43.80 cm
  - Height: 1.7 in / 4.32 cm
  - Depth: 29.21 in / 74.20 cm
  - Maximum Weight: 44.03 lbs. / 19.97 kg
- **Maximum Node Count within VxRack Node Cluster**: 1024 nodes per cluster
- **Environmental**:
  - Operating Temperature Range: 41 - 104°F / 5 - 40°C
  - Relative Humidity: 10 - 80% RH
  - Acoustic Level: 6.4 dbA
HIGH-DENSITY COMPUTE SPECIFICATIONS

HIGH-DENSITY COMPUTE (DC100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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<tbody>
<tr>
<td>HD Hybrid</td>
<td>2x E5-2680v3</td>
<td>512</td>
<td>2 x 400GB</td>
<td>8 x 1.2TB</td>
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<tr>
<td>HD Cached High</td>
<td>2x E5-2680v3</td>
<td>768</td>
<td>2 x 400GB</td>
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<tr>
<td>HD Cached Medium</td>
<td>2x E5-2650v3</td>
<td>256</td>
<td>2 x 400GB</td>
<td>8 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>HD Mixed SSD/HDD</td>
<td>2x E5-2650v3</td>
<td>256</td>
<td>5 x 800GB</td>
<td>5 x 1.2TB</td>
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HIGH-DENSITY STORAGE (DS100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
</tr>
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<tbody>
<tr>
<td>HD Storage Only Max HDD</td>
<td>2x E5-2620v3</td>
<td>64</td>
<td>None</td>
<td>10 x 1.2TB</td>
<td>No</td>
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<td>HD Storage Only Cached</td>
<td>2x E5-2620v3</td>
<td>128</td>
<td>1 x 400GB</td>
<td>9 x 1.2TB</td>
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HIGH-DENSITY ALL FLASH (DF100) SPECIFICATIONS

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<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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</thead>
<tbody>
<tr>
<td>HD Compute All-Flash</td>
<td>2x E5-2680v3</td>
<td>512</td>
<td>10 x 1.6TB</td>
<td>None</td>
<td>No</td>
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<tr>
<td>HD Storage Only All-Flash</td>
<td>2x E5-2620v3</td>
<td>64</td>
<td>10x 1.6TB</td>
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<td>No</td>
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</table>

CAPACITY COMPUTE CONFIGURATIONS – CS100, CC100

Capacity compute servers are designed to maximize storage efficiency. Server details include:

- **Chassis:** 2U1N = 1 node within a 2U enclosure
- **Processor:** Intel® Xeon® processor E5-2600 v3 product family
- **Drives:** 24 drives per node, consisting of SSDs and / or HDDs
  - SSDs: 400GB or 800GB eMLC SAS
  - HDDs: 1.2TB 10k RPM SAS
- **RAID Controller:**
  - LSI3108 w/1GB RAM, 8x PCIe
  - Supports 12GB/s SAS interface to disks
- **Boot drive:** 32GB SATADOM, SLC
- **Networking:**
  - Intel X520 network cards
  - 4 x 10GbE + BMC network ports
  - Additional Option: Node optical transceiver kit: 4x Optical SFP+ SR transceivers
- **Power:**
  - Maximum Heatload: 1,810 BTU / hr
  - Maximum Power: 531 VA
  - Input Voltage Range: 100 – 240 V AC power (C13)
  - Frequency: 60 Hz (North America), 50 – 60 Hz (International)

- **Dimensions:**
  - **Width:** 17.60 in / 44.70 cm
  - **Height:** 3.44 in / 8.75 cm
  - **Depth:** 29.33 in / 74.50 cm
  - **Maximum Weight:** 54.94 lbs. / 24.94 kg

- **Maximum Node Count within VxRack Node Cluster:** 1024 nodes per cluster

- **Environmental:**
  - Operating Temperature Range: 41 - 104°F / 5 - 40°C
  - Relative Humidity: 50 - 80% RH
  - Acoustic Level: 7.0 – 7.5 dbA

### CAPACITY COMPUTE SPECIFICATIONS

#### CAPACITY STORAGE (CS100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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<tbody>
<tr>
<td>Storage Only Max HDD</td>
<td>1x E5-2650v3</td>
<td>64</td>
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<tr>
<td>Storage Only Mixed</td>
<td>1x E5-2650v3</td>
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<td>6 x 800GB</td>
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<td>Storage Only Cached</td>
<td>1x E5-2650v3</td>
<td>64</td>
<td>2 x 400GB</td>
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<tr>
<td>Storage Only Max HDD 1</td>
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<td>None</td>
<td>24 x 1.2TB</td>
<td>No</td>
</tr>
<tr>
<td>Storage Only Cached 1</td>
<td>1x E5-2620v3</td>
<td>64</td>
<td>2 x 400GB</td>
<td>22 x 1.2TB</td>
<td>Yes</td>
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#### CAPACITY COMPUTE (CC100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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<tbody>
<tr>
<td>Capacity Max HDD</td>
<td>2x E5-2650v3</td>
<td>256</td>
<td>None</td>
<td>24 x 1.2TB</td>
<td>No</td>
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<tr>
<td>Capacity Mixed SSD / HDD</td>
<td>2x E5-2680v3</td>
<td>256</td>
<td>6 x 800GB</td>
<td>18 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>Capacity Cached Medium 1</td>
<td>2x E5-2650v3</td>
<td>256</td>
<td>2 x 400GB</td>
<td>22 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>Capacity Cached Medium 2</td>
<td>2x E5-2650v3</td>
<td>512</td>
<td>2 x 400GB</td>
<td>22 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>Capacity Cached High 1</td>
<td>2x E5-2680v3</td>
<td>256</td>
<td>2 x 400GB</td>
<td>22 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>Capacity Cached High 2</td>
<td>2x E5-2680v3</td>
<td>512</td>
<td>2 x 400GB</td>
<td>22 x 1.2TB</td>
<td>Yes</td>
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PERFORMANCE COMPUTE CONFIGURATIONS – PC100, PF100

Performance compute servers are designed to maximize compute efficiency. Server details include:

- **Chassis**: 2U4N = 4 nodes within a 2U enclosure
- **Processor**: Intel® Xeon® processor E5-2600 v3 product family
- **Drives**: 6 drives per node (24 per chassis), consisting of SSDs and / or HDDs
  - SSDs: 400GB or 800GB eMLC SAS
  - HDDs: 1.2TB 10k RPM SAS
- **RAID Controller (Dependent upon the 2U4N model)**:
  - LSI3108 w/1GB RAM, 8x PCIe
  - LSI3008 8x PCIe
  - Supports 6GB/s SAS interface to disks
- **Boot drive**: 32GB SATADOM, SLC
- **Networking**:
  - Intel X520 NIC network cards
  - 4 x 10GbE + BMC network ports per node (16 total)
  - Additional Option: Node optical transceiver kit: 4x Optical SFP+ SR transceivers
- **Power**:
  - Maximum Heatload: 4,262 BTU / hr
  - Maximum Power: 1,250 VA
  - Input Voltage Range: 200 – 240 V AC power
  - Frequency: 60 Hz (North America), 50 – 60 Hz (International)
- **Dimensions**:
  - Width: 17.48 in / 44.40 cm
  - Height: 3.44 in / 8.74 cm
  - Depth: 31.10 in / 79.00 cm
  - Maximum Weight: 91.31 lbs.
- **Maximum Node Count within VxRack Node Cluster**: 1024 nodes per cluster
- **Environmental**:
  - Operating Temperature Range: 41 - 95°F / 5 - 35°C
  - Relative Humidity: 50 - 85% RH
# PERFORMANCE COMPUTE SPECIFICATIONS

## PERFORMANCE COMPUTE (PC100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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</thead>
<tbody>
<tr>
<td>Hybrid High</td>
<td>2x E5-2680v3</td>
<td>256</td>
<td>1 x 400GB</td>
<td>5 x 1.2TB</td>
<td>Yes</td>
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<tr>
<td>Hybrid Medium</td>
<td>2x E5-2650v3</td>
<td>256</td>
<td>1 x 400GB</td>
<td>5 x 1.2TB</td>
<td>Yes</td>
</tr>
<tr>
<td>Hybrid High 2</td>
<td>2x E5-2680v3</td>
<td>512</td>
<td>1 x 400GB</td>
<td>5 x 1.2TB</td>
<td>Yes</td>
</tr>
<tr>
<td>Hybrid Medium 2</td>
<td>2x E5-2650v3</td>
<td>512</td>
<td>1 x 400GB</td>
<td>5 x 1.2TB</td>
<td>Yes</td>
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## PERFORMANCE COMPUTE ALL FLASH (PF100) SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CPU / NODE</th>
<th>RAM / NODE</th>
<th>SSD / NODE</th>
<th>HDD / NODE</th>
<th>SSD CACHING SUPPORT</th>
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<tbody>
<tr>
<td>Performance High</td>
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<td>512</td>
<td>6x800GB</td>
<td>None</td>
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<td>Performance Medium</td>
<td>2x E5-2680v3</td>
<td>256</td>
<td>6x800GB</td>
<td>None</td>
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