

PRODUCT SPECS


# Hitachi Virtual Storage Platform E Series Family Matrix

|  | Hitachi Virtual Storage Platform (VSP) E590   | Hitachi Virtual Storage Platform (VSP) E590H  | Hitachi Virtual Storage Platform (VSP) E790 | Hitachi Virtual Storage Platform (VSP) E790H  | Hitachi Virtual Storage Platform (VSP) E1090       | Hitachi Virtual Storage Platform (VSP) E1090H  |
|--|---|---|---|---|--|--|
| <b>Capacity Specifications</b>                       |   |   |   |   |  |  |
| <b>Max. Raw Internal Capacity</b>                    | 7.94PB (30TB NVMe and 30TB SAS SSD)   | 10.62 PB (30TB NVMe, 30TB SAS SSD and 18TB HDD)   | 7.94PB (30TB NVMe and 30TB SAS SSD)         | 10.62 PB (30TB NVMe, 30TB SAS SSD and 18TB HDD)   | 26 PB (30TB SAS SSD)                               |  |
| <b>Total Efficiency Guarantee Ratio <sup>1</sup></b> | Up to 7:1   |   |   |   |  |  |
| <b>Data Reduction Guarantee Ratio</b>                | Up to 4:1 (sight unseen)  |   |   |   |  |  |
| <b>Max. Raw External</b>                             | 144PB   |   | 216PB                                       |   | 287 PB   |  |
| <b>Max. Number of Drives (Flash and Hard Drives)</b> | 264   | 552   | 264   | 552   | 864  | 960  |
| <b>Max. Number of Flash Drives, Including Spares</b> | 24 (2.5" NVMe SSD) and 240 (2.5" SAS SSD)   |   |   |   | 96 (2.5" NVMe SSD) or 864 (2.5" SAS SSD)           | 864 (2.5" SAS SSD)   |
| <b>Max. Number of Hard Drives, Including Spares</b>  | N/A   | 480 (3.5" SAS HDD)  | N/A   | 480 (3.5" SAS HDD)  | N/A  | 960 (3.5" SAS HDD)   |
| <b>Flash Drive Options</b>                           | <ul style="list-style-type: none"> <li>ⓧ 1.9TB (2.5" NVMe)</li> <li>ⓧ 3.8TB (2.5" NVMe)</li> <li>ⓧ 7.6TB (2.5" NVMe)</li> <li>ⓧ 15TB (2.5" NVMe)</li> <li>ⓧ 30TB (2.5" NVMe)</li> <li>ⓧ 1.9TB (2.5" SAS)</li> <li>ⓧ 3.8TB (2.5" SAS)</li> <li>ⓧ 7.6TB (2.5" SAS)</li> <li>ⓧ 15TB (2.5" SAS)</li> <li>ⓧ 30TB (2.5" SAS)</li> </ul> |   |   |   |  | <ul style="list-style-type: none"> <li>ⓧ 1.9TB (2.5" SAS)</li> <li>ⓧ 3.8TB (2.5" SAS)</li> <li>ⓧ 7.6TB (2.5" SAS)</li> <li>ⓧ 15TB (2.5" SAS)</li> <li>ⓧ 30TB (2.5" SAS)</li> </ul> |
| <b>SAS Hard Drive Options</b>                        | N/A   | <ul style="list-style-type: none"> <li>ⓧ 2.4TB (2.5" 10K)</li> <li>ⓧ 6TB (3.5" 7.2K)</li> <li>ⓧ 10TB (3.5" 7.2K)</li> <li>ⓧ 14TB (3.5" 7.2K)</li> <li>ⓧ 18TB (3.5" 7.2K)</li> </ul> | N/A   | <ul style="list-style-type: none"> <li>ⓧ 2.4TB (2.5" 10K)</li> <li>ⓧ 6TB (3.5" 7.2K)</li> <li>ⓧ 10TB (3.5" 7.2K)</li> <li>ⓧ 14TB (3.5" 7.2K)</li> <li>ⓧ 18TB (3.5" 7.2K)</li> </ul> | N/A  | <ul style="list-style-type: none"> <li>ⓧ 2.4TB (2.5" 10K)</li> <li>ⓧ 6TB (3.5" 7.2K)</li> <li>ⓧ 14TB (3.5" 7.2K)</li> <li>ⓧ 18TB (3.5" 7.2K)</li> </ul>                            |
| <b>Max. Standard Expansion Drive Trays</b>           | 10 (2U: 24 SFF SAS SSD)   | 10 expansion trays total<br>2 (2U: 24 SFF SAS SSD) and 8 (2U: 24 SFF SAS SSD/HDD or 2U: 12 LFF SAS HDD)   | 10 (2U: 24 SFF SAS SSD)                     | 10 expansion trays total<br>2 (2U: 24 SFF SAS SSD) and 8 (2U: 24 SFF SAS SSD/HDD or 2U: 12 LFF SAS HDD)   | 4 (2U: 24 SFF NVMe SSD) or 36 (2U: 24 SFF SAS SSD) | 36 expansion trays total<br>4 (2U: 24 SFF SAS SSD) and 32 (2U: 24 SFF SAS SSD/HDD) or 2U: 12 LFF SAS HDD)  |
| <b>Max. High Density Expansion Drive Trays</b>       | N/A   | 8 (4U: 60 LFF HDD)  | N/A   | 8 (4U: 60 LFF HDD)  | N/A  | 16 (4U: 60 LFF HDD)  |

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|  | Hitachi Virtual Storage Platform (VSP) E590   | Hitachi Virtual Storage Platform (VSP) E590H | Hitachi Virtual Storage Platform (VSP) E790 | Hitachi Virtual Storage Platform (VSP) E790H | Hitachi Virtual Storage Platform (VSP) E1090  | Hitachi Virtual Storage Platform (VSP) E1090H |
|--|---|--|---|--|---|---|
| <b>Controller Tray Specifications</b>                    |   |  |   |  |   |   |
| Performance (IOPS)                                       | 4.0 million   |  | 6.8 million                                 |  | 8.4 million   |   |
| Performance (Bandwidth)                                  | 22 GB/s   |  | 32 GB/s                                     |  | 52GB/s  |   |
| Fibre Bandwidth to Host                                  | 76,800 MB/s   |  |   |  | 256,000 MB/s  |   |
| Max. Cache   | 768 GiB   |  |   |  | 1024 GiB  |   |
| Max. Host Port Counts                                    | 24 x FC<br>12 x iSCSI <sup>4</sup>  | 16 x FC<br>8 x iSCSI                         | 24 x FC<br>12 x iSCSI <sup>4</sup>          | 16 x FC<br>8 x iSCSI                         | 80 x FC-NVMe<br>80 x FC<br>40 x iSCSI <sup>5</sup>  |   |
| Host Interface Types                                     | <ul style="list-style-type: none"> <li>⌘ FC: 32Gb/s</li> <li>⌘ FC: 16Gb/s</li> <li>⌘ iSCSI: 10Gb/s</li> <li>⌘ iSCSI: 25Gb/s</li> </ul>  |  |   |  | <ul style="list-style-type: none"> <li>⌘ FC-NVMe: 32Gb/s</li> <li>⌘ Fibre Channel: 32Gb/s</li> <li>⌘ Fibre Channel: 16Gb/s</li> <li>⌘ iSCSI: 10Gb/s</li> <li>⌘ iSCSI: 25Gb/s</li> </ul> |   |
| Height<br>Width<br>Depth (Controller)                    | 2U, 3.5" (87 mm)<br>19.0" (482 mm)<br>33.6" (852mm)   |  |   |  | 4U, 6.9" (175 mm)<br>19.0" (483 mm)<br>31.8" (809 mm)   |   |
| Max. Weight (Controller w/ internal media <sup>2</sup> ) | 106 lbs (48 kg)   |  |   |  | 166 lbs (75 kg)   |   |
| Built-in Drive Tray                                      | 24 SFF NVMe SSD   |  |   |  | N/A   | N/A   |
| Back-End Disk Interface and Links                        | Built-in Drive Tray: 32 x NVMe PCIe<br>Expansion Drive Tray: 8 x SAS  |  |   |  | 64 x NVMe PCIe<br>or<br>64 x 12 Gb/s SAS  |   |
| <b>Expansion Host I/O Tray</b>                           |   |  |   |  |   |   |
| Max qty  | 0   |  |   |  | 1   |   |
| Height<br>Width<br>Depth                                 | N/A   |  |   |  | 2U, 3.5" (88 mm)<br>19" (483mm)<br>35.2" (892 mm)   |   |
| Max. Weight  | N/A   |  |   |  | 95 lbs (43 kg)  |   |
| <b>Software Specifications</b>                           |   |  |   |  |   |   |
| Value Added Bundled Features                             | <ul style="list-style-type: none"> <li>⌘ 100% Data Availability Guarantee</li> <li>⌘ Total Efficiency Guarantee</li> <li>⌘ Adaptive Data Reduction</li> <li>⌘ Storage Virtualization</li> <li>⌘ Embedded Management</li> <li>⌘ In System Replication</li> <li>⌘ Copy Data Management</li> <li>⌘ Infrastructure Analytics</li> <li>⌘ Non-disruptive Migration</li> </ul> |  |   |  |   |   |
| RAID Supported <sup>3</sup>                              | <ul style="list-style-type: none"> <li>⌘ RAID6 (6D+2P, 12D+2P, 14D+2P)</li> <li>⌘ RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P)</li> <li>⌘ RAID1 (2D+2D, 4D+4D)</li> </ul>   |  |   |  |   |   |
| Data-at-Rest Encryption                                  | Yes   |  |   |  |   |   |
| Max. LUN Size  | 256TB   |  |   |  |   |   |
| Max. Number of LUNs                                      | 32,768  |  | 49,152                                      |  | 65,280  |   |

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|---|---|--|---|--|--|---|
| <b>Virtual Storage Scale Out Specifications</b> |   |  |   |  |  |   |
| Max Controller nodes per cluster                | 65  |  |   |  |  |   |
| Max Clusters one node may participate           | 15 <sup>6</sup>   |  |   |  |  |   |
| Fibre Bandwidth to Host                         | 1,560   |  | 4,160                                       |  | 4,160  |   |
| Max Cache (without intermix)                    | 49,920 GiB  |  |   |  | 66,560 GiB                                   |   |
| ENERGY STAR® certified                          |  Yes |  |   |  |  |   |

Notes:

- <sup>1</sup> The Total Efficiency Guarantee of up to 7:1 for the VSP E990/E790/E590 covers savings from data de-duplication, compression, thin provisioning and snapshots.
- <sup>2</sup> VSP E790 and E590 controller weight includes internal NVMe SSDs
- <sup>3</sup> RAID 1 selection mirrors blocks across two drives and then creates a striped set across multiple drive pairs. This is commonly referred to as RAID 1+0.
- <sup>4</sup> Maximum port count reflect diskless configuration
- <sup>5</sup> Maximum port count reflects diskless configuration and additional Channel Board Box (2U)
- <sup>6</sup> 15 non-meta Virtual Storage Machines per node shared with NDM and GAD uses of VSMs

- 1MB = 1,000,000 bytes
- 1MiB = 1,048,576 bytes
- NVMe = non-volatile memory
- express SSD = solid state drive
- FC = Fibre Channel
- iSCSI = Internet Small Computer Systems Interface