







## Dell ObjectScale

### EX-Series Appliances | X-Series Appliances

Dell ObjectScale is an enterprise-grade, cloud-scale object storage platform. With ObjectScale, any organization can deliver scalable public cloud services with the reliability and control of a private-cloud infrastructure. ObjectScale provides S3 and multiprotocol support for object workloads and enables organizations to easily manage globally distributed storage infrastructure under a single global namespace with anywhere access to content. ObjectScale features fully-integrated turnkey appliance options that bundle software and Dell PowerEdge servers into an easily deployed object system.

ObjectScale is currently in its fourth generation of hardware appliances, the X-Series, building on the legacy of the EMC Centera, Atmos and ECS object storage platforms that predated ObjectScale. The X-Series currently is comprised of the X560 appliance and the EX-Series is comprised of three additional hardware products carrying the ECS brand: EX500, EX5000 and the all-flash EXF900.

ObjectScale X560	ECS EX500	ECS EX5000	ECS EXF900
			
<p>The X560 is the first object storage appliance in Dell's next-generation X-series. This modern, general-purpose HDD platform offers the perfect blend of economy and density for AI data lake storage, featuring hardware innovations based on PowerEdge R760XD2.</p> <p>Rack capacity ranges from 60TB to 9.22PB.</p>	<p>The EX500 is a versatile HDD option for midsized enterprises looking to support either modern application or deep archive use cases.</p> <p>It's the ideal sandbox for in-house, cloud-native, mobile and web application storage. Rack capacity ranges from 120TB to 7.68PB.</p>	<p>A high density, hot disk-swappable, object storage system, the EX5000 packs up to 14.0PB per rack and can grow into exabyte-scale with ease.</p> <p>It's an ideal platform for long-term retention, storage consolidation and multi-purpose object storage requirements including S3 and archive workloads.</p>	<p>Built with NVMe-based SSDs on Dell PowerEdge servers, the EXF900 appliance delivers extreme performance at scale for modern workloads such as AI, machine learning and real-time analytics applications.</p> <p>Capacity begins at 230TB and scales up to 23.59PB per rack.</p>

Features	ObjectScale X560	ECS EX500	ECS EX5000	ECS EXF900
<b>Node architecture</b>	<ul style="list-style-type: none"> <li>Intel x86 servers</li> <li>Integrated storage</li> <li>6, 12 or 24 disk drives per node</li> </ul>	<ul style="list-style-type: none"> <li>Intel x86 servers</li> <li>Integrated storage</li> <li>12 or 24 disk drives per node</li> </ul>	<ul style="list-style-type: none"> <li>Intel x86 servers</li> <li>Integrated storage</li> <li>Up to 100 disk drives per node</li> </ul>	<ul style="list-style-type: none"> <li>Intel x86 servers</li> <li>Integrated storage</li> <li>12 or 24 disk drives per node</li> </ul>
<b>Network connectivity</b>	<ul style="list-style-type: none"> <li>25GbE FrontEnd</li> <li>25GbE BackEnd</li> </ul>	<ul style="list-style-type: none"> <li>25GbE FrontEnd</li> <li>25GbE BackEnd</li> </ul>	<ul style="list-style-type: none"> <li>25GbE FrontEnd</li> <li>25GbE BackEnd</li> </ul>	<ul style="list-style-type: none"> <li>25GbE FrontEnd</li> <li>25GbE BackEnd</li> </ul>
<b>Rack configurations</b>	<ul style="list-style-type: none"> <li>1, through 16 node configurations (5 node minimum initial rack)</li> <li>HA power</li> </ul>	<ul style="list-style-type: none"> <li>1, through 16 node configurations (5 node minimum initial rack)</li> <li>HA power</li> </ul>	<ul style="list-style-type: none"> <li>EX5000S: 1, through 7 node configurations (5 node minimum initial rack)</li> <li>EX5000D: 2, through 14 node configurations (8 node minimum initial rack)</li> <li>HA power</li> </ul>	<ul style="list-style-type: none"> <li>1, through 16 node configurations (5 node minimum initial rack)</li> <li>HA power</li> </ul>
<b>Storage configurations</b>	<ul style="list-style-type: none"> <li>Unstructured storage up to 9216TB per rack</li> </ul>	<ul style="list-style-type: none"> <li>Unstructured storage up to 7680TB per rack</li> </ul>	<ul style="list-style-type: none"> <li>Unstructured storage up to 14,000TB per rack</li> </ul>	<ul style="list-style-type: none"> <li>Unstructured storage up to 23,593TB per rack</li> </ul>
<b>Architecture</b>	<ul style="list-style-type: none"> <li>Titan S standard 42U cabinet</li> <li>2U node containing server and disks</li> <li>Fully accessible – field serviceable</li> <li>Conventional front to back cooling</li> <li>HA power cabling and cooling</li> </ul>	<ul style="list-style-type: none"> <li>Standard 40U cabinet</li> <li>2U node containing server and disks</li> <li>Fully accessible – field serviceable</li> <li>Conventional front to back cooling</li> <li>HA power cabling and cooling</li> </ul>	<ul style="list-style-type: none"> <li>Titan S standard 42U cabinet</li> <li>EX5000S: 5U chassis containing server and disks</li> <li>EX5000D: 5U chassis containing server and disks</li> <li>Fully accessible – field serviceable components</li> <li>Conventional front to back cooling</li> <li>HA power cabling and cooling</li> </ul>	<ul style="list-style-type: none"> <li>Standard 40U cabinet</li> <li>2U node containing server and disks</li> <li>Fully accessible – field serviceable</li> <li>Conventional front to back cooling</li> <li>HA power cabling and cooling</li> </ul>
<b>Min / max cluster size</b>	<ul style="list-style-type: none"> <li>5 node minimum</li> <li>No maximum</li> </ul>	<ul style="list-style-type: none"> <li>5 node minimum</li> <li>No maximum</li> </ul>	Single: <ul style="list-style-type: none"> <li>5 node minimum</li> <li>No maximum</li> </ul> Dual: <ul style="list-style-type: none"> <li>8 node minimum</li> <li>No maximum</li> </ul>	<ul style="list-style-type: none"> <li>5 node minimum</li> <li>Maximum: 112 nodes</li> </ul>
<b>Min / max rack configuration</b>	<ul style="list-style-type: none"> <li>Min: 1 node = 1 server with included disks</li> <li>Max: 16 nodes = 16 servers with included disks</li> </ul>	<ul style="list-style-type: none"> <li>Min: 1 node = 1 server with included disks</li> <li>Max: 16 nodes = 16 servers with included disks</li> </ul>	Single: <ul style="list-style-type: none"> <li>Min: 1 chassis = 1 server with included disks</li> <li>Max: 7 chassis = 7 servers with included disks</li> </ul> Dual: <ul style="list-style-type: none"> <li>Min: 1 chassis = 1 server with included disks</li> <li>Max: 7 chassis = 7 servers with included disks (14 nodes per 42U rack)</li> </ul>	<ul style="list-style-type: none"> <li>Min: 1 node = 1 server with included disks</li> <li>Max: 16 nodes = 16 servers with included disks</li> </ul>

Features	ObjectScale X560	ECS EX500	ECS EX5000	ECS EXF900
<b>Node:disk ratios</b>	1:6, 1:12, 1:24	1:12, 1:24	EX5000S: 1:25, 1:50, 1:75, 1:100 EX5000D: 1:25, 1:50	1:12, 1:24
<b>Disk type (7200rpm, SATA)</b>	2TB, 4TB, 8TB, 16TB, 20TB, 24TB	2TB, 4TB, 8TB, 12TB, 16TB, 20TB	16TB, 20TB	3.84TB, 7.68TB, 15.36TB, 61.44TB (RI NVMe U.2 SSD)
<b>Memory</b>	256GB	64GB / 192GB	192GB	192GB
<b>Cache SSD</b> for improved metadata read/write cache performance	1.6TB drive (included)	960GB drive (optional)	960GB drive (included)	N/A
<b>Raw capacity (per node)</b>	48TB, 96TB, 192TB, 384TB, 480TB, 576TB	48TB, 96TB, 192TB, 288TB, 384TB, 480TB	1600TB, 2000TB	46TB / 92TB / 184TB / 368TB / 1475TB
<b>Max raw capacity (per rack)</b>	Up to 9216TB	Up to 7680TB	Up to 14,000TB	Up to 23,593TB
<b>Node dimensions</b>	<ul style="list-style-type: none"> <li>2U x D (837 mm)</li> <li>Weight (maximum): 40.18 kg/88.6 lb with 24 drives</li> </ul>	<ul style="list-style-type: none"> <li>2U x D (810 mm)</li> <li>Weight (maximum): 43.2kg/95.2lb with 24 drives</li> </ul>	<ul style="list-style-type: none"> <li>5U x D (970.4 mm) with CMA</li> <li>Weight (maximum): 125kg/276lb</li> </ul>	<ul style="list-style-type: none"> <li>2U x D (715.5 mm)</li> <li>Weight (maximum): 21.8kg/48 lb (with 12 drives); 23.8kg/52.5 lb (with 24 drives)</li> </ul>
<b>Rack dimensions</b>	<ul style="list-style-type: none"> <li>H(78.4") x W(23.6") x D(47.2") – including the front door</li> <li>Weight: 1076kg/2372lb with 4 switches, 16 2U nodes</li> </ul>	<ul style="list-style-type: none"> <li>H(75") x W(24") x D(47") + 4" for front door H(1905mm) x W(610mm) x D(1194mm)</li> <li>Weight: 887kg/1955lb with 4 switches, 16 2U nodes</li> </ul>	<ul style="list-style-type: none"> <li>H(78.4") x W(23.6") x D(47.2") – including the front door</li> <li>Weight: 1179kg/2600lb with 4 switches, 7 5U nodes</li> </ul>	<ul style="list-style-type: none"> <li>H(75") x W(24") x D(47") + 4" for front door H(1905mm) x W(610mm) x D(1194mm)</li> <li>Weight: 887kg/1955lb with 4 switches, 16 2U nodes</li> </ul>
<b>Max power</b>	.7043 kVA per 2U node with 24 drives	.72 kVA per 2U node	2.4 kVA per 5U chassis	1.086 kVA per 2U node
<b>Max heatload</b>	5250 BTU/hr for every 2U node	2400 BTU/Hr for every 2U node	8344 BTU/Hr for every 5U chassis	3706 BTU/Hr for every 2U node
<b>Power specifications (server)</b>	2X1400W power supplies per node (HA)	2X1100W power supplies per node (HA)	2X2400W power supplies per node (HA)	<ul style="list-style-type: none"> <li>2X1100W power supplies per node (HA)</li> <li>2X1600W power supplies per node</li> </ul>
<b>Power specifications (rack)</b>	<ul style="list-style-type: none"> <li>Connection: 6 single phase L6-30 (redundant power) <ul style="list-style-type: none"> <li>30A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>2 three-phase WYE S52.30 (redundant power) <ul style="list-style-type: none"> <li>32A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>2 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> <li>50A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>Input voltage (VAC): 200-240</li> <li>Frequency (Hz): 50 - 60</li> </ul>	<ul style="list-style-type: none"> <li>Connection: 4 single phase L6-30 (redundant power) <ul style="list-style-type: none"> <li>30A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>2 three-phase WYE S52.30 (redundant power) <ul style="list-style-type: none"> <li>32A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>2 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> <li>50A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>Input voltage (VAC): 200-240</li> <li>Frequency (Hz): 50 - 60</li> </ul>	<ul style="list-style-type: none"> <li>Connection: 8 single phase L6-30 (redundant power) <ul style="list-style-type: none"> <li>30A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>4 three-phase WYE S52.30 (redundant power) <ul style="list-style-type: none"> <li>32A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>4 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> <li>50A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>Input voltage (VAC): 200-240</li> <li>Frequency (Hz): 50 – 60</li> </ul>	<ul style="list-style-type: none"> <li>Connection: 8 single phase L6-30 (redundant power) <ul style="list-style-type: none"> <li>30A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>4 three-phase WYE S52.30 (redundant power) <ul style="list-style-type: none"> <li>32A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>4 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> <li>50A circuit breaker (A) max. per AC power source</li> </ul> </li> <li>Input voltage (VAC): 200-240</li> <li>Frequency (Hz): 50 - 60</li> </ul>

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Connectivity	<ul style="list-style-type: none"><li>Uplink connectivity: up to 16x10 GbE, 16x25 GbE, 8x40GbE or 8x100GbE uplinks to customer network (800 Gb/s maximum bandwidth), including high availability configuration</li><li>Network: dual 25 GbE front end switches and dual 25 GbE back end switches (internal traffic) per rack</li></ul>			
Backend aggregation switches	N/A	N/A	N/A	Yes
Environmental specifications	<ul style="list-style-type: none"><li>Operating temperature (°F/°C): 41 - 90/ 5 - 32</li><li>Max. altitude: 7,500 ft/ 2,286 m @ 90°F/32°C</li><li>Relative humidity: 20 - 80% non-condensing</li><li>Raised floor: not required</li></ul>			
Upgrade options	<ul style="list-style-type: none"><li>Scale out by additional nodes</li><li>6 drive capacity upgrade kit</li></ul>	<ul style="list-style-type: none"><li>Scale out by additional nodes</li><li>12 drive capacity upgrade kit</li></ul>	<ul style="list-style-type: none"><li>Scale out by additional nodes</li><li>25 drive capacity upgrade kit</li></ul>	<ul style="list-style-type: none"><li>Scale out by additional nodes</li><li>12 drive capacity upgrade kit</li></ul>



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