

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
Capacity Specifications						
Max. Raw Internal Capacity	7.94PB (30TB NVMe and 30TB SAS SSD)	8.74 PB (30TB NVMe and 30TB SAS SSD)	7.94PB (30TB NVMe and 30TB SAS SSD)	8.74 PB (30TB NVMe and 30TB SAS SSD)	25.9 PB (30TB SAS SSD)	
Total Efficiency Guarantee Ratio¹	Up to 7:1					
Data Reduction Guarantee Ratio	Up to 4:1 (sight unseen)					
Max. Raw External Capacity	144PB		216PB		287 PB	
Max. Number of Drives (Flash and Hard Drives)	264	552	264	552	864	960
Max. Number of Flash Drives, Including Spares	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)
Max. Number of Hard Drives, Including Spares	N/A	480 (3.5" SAS HDD)	N/A	480 (3.5" SAS HDD)	N/A	960 (3.5" SAS HDD)
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" SAS) 3.8TB (2.5" SAS) 7.6TB (2.5" SAS) 15TB (2.5" SAS) 30TB (2.5" SAS)	

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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) 18TB (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) 18TB (3.5" 7.2K)	N/A	2.4TB (2.5" 10K) 6TB (3.5" 7.2K) 14TB (3.5" 7.2K) 18TB (3.5" 7.2K)
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 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 2U: 12 LFF SAS HDD)	4 (2U: 24 SFF NVMe SSD) or 36 (2U: 24 SFF SAS SSD)	36 expansion trays total 4 (2U: 24 SFF SAS SSD) and 32 (2U: 24 SFF SAS SSD/HDD) or 2U: 12 LFF SAS HDD)
Max. High Density Expansion Drive Trays	N/A	8 (4U: 60 LFF HDD)	N/A	8 (4U: 60 LFF HDD)	N/A	16 (4U: 60 LFF HDD)
Controller Tray Specifications						
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 Fibre Channel 12 x iSCSI ⁴	16 x Fibre Channel 8 x iSCSI	24 x Fibre Channel 12 x iSCSI ⁴	16 x Fibre Channel 8 x iSCSI	80 x Fibre Channel 40 x iSCSI ⁵	
Host Interface Types	Fibre Channel: 32Gbps Fibre Channel: 16Gbps iSCSI: 10Gbps					
Height Width Depth (Controller)	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 media²)	106 lbs (48 kg)				166 lbs (75 kg)	
Built-in Drive Tray	24 SFF NVMe SSD				N/A	N/A

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Back-End Disk Interface and Links	Built-in Drive Tray: 32 x NVMe PCIe Expansion Drive Tray: 8 x SAS				64 x NVMe PCIe or 64 x 12 Gb/s SAS	
Expansion Host I/O Tray						
Max qty	0				1	
Height Width Depth	N/A				2U, 3.5" (88 mm) 19" (483mm) 35.2" (892 mm)	
Max. Weight	N/A				95 lbs (43 kg)	

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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

RAID Supported³

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

Max. LUN Size

256TB

Max. Number of LUNs

32,768

49,152

65,280

Max. Number of Snapshots

1024 per LUN; (524,288 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

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Virtual Storage Scale Out Specifications						
Max Controller nodes per cluster	65					
Max Clusters one node may participate	15 ⁶					
Max Cores (without intermix)	1,560		4,160		4,160	
Max Cache (without intermix)	49,920 GiB				66,560 GiB	

Notes:

¹ 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.

² VSP E790 and E590 controller weight includes internal NVMe SSDs

³ 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.

⁴ Maximum port count reflect diskless configuration

⁵ Maximum port count reflects diskless configuration and additional Channel Board Box (2U)

⁶ 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

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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