

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) E990
Capacity Specifications					
Max. Raw Internal Capacity	7.92PB (30TB NVMe and SAS SSD)	8.9 PB (30TB NVMe, 30TB SAS SSD and 14TB HDD)	7.92PB (30TB NVMe and SAS SSD)	8.9 PB (30TB NVMe, 30TB SAS SSD and 14TB HDD)	2.888 PB (30TB NVMe SSD)
Total Efficiency Guarantee Ratio *	Up to 7:1	Up to 7:1	Up to 7:1	Up to 7:1	Up to 7:1
Data Reduction Guarantee Ratio	Up to 4:1 (sight unseen)	Up to 4:1 (sight unseen)	Up to 4:1 (sight unseen)	Up to 4:1 (sight unseen)	Up to 4:1 (sight unseen)
Max. Raw External Capacity	144PB	144PB	216PB	216PB	287 PB
Max. Number of Drives (Flash and Hard Drives)	264	552	264	552	96
Max. Number of Flash Drives, Including Spares	24 (2.5" NVMe SSD) 240 (2.5" SAS SSD)	24 (2.5" NVMe SSD) 240 (2.5" SAS SSD)	24 (2.5" NVMe SSD) 240 (2.5" SAS SSD)	24 (2.5" NVMe SSD) 240 (2.5" SAS SSD)	96 (2.5" NVMe SSD)
Max. Number of Hard Drives, Including Spares	N/A	480 (3.5" SAS HDD)	N/A	480 (3.5" SAS HDD)	N/A
Flash Drive Options	1.9TB (2.5" NVMe) 3.8TB (2.5" NVMe) 7.6TB (2.5" NVMe) 15TB (2.5" NVMe) 30TB (2.5" NVMe) 1.9TB (2.5" SAS) 3.8TB (2.5" SAS) 7.6TB (2.5" SAS) 15TB (2.5" SAS) 30TB (2.5" SAS)	1.9TB (2.5" NVMe) 3.8TB (2.5" NVMe) 7.6TB (2.5" NVMe) 15TB (2.5" NVMe) 30TB (2.5" NVMe) 1.9TB (2.5" SAS) 3.8TB (2.5" SAS) 7.6TB (2.5" SAS) 15TB (2.5" SAS) 30TB (2.5" SAS)	1.9TB (2.5" NVMe) 3.8TB (2.5" NVMe) 7.6TB (2.5" NVMe) 15TB (2.5" NVMe) 30TB (2.5" NVMe) 1.9TB (2.5" SAS) 3.8TB (2.5" SAS) 7.6TB (2.5" SAS) 15TB (2.5" SAS) 30TB (2.5" SAS)	1.9TB (2.5" NVMe) 3.8TB (2.5" NVMe) 7.6TB (2.5" NVMe) 15TB (2.5" NVMe) 30TB (2.5" NVMe) 1.9TB (2.5" SAS) 3.8TB (2.5" SAS) 7.6TB (2.5" SAS) 15TB (2.5" SAS) 30TB (2.5" SAS)	1.9TB (2.5" NVMe) 3.8TB (2.5" NVMe) 7.6TB (2.5" NVMe) 15TB (2.5" NVMe) 30TB (2.5" NVMe)

SAS Hard Drive Options	N/A	2.4TB (2.5" 10K) 6TB (3.5" 7.2K) 10TB (3.5" 7.2K) 14TB (3.5" 7.2K)	N/A	2.4TB (2.5" 10K) 6TB (3.5" 7.2K) 10TB (3.5" 7.2K) 14TB (3.5" 7.2K)	N/A
Max. Standard Expansion Drive Trays	10 (2U: 24 SFF SAS SSD)	10 expansion trays total 2 (2U: 24 SFF SAS SSD) and 8 (2U: 24 SFF SAS SSD/HDD) or 8 (2U: 12 LFF SAS HDD)	10 (2U: 24 SFF SAS SSD)	10 expansion trays total 2 (2U: 24 SFF SAS SSD) and 8 (2U: 24 SFF SAS SSD/HDD) or 8 (2U: 12 LFF SAS HDD)	4 (2U: 24 NVMe SSD)
Max. High Density Expansion Drive Trays	N/A	8 (4U: 60 LFF HDD)	N/A	8 (4U: 60 LFF HDD)	N/A
Controller Tray Specifications					
Performance (IOPS)	4.0 million	4.0 million	6.8 million	6.8 million	5.8 million
Performance (Bandwidth)	22 GB/s	22 GB/s	32 GB/s	32 GB/s	30GB/s
Fibre Bandwidth to Host	76,800 MB/s	76,800 MB/s	76,800 MB/s	76,800 MB/s	204,800 MB/s
Max. Cache	768 GiB	768 GiB	768 GiB	768 GiB	1024 GiB
Max. Host Port Counts	24 x Fibre Channel 12 x iSCSI	16 x Fibre Channel 8 x iSCSI	24 x Fibre Channel 12 x iSCSI	16 x Fibre Channel 8 x iSCSI	80 x Fibre Channel 40 x iSCSI
Host Interface Types	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps
Height Width Depth (Controller)	2U, 3.5" (87 mm) 19.0" (482 mm) 33.6" (852mm)	2U, 3.5" (87 mm) 19.0" (482 mm) 33.6" (852mm)	2U, 3.5" (87 mm) 19.0" (482 mm) 33.6" (852mm)	2U, 3.5" (87 mm) 19.0" (482 mm) 33.6" (852mm)	4U, 6.9" (175 mm) 19.0" (483 mm) 31.8" (809 mm)
Max. Weight (Controller w/ internal media**)	106 lbs (48 kg)	106 lbs (48 kg)	106 lbs (48 kg)	106 lbs (48 kg)	165 lbs (75 kg)
Built-in Drive Tray	24 SFF NVMe SSD	24 SFF NVMe SSD	24 SFF NVMe SSD	24 SFF NVMe SSD	N/A
Back-End Disk Interface and Links	Built-in Drive Tray: 32 x NVMe PCIe Expansion Drive Tray: 8 x SAS	Built-in Drive Tray: 32 x NVMe PCIe Expansion Drive Tray: 8 x SAS	Built-in Drive Tray: 32 x NVMe PCIe Expansion Drive Tray: 8 x SAS	Built-in Drive Tray: 32 x NVMe PCIe Expansion Drive Tray: 8 x SAS	64 x NVMe PCIe
Expansion Host I/O Tray					
Max qty	0	0	0	0	1

Height Width Depth	N/A	N/A	N/A	N/A	2U, 3.5" (88 mm) 19" (483mm) 35.2" (892 mm)
Max. Weight	N/A	N/A	N/A	N/A	89 lbs (40 kg)

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) E990

Software Specifications

Value Added Bundled Features	100% Data Availability Guarantee Total Efficiency Guarantee Adaptive Data Reduction Storage Virtualization Embedded Management In System Replication Copy Data Management Infrastructure Analytics Non-disruptive Migration	100% Data Availability Guarantee Total Efficiency Guarantee Adaptive Data Reduction Storage Virtualization Embedded Management In System Replication Copy Data Management Infrastructure Analytics Non-disruptive Migration	100% Data Availability Guarantee Total Efficiency Guarantee Adaptive Data Reduction Storage Virtualization Embedded Management In System Replication Copy Data Management Infrastructure Analytics Non-disruptive Migration	100% Data Availability Guarantee Total Efficiency Guarantee Adaptive Data Reduction Storage Virtualization Embedded Management In System Replication Copy Data Management Infrastructure Analytics Non-disruptive Migration	100% Data Availability Guarantee Total Efficiency Guarantee Adaptive Data Reduction Storage Virtualization Embedded Management In System Replication Copy Data Management Infrastructure Analytics Non-disruptive Migration
RAID Supported***	RAID6 (6D+2P, 12D+2P, 14D+2P) RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P) RAID1 (2D+2D, 4D+4D)	RAID6 (6D+2P, 12D+2P, 14D+2P) RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P) RAID1 (2D+2D, 4D+4D)	RAID6 (6D+2P, 12D+2P, 14D+2P) RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P) RAID1 (2D+2D, 4D+4D)	RAID6 (6D+2P, 12D+2P, 14D+2P) RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P) RAID1 (2D+2D, 4D+4D)	RAID6 (6D+2P, 12D+2P, 14D+2P) RAID5 (3D+1P, 4D+1P, 6D+1P, 7D+1P) RAID1 (2D+2D, 4D+4D)
Data-at-Rest Encryption	Yes	Yes	Yes	Yes	Yes
Max. LUN Size	256TB	256TB	256TB	256TB	256TB
Max. Number of LUNs	32,768	32,768	49,152	49,152	65,280
Max. Number of Snapshots	1024 per LUN; (524,288 per system)	1024 per LUN; (524,288 per system)	1024 per LUN; (786,432 per system)	1024 per LUN; (786,432 per system)	1024 per LUN; (1,048,575 per system)
Max. Number of Hosts per Fibre Channel Port	255	255	255	255	255

Notes:

* 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.

** VSP E790 and E590 controller weight includes internal NVMe SSDs

*** 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.

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

Hitachi Vantara



Corporate Headquarters
2535 Augustine Drive
Santa Clara, CA 95054 USA
hitachivantara.com | community.hitachivantara.com

Contact Information
USA: 1-800-446-0744
Global: 1-858-547-4526
hitachivantara.com/contact

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