Dell EMC PowerProtect DD Series Appliances

Dell EMC PowerProtect DD Series Appliances is the ultimate protection storage appliance that is the next generation of the existing Dell EMC Data Domain appliances. PowerProtect DD is the #1 customer choice of data protection and is now setting the bar for data management from edge to core to cloud.

PowerProtect DD appliances deliver a fast, secure and an efficient solution that is optimized for multi-cloud data protection and meets future demands via a multi-dimensional appliance portfolio.

PowerProtect DD Series Appliances comprises of PowerProtect DD9900, PowerProtect DD9400, PowerProtect DD6900, PowerProtect DD3300 and a software-defined appliance with PowerProtect DD Virtual Edition (DDVE).

<table>
<thead>
<tr>
<th></th>
<th>DD3300</th>
<th>DD6900</th>
<th>DD9400</th>
<th>DD9900</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM THROUGHPUT</td>
<td>Up to 4.2 TB/hr</td>
<td>Up to 15 TB/hr</td>
<td>Up to 26 TB/hr</td>
<td>Up to 41 TB/hr</td>
</tr>
<tr>
<td>MAXIMUM THROUGHPUT (DD BOOST)</td>
<td>Up to 7.0 TB/hr</td>
<td>Up to 33 TB/hr</td>
<td>Up to 57 TB/hr</td>
<td>Up to 94 TB/hr</td>
</tr>
<tr>
<td>LOGICAL CAPACITY ¹</td>
<td>Up to 1.6PB</td>
<td>Up to 18.7PB</td>
<td>Up to 49.9PB</td>
<td>Up to 81.3PB</td>
</tr>
<tr>
<td>W/ Cloud Tier</td>
<td>Up to 4.8PB</td>
<td>Up to 56.1PB</td>
<td>Up to 149.8PB</td>
<td>Up to 211PB</td>
</tr>
<tr>
<td>W/ Cloud Tier</td>
<td>Up to 96TB</td>
<td>Up to 864TB</td>
<td>Up to 2.3PB</td>
<td>Up to 3.25PB</td>
</tr>
<tr>
<td>ES40 SHELF</td>
<td>N/A</td>
<td>4TB 7.2K SAS</td>
<td>8TB 7.2K SAS³</td>
<td>8TB 7.2K SAS³</td>
</tr>
<tr>
<td>DS60 SHELF</td>
<td>N/A</td>
<td>4TB 7.2K SAS³</td>
<td>8TB 7.2K SAS</td>
<td>8TB 7.2K SAS</td>
</tr>
<tr>
<td>FS25 SHELF</td>
<td>N/A</td>
<td>3.84TB SSD²</td>
<td>3.84TB SSD²</td>
<td>3.84TB SSD²</td>
</tr>
</tbody>
</table>

¹Logical capacity based on up to 50x deduplication (DD3300) and up to 65x deduplication (DD6900, DD9400, DD9900) based on additional hardware-assisted data compression of up to 30% better than previous generation. Actual capacity & throughput depends on application workload, deduplication, and other settings.

²High Availability configuration only, in a standard configuration SSDs are in the controller. The following systems support a high availability active/standby configuration: DD9900, DD9400 and DD6900

³Supported but not for factory racked orders

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<tbody>
<tr>
<td><strong>BUILT-IN NETWORKING</strong></td>
<td>1x Mgm’t port</td>
<td>1x Mgm’t port</td>
<td>1x Mgm’t port</td>
<td>1x Mgm’t port</td>
</tr>
<tr>
<td></td>
<td>4x 10G Base-T</td>
<td>4x 10G BASE-T or 4x 10G SFP+</td>
<td>4x 10G BASE-T or 4x 10G SFP+</td>
<td>4x 10G BASE-T or 4x 10G SFP+</td>
</tr>
<tr>
<td><strong>OPTIONAL NETWORKING W/ IO CARDS</strong></td>
<td>The 10GBase-T card can auto-negotiate down to support 1GbE</td>
<td>Up to four quad port 10GbE SFP+ (including built-in)</td>
<td>Up to four quad port 10GbE SFP+ (including built-in)</td>
<td>Up to four quad port 10GbE SFP+</td>
</tr>
<tr>
<td></td>
<td>Up to single dual-port 10GbE SLICs: Optical 16Gbps FC HBA</td>
<td>Up to three dual port 25G SFP+</td>
<td>Up to three dual port 25G SFP+</td>
<td>Up to four quad port 25G SFP+</td>
</tr>
<tr>
<td></td>
<td>Up to 3 quad port 16Gb FC HBA</td>
<td>Up to 3 quad port 16Gb FC HBA</td>
<td>Up to 4 quad port 16Gb FC HBA</td>
<td>Up to 4 quad port 16Gb FC HBA</td>
</tr>
</tbody>
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<th>DD9900</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WEIGHT (LBS)</strong></td>
<td>16 HDDs: 73 lbs</td>
<td>6 SSDs: 73 lbs</td>
<td>9 SSDs: 73 lbs</td>
<td>4 SSDs: 110 lbs</td>
</tr>
<tr>
<td><strong>DIMENSIONS</strong></td>
<td>17.1” x 29.6” x 3.5” 2U EIA rack units</td>
<td>17.1” x 29.6” x 3.5” 2U EIA rack units</td>
<td>17.1” x 29.6” x 3.5” 2U EIA rack units</td>
<td>17.1” x 32.0” x 5.2” 3U EIA rack units</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td>16 HDDs: 429 VA</td>
<td>6 SSDs: 519 VA</td>
<td>9 SSDs: 715 VA</td>
<td>4 SSDs: 1236 VA</td>
</tr>
<tr>
<td><strong>THERMAL RATING (WATTS)</strong></td>
<td>16HDDs: 425 Watts</td>
<td>6 SSDs: 488 Watts</td>
<td>9 SSDs: 686 Watts</td>
<td>4 SSDs: 1187 Watts</td>
</tr>
<tr>
<td><strong>THERMAL RATING (BTU/HR)</strong></td>
<td>16HDDs: 1449</td>
<td>6 SSDs: 1730 btu/h</td>
<td>9 SSDs: 2358 btu/h</td>
<td>4 SSDs: 4228 btu/h</td>
</tr>
<tr>
<td><strong>OPERATING TEMPERATURE/ALTITUDE</strong></td>
<td>10°C to 35°C, 35°C at 3,117 ft</td>
<td>10°C to 35°C, 35°C at 3,117 ft</td>
<td>10°C to 35°C, 35°C at 3,117 ft</td>
<td>10°C to 35°C, 35°C at 3,117 ft</td>
</tr>
<tr>
<td><strong>NON-OPERATING (TRANSPORTATION) TEMPERATURE</strong></td>
<td>-40°C to +65°C (-40°F to +149°F)</td>
<td>-40°C to +65°C (-40°F to +149°F)</td>
<td>-40°C to +65°C (-40°F to +149°F)</td>
<td>-40°C to +65°C (-40°F to +149°F)</td>
</tr>
<tr>
<td><strong>OPERATING HUMIDITY</strong></td>
<td>10% to 80% with 29°C (84.2°F) maximum dew point.</td>
<td>10% to 80% with 29°C (84.2°F) maximum dew point.</td>
<td>10% to 80% with 29°C (84.2°F) maximum dew point.</td>
<td>10% to 80% with 29°C (84.2°F) maximum dew point.</td>
</tr>
<tr>
<td><strong>OPERATION ACOUSTIC NOISE (SOUND POWER)</strong></td>
<td>LWAd: 7.8 bels</td>
<td>7.2 bels</td>
<td>7.6 bels</td>
<td>8.6 bls</td>
</tr>
<tr>
<td><strong>OPERATION ACOUSTIC NOISE (SOUND PRESSURE)</strong></td>
<td>LpAm: 67 db</td>
<td>52 db</td>
<td>58 db</td>
<td>70 db</td>
</tr>
</tbody>
</table>

3. Derate 1.1°C/1,000 ft above 7,500 ft to 10,000 ft

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**Statement of Compliance**

DeLL EMC Information Technology Equipment is compliant with all currently applicable regulatory requirements for Electromagnetic Compatibility, Product Safety, and Environmental Regulations where placed on market.

Detailed regulatory information and verification of compliance is available at the Dell Regulatory Compliance website. [http://dell.com/regulatory_compliance](http://dell.com/regulatory_compliance)

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### PowerProtect DD Virtual Edition performance and capacity

<table>
<thead>
<tr>
<th></th>
<th>DDVE* at 16TB</th>
<th>DDVE* at 96TB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAXIMUM THROUGHPUT</strong></td>
<td>Up to 2.1 TB/hr</td>
<td>Up to 4 TB/hr</td>
</tr>
<tr>
<td><strong>MAXIMUM THROUGHPUT</strong></td>
<td>Up to 5.6 TB/hr</td>
<td>Up to 11.2 TB/hr</td>
</tr>
<tr>
<td><strong>LOGICAL CAPACITY</strong></td>
<td>Up to 800TB</td>
<td>Up to 4.8PB</td>
</tr>
<tr>
<td><strong>LOGICAL CAPACITY W/ CLOUD TIER</strong></td>
<td>Up to 2.4PB</td>
<td>Up to 14.8PB</td>
</tr>
<tr>
<td><strong>MAX USABLE CAPACITY</strong></td>
<td>Up to 16TB</td>
<td>Up to 96TB</td>
</tr>
<tr>
<td><strong>MAX USABLE CAPACITY W/ CLOUD TIER</strong></td>
<td>Up to 48TB</td>
<td>Up to 288TB</td>
</tr>
</tbody>
</table>

*Throughput drawn running DDVE with 16TB & 96TB instances: Host server: 2x Intel Xeon CPU (6 Cores each) @ 2GHz, 128GB memory, 2x10GbE NIC; Storage: DAS with 3TB 7200RPM SAS Drives, RAID6, Battery Powered HBA Cache Enabled, Disk Cache Disabled

** DDVE Cloud support:
DDVE can run on-prem or in the cloud up to 96TB. DDVE runs on VMware, Hyper-V or KVM on-prem, and on AWS, VMware Cloud, Azure, Google Cloud Platform, AWS GovCloud and Azure Government Cloud. Cloud Tier is supported only with DDVE installed on-prem.

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### Software

**Software features**

Global Compression™, Data Inulnerability Architecture, including inline verification and integrated dual disk parity RAID 6, snapshots, telnet, FTP, SSH, email alerts, scheduled capacity reclamation, Ethernet failover and aggregation, Link Aggregation Control Protocol (LACP), VLAN tagging, IP aliasing, DD Boost, DD Encryption, DD Extended Retention, DD Retention Lock, DD Virtual Tape Library (VTL) (for open systems and IBMi operating environments). Available add-ons include: DD Boost, Cloud Tier for long-term retention, Cloud Disaster Recovery, and DD Replicator.

**System management**

PowerProtect DD Management Center, DD System Manager, SNMP, and command line management interface.

**Data management**

NFS v3 over TCP, CIFS and DD Boost over 1GbE or 10GbE or Fibre Channel, tape library emulation (VTL) over Fibre Channel, and NDMP Tape Server.
PowerProtect DD rack

Power configuration
Single phase is standard, optional 3-phase.
Two power domains (base and extended), each redundant.

Power inlet count
Either two or four (Single Phase DD9900 HA with 4x DS60 or DD9900/DD9900 HA with 5x DS60)

Plug types
L6-30P, 56PA322, 332P6W, 3750DP, L7-30, 60309, CS-8365C, 9P54U2T, 3P-Wye, or 3P-Wye Flying Leads

PDU Power capacity
single-phase, 24A, 200-240 V~, 50/60 Hz
three-phase 3W+G, 40A, 200-240 V~, 50/60 Hz
three-phase 3W+N+PE, 24A, 200-240 V~, 50/60 Hz

Dimensions
40U available rack capacity
Height: 75 in (190.8 cm)
Width: 24.0 in (61.1 cm)
Depth: 39.0 in (99.2 cm)
Weight: 380 lbs (173 kg) when empty

A 60cmx120cm 42 U rack will be available in Q1 2020
ES40 Expansion shelf

External interface (host/expansion)
Dual 4 lane 12Gb/s serial attached SCSI II (SAS) ports per Link Control Card (LCC)—one for host and one for expansion

Connector type
SFF-8088 connectors (mini-SAS)

SAS cable length
Up to 5 meter

Disk drives
15-drive bays, supports, 3.5-inch form factor 4 TB 7.2K SAS drives

Dimensions
Height: 5.25 in (13.33 cm)
Width: 17.5 in (44.45 cm)
Depth: 14 in (35.56 cm)
Weight: 68 lbs (30.8 kg)

Operational
Power (VA): 312VA or 293W, (100-240V ~, 47 to 63 Hz)
Thermal Rating: 1000 BTU/hr
Operating Temperature:
Ambient temperature: 50°F to 95°F (10°C to 35°C)
Temperature gradient: 36°F/hr (20°C/hr)
Relative humidity extremes: 20% to 80% noncondensing
Elevation: -50 to 10000 ft (-16 to 3050 m)

Non-Operating (Transportation) Temperature:
Ambient temperature: -40°F to 149°F (-40°C to 65°C)
Temperature gradient: 36°F/hr (20°C/hr)
Relative humidity: 10% to 90% noncondensing
Elevation: -50 to 35,000 ft (-16 to 10,600 m)
DS60 Expansion shelf

External interface (host/expansion)
Quad 8 lane 12 Gb/s serial attached SCSI II (SAS) ports per Link Control Card (LCC)—Half of each port is blocked allowing the use of standard mini-SAS-HD connectors – one port is used for the host connection and the other is used for expansion.

Connector type
SFF-8088 connectors (mini-SAS)

SAS cable length
Up to 5 meter

Disk drives
60-drive bays per DS60 expansion shelf, support low profile, one inch high, 3.5-inch form factor drives
Drive Choices: SAS (12 Gb/s), 4 TB or 8 TB

Dimensions
Height: 8.75 in (22.23 cm) 5U (4U plus 1U cable management tray)
Width including rails: 17.50 in (44.45 cm)
Depth (chassis only): 34.5 in (87.63 cm)
Maximum depth (fully configured): 36.4 in (92.46 cm)
Weight: 225.0 lbs (90.7 kg) (with FRUs installed)

Operational
Power (VA): 980 VA or 931W (200-240V ~, 47 to 63 Hz)
Thermal Rating: 3177 BTU/hr

Operating Temperature:
Ambient temperature: 41° F to 104° F (5° C to 40° C)
Temperature gradient: 18° F/hr (10° C/hr)
Relative humidity extremes: 20% to 80% noncondensing
Elevation: -50 to 7500 ft (-16 to 2300 m)

Non-Operating (Transportation) Temperature:
Ambient temperature: -40° F to 149° F (-40° C to 65° F)
Temperature gradient: 45° F/hr (25°C/hr)
Relative humidity: 10% to 90% noncondensing
Elevation: -50 to 35,000 ft (-16 to 10,600 m)
**FS25 SSD shelf**

**External interface (host/expansion)**

Dual 4 lane 12Gb/s serial attached SCSI II (SAS) ports per Link Control Card (LCC)— one for host and one for expansion

**Connector type**

SFF-8088 connectors (mini-SAS)

**SAS cable length**

Up to 5 meter

**Disk drives**

25-drive bays, supports, 2.5-inch form factor 3.84 TB SSD drives

**Dimensions**

Height: 3.40 in (8.46 cm)

Width: 17.5 in (44.45 cm)

Depth: 13.0 in (33.02 cm)

Weight: 44.6 lbs (20.2 kg)

**Operational**

Power (VA): 325VA or 301W, (100-240V ~, 47 to 63 Hz)

Thermal Rating: 1027 BTU/hr

Operating Temperature:

Ambient temperature: 50° F to 95° F (10° C to 35° C)

Temperature gradient: 36° F/hr (20°C/hr)

Relative humidity extremes: 20% to 80% noncondensing

Elevation: -50 to 10000 ft (-16 to 3050 m)

Non-Operating (Transportation) Temperature:

Ambient temperature: -40° F to 149° F (-40° C to 65° F)

Temperature gradient: 36° F/hr (20°C/hr)

Relative humidity: 10% to 90% noncondensing

Elevation: -50 to 35,000 ft (-16 to 10,600 m)