Product Specification

Hitachi Virtual Storage Platform E Series Family Matrix

	Hitachi Virtual Storage Platform (VSP) E590H	Hitachi Virtual Storage Platform (VSP) E790H	Hitachi Virtual Storage Platform (VSP) E1090	Hitachi Virtual Storage Platform (VSP) E1090H
Max. Raw Internal Capacity	10.62 PB (30TB NVMe,30TB SAS SSD and 18TB HDD)	10.62 PB (30TB NVMe, 30TB SAS SSD and 18TB HDD)	23 PB (30TB SAS SSD)	
Total Efficiency Guarantee Ratio [1]	Up to 7:1			
Data Reduction Guarantee Ratio	Up to 4:1 (sight unseen)			
Max. Raw External	144PB	216PB	287 PB	
Max. Number of Drives (Flash and Hard Drives)	552	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)	768 (2.5" SAS SSD)
Max. Number of Hard Drives, Including Spares	480 (3.5" SAS HDD)	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)
SAS Hard Drive Options	• 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)	• 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 expansion trays total 2 (2U: 24 SFF SAS SSD) and 8 (2U: 24 SFF SAS SSD/HDD or 2U: 12 LFF SAS HDD)	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	8 (4U: 60 LFF HDD)	8 (4U: 60 LFF HDD)	N/A	16 (4U: 60 LFF HDD)
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	16 x FC 8 x iSCSI	16 x FC 8 x iSCSI	80 x FC-NVMe 80 x FC 40 x iSCSI[5]	

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Host Interface Types	• FC: 32Gb/s • FC: 16Gb/s • iSCSI: 10Gb/s • iSCSI: 25Gb/s		• FC-NVMe: 32Gb/s • Fibre Channel: 32Gb/s • Fibre Channel: 16Gb/s • iSCSI: 10Gb/s • iSCSI: 25Gb/s	
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 media[2])	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 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)	
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 Supported[3]	• 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	

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

[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	SSD = solid state drive
1MiB = 1,048,576 bytes	FC = Fibre Channel
NVMe = non-volatile memory express	iSCSI = internet small computer systems interface

About Hitachi Vantara

Hitachi Vantara, a Hitachi, Ltd. subsidiary, is the data foundation for innovation. We build resilient data storage and infrastructure the world's innovators rely on.

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