Hitachi Virtual Storage Platform family brings you the ultimate in enterprise storage technology in your choice of midrange to high-end and mainframe systems. Along with best-in-class, flash-accelerated scalability, the systems provide advanced capabilities that deliver continuous operations and IT efficiency.

Hitachi Virtual Storage Platform Family

Advanced Storage Capabilities for All Organizations

The Hitachi Virtual Storage Platform (VSP) family of flash-accelerated storage systems offers the ultimate in enterprise storage technology, delivering up to four million IOPS, 255PB of storage and the industry's only 100% data availability guarantee. Built on 20 years of experience and an industry-leading 3,500+ storage patents, the VSP family provides unparalleled performance, efficiency and reliability.

The platform's software-defined infrastructure (SDI) is vital to businesses because it provides the automation for simplicity. It brings more access to data for insight, as well as the abstraction for greater agility that businesses need to run and grow, quickly and efficiently. Hitachi VSP family systems running Hitachi Storage Virtualization Operating System (SVOS) deliver maximum performance, IT efficiency and resiliency, while eliminating complexity.

Every Hitachi VSP system has the ability to virtualize and consolidate storage management under a single view. This capability allows IT organizations to provide a common method of controlling storage operations, independent of how the physical hardware evolves over time.

SVOS provides the foundation for superior storage performance, high availability and IT efficiency.

Hitachi Accelerated Flash (HAF) combines the flash optimizations of SVOS and our patented flash module drives (FMD DC2), to deliver best-in-class performance and efficiency for hybrid and all-flash VSP systems. For hybrid systems, HAF software provides automated, active-flash tiering that monitors and moves data to flash in real time so you can be more responsive to sudden changes in workloads and deliver an "all-flash" experience.

HAF, built with our new FMD DC2, delivers increased real application performance at lower latency. It improves efficiency with inline compression and ensures a higher resiliency than other offerings. FMD DC2 uses specially designed flash modules that are up to five times faster than off-the-shelf solid-state disks (SSDs), so applications run faster and are less likely to slow down even as workload I/O increases. FMD DC2 embedded ASIC enables accelerated data compression that runs 10 times faster than competitive offerings, freeing up system resources so that more hosts and applications can be supported. Compared to most solid-state systems, it also offers greater total system capacity of up to 8PB effective capacity.

Integrated active mirroring ensures the highest data protection service level for zero downtime and no data loss. Global-active device feature supports read/write copies of the same data in two places at the same time. Its active-active design implements cross-mirrored storage volumes between two matched VSP systems that accept read/write I/Os on both sides that are continuously updated. If a disk controller failure occurs at one site, the controller at the other site automatically takes over and accepts read/write I/Os. Global-active device ensures that an up-to-date storage volume is always available and enables production workloads on both systems, while maintaining full data consistency and protection.

Unified Storage allows you to deploy and manage a single consolidated storage repository that can serve SAN, NAS and object workloads. With unified storage from Hitachi you simplify IT operations and eliminate silos of storage that reduce return on assets and effectiveness of budget. Hitachi NAS Platform uses a hardware-accelerated hybrid-core architecture. This architecture efficiently consolidates capacity across multiple applications and simplifies storage management for enterprise environments, without compromising performance and scalability.

Automated workflow capabilities accelerate storage provisioning for critical business applications to quickly deliver new IT services. Hitachi Automation Director software enables storage infrastructure self-service

with intelligent automated workflows that incorporate storage management best practices. Through infrastructure abstraction, common and repeatable storage management tasks can be simplified, improving reliability and helping to deliver new IT services quickly to the business.

Mainframe storage features compatibility, including PAV, HyperPAV, dynamic volume expansion (DVE), extended address volumes (EAV), peer-to-peer remote copy (PPRC), and IBM® high-performance FICON® with multitrack, plus basic and IBM GDPS® HyperSwap®, IBM XRC, IBM FlashCopy®, and IBM space-efficient FlashCopy.

Virtualized server environments complement the VSP family's ability to consolidate multiple file and block workloads in a single system. Integration of VMware applications (including VAAI, VASA, VAMP, VADP, V VOL)

and Microsoft® Windows® 2012 applications (including VSS, ODX) offloads storage-intensive tasks from hosts to increase virtual machine density, improve performance and reduce workload contention.

The VSP family systems, based on Storage Virtualization Operating System, provide a uniquely scalable, software-defined storage foundation that unlocks IT agility and enables the lowest storage total cost of ownership.

HITACHI VIRTUAL STORAGE PLATFORM FAMILY SPECIFICATIONS

	VSP G200	VSP G400	VSP G600	VSP G800	VSP G1000
Max. Raw Internal Capacity	1,512TB	2,880TB	4,320TB	8,640TB	6,912TB
Max. Raw External Capacity	8PB	16PB		64PB	255PB
Flash Drive Options (raw capacity) Small Form Factor	200GB (196GB), 400GB (393GB)				400GB 800GB
Flash Module Drive	1.6TB (1,759GB), 3.2TB (3,518GB), 6.4TB (7,059GB)				
Small Form Factor (SFF) Hard Disk Drive Options (raw capacity)	**15K RPM**, 300GB (288GB), 600GB (576GB) **10K RPM**, 600GB (576GB), 900GB* (864GB), 1.2TB (1,152GB), 1.8TB (1,729GB)				
Large Form Factor (LFF) Hard Disk Drives Options (raw capacity)	**7.2K RPM**, 4TB (4,511GB), 6TB (5,874GB)				
Max. Drives	264	480	720	1,440	2,304 SFF, 1,152 LFF
Disk Expansion Trays	2U: 24 SFF (2.5"), 2U: 12 LFF (3.5"), 2U: 12 flash module drive (FMD), 4U: 60 LFF (3.5") and SFF (2.5")				16U: 192 SFF (2.5") 16U: 96 LFF (3.5") 8U: 48 FMD
Block Module Height (with service processor)	3U	5U			10U
Host Interfaces (without drives) Note: FC = Fibre Channel, FCoE = Fibre Channel over Ethernet, FICON = IBM® FICON®	16 FC: 8Gb/sec 8 FC: 16Gb/sec 8 iSCSI: 10Gb/sec 8 iSCSI: 10GBase-T	64 FC: 8Gb/sec 32 FC: 16Gb/sec 32 iSCSI: 10Gb/sec 32 iSCSI: 10GBase-T		80 FC: 8Gb/sec 40 FC: 16Gb/sec 40 iSCSI: 10Gb/sec 40 iSCSI: 10GBase-T	192 FC: 8Gb/sec or 16Gb/sec 176 FICON: 8Gb/sec or 16Gb/sec 192 FCoE: 10Gb/sec 88 iSCSI: 10GBase-T
Max. Cache	64GB	128GB	256GB	512GB	2,048GB
LUNs: Max. Size, Max. Number	60TB, 2,048	60TB, 4,096		60TB, 16,384	60TB, 65,280
RAID Supported	RAID-1+0, RAID-5, RAID-6				
Max. RAID Groups	84	240		480	575
File Module Height	3U per node				
Nodes per Cluster, Cache per Node	1-2 nodes, 48GB	1-4 nodes, 48GB			1-8 nodes, 108GB
File System Size; Max. File Systems	256TB pool, single namespace up to maximum capacity; 128				
Max. Snapshots	1,024 per file system, 1 million clones				
Protocols	NFS, SMB, FTP, iSCSI and HTTP to the cloud				
Fibre Channel Ports, Ethernet Ports	4 x 8Gb/sec ports per node, 4 x 10Gb, 6 x 1Gb per node				

*Not available on VSP Gx00 systems.

◎**Hitachi Data Systems**