

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
Capacity Specifications						
Max. Raw Internal Capacity	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)	
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)	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	<ul style="list-style-type: none"> ⓧ 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) 					<ul style="list-style-type: none"> ⓧ 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	N/A	<ul style="list-style-type: none"> ⓧ 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	<ul style="list-style-type: none"> ⓧ 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	<ul style="list-style-type: none"> ⓧ 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)

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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 FC 12 x iSCSI ⁴	16 x FC 8 x iSCSI	24 x FC 12 x iSCSI ⁴	16 x FC 8 x iSCSI	80 x FC-NVMe 80 x FC 40 x iSCSI ⁵	
Host Interface Types	<ul style="list-style-type: none"> ✘ FC: 32Gb/s ✘ FC: 16Gb/s ✘ iSCSI: 10Gb/s ✘ iSCSI: 25Gb/s 				<ul style="list-style-type: none"> ✘ 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	<ul style="list-style-type: none"> ✘ 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	<ul style="list-style-type: none"> ✘ 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					

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