

Accelerate your transition to an all-flash data center and deliver a better experience for customers. Superior all-flash performance and resiliency combine with direct cloud connect for unparalleled value.

**DATASHEET**

## Hitachi Virtual Storage Platform F Series

### All Flash for Block, File and Mainframe

Businesses are under increasing pressure to stay relevant and succeed. To maintain customer interest and maximize revenue, businesses must transform their operations to be more efficient and deliver information faster. At the same time, it is critical that the infrastructure delivers enterprise reliability and operational simplicity.

All-flash arrays (AFAs) can help, delivering data faster to improve customer experiences, but few AFAs support the broad range of workloads businesses run or deliver the advanced capabilities required to keep IT operations running at maximum efficiency. With Hitachi Virtual Storage Platform (VSP) F series, you no longer have to compromise.

### All-Flash Speed for More Workloads

Powered by Hitachi Storage Virtualization Operating System (SVOS), the VSP F series delivers 4.8 million IOPS of performance. These all-flash arrays come with a choice of solid-state drives for entry sizes at value pricing or Hitachi flash modules (FMDs) for consistently fast performance levels.

With VSP F series, high-speed data transfers are accomplished using an enhanced, flash-aware I/O stack. This stack leverages flash-specific data processing and priority data handling to reduce system latency as well as potential latency from background flash-media management. Combine this approach with flash virtual memory scaling to

offload tasks from SVOS to FMDs. Together, these features let you execute more transactions with sub-millisecond response.

SVOS also includes quality of service (QoS) functionality to ensure consistent performance over time and prevent latency spikes that could be caused by other workloads on the VSP F series.

To accelerate the move to all-flash and minimize the need to leave workloads trapped on disk storage, the VSP F series is unified, consolidating block and file workloads.

### Best-in-Class Efficiency

Efficiency is another key element to moving data center operations to all flash. By controlling storage consumption and overall data center costs, organizations can move more of their workloads to flash today. To support that move, the VSP F series delivers a broad range of efficiency technologies designed to maximize the value from your investments. Adaptive data reduction services, including deduplication and compression, minimize storage footprint, enabling savings of 5:1 or greater. These can be combined with our direct cloud connect functionality to transparently move file data to your choice of content repository or cloud service (Hitachi Content Platform, Amazon Web Services or Microsoft Azure). This capability enables unparalleled reduction in on-site storage costs and more predictable ongoing storage costs. All services are selectable and can be activated for specific workloads, giving you maximum control over efficiency and performance.

VSP F series also offers linked, writable snapshot clones: thousands of copies of data sets that are created very rapidly while using near-zero extra capacity. Clones can be used to test new business ideas or application versions. They can also be “broken off” and used as new data stores if you want to move them into production. For highly virtualized environments, the ability to create a standard “gold image” for use across virtual machines (VMs) and desktops not only saves money, but also reduces support and management costs.

### 100% Data Availability

Built on legendary Hitachi reliability, VSP F series offers complete system redundancy and is backed by the industry’s only 100% data availability guarantee. Leveraging hot-swappable components, nondisruptive updates and outstanding data protection, the VSP F series is the best choice for all-flash storage operations that need to stay up and running. Each VSP F series system includes a suite of data protection software that eliminates backup windows and accelerates recovery via snapshots. System configuration is handled with a simple, easy-to-use policy management and workflow solution.

Advanced data replication software is available to enable robust business-continuity solutions among multiple data centers. These solutions include active-active metro clustering with global-active device. Available across the VSP F series for both block and file workloads, global-active device ensures the highest data protection

service level. IT teams can use it to deliver zero downtime with no data loss.

## Simple, Powerful Management

VSP F series systems can be set up quickly and managed at a glance using Hitachi Storage Advisor (HSA). Designed for IT generalists, HSA uses an intuitive graphical user interface (GUI) and recommended configuration practices to dramatically reduce the time to complete provisioning tasks as well as any diagnostic operations.

For organizations that have their own management toolset, HSA includes standards-based application program interfaces (APIs) that centralize administrative operations on a preferred management application.

Delivering all-flash performance requires more than a fast array. It requires an optimized ecosystem. Hitachi understands this and offers scalable storage analytics via Hitachi Infrastructure



Analytics Advisor (HIAA). HIAA looks across servers, VMs, network and storage resources to optimize performance as well as long-term storage utilization. Standard reports provide quick views of the current operating environment and custom reporting capabilities let you modify them to your specific needs. You can quickly identify flash performance trends and optimize resources for improved application performance.

## Guaranteed Return

With the VSP F series, Hitachi guarantees:

- 100% data availability.
- Double the data reduction.†

Our guarantee programs allow you to have ongoing confidence in the value of your VSP F series investment. And with our Flash Assurance Program, you may elect to renew your support services for the same annual fee as paid at point of product sale for up to seven years.

† Data reduction guarantee available for systems configured with FMDs.

TABLE 1. HITACHI VIRTUAL STORAGE PLATFORM F SERIES SPECIFICATIONS

	VSP F400	VSP F600	VSP F800	VSP F1500
<b>Performance</b>	Up to 600,000 IOPS 11GB/s bandwidth*	Up to 800,000 IOPS 12GB/s bandwidth*	Up to 1,400,000 IOPS 24GB/s bandwidth*	Up to 4,800,000 IOPS 48GB/s bandwidth*
<b>Max. Flash Drives</b> Note: FMD = flash modules SSD = solid-state drives	192 (FMD) 384 (SSD)	288 (FMD) 576 (SSD)	576 (FMD) 1,152 (SSD)	576 (FMD) 2,304 (SSD)
<b>Max. Raw Internal Capacity**</b>	2,702TB (FMD) 1,452TB (SSD)	4,053TB (FMD) 2,178TB (SSD)	8,106TB (FMD) 4,356TB (SSD)	8,106TB (FMD) 1,452TB (SSD)
<b>FlashPacks</b>	4 x 14TB FMD 4 x 7TB FMD 4 x 3.5TB FMD 4 x 3.8TB SSD 4 x 1.9TB SSD			4 x 14TB FMD 4 x 7TB FMD 4 x 3.8TB SSD 4 x 1.9TB SSD
<b>Host Interfaces</b> Note: FC = Fibre Channel FCoE = Fibre Channel over Ethernet FICON = IBM® FICON®	56 FC: 8Gb/s, 16Gb/s 32Gb/s 28 iSCSI: 10Gb/s 10GBase-T		64 FC: 8Gb/s, 16Gb/s 32Gb/s 32 iSCSI: 10Gb/s 10GBase-T	176 FC: 8Gb/s, 16Gb/s 176 FICON: 8Gb/s, 16Gb/s 176 FCoE: 10Gb/s 88 iSCSI: 10GBase-T
<b>Max. Cache</b>	128GB	256GB	512GB	2,048GB
<b>Average Data Reduction Ratio***</b>	5:1			
<b>RAID Supported</b>	RAID-1+0, RAID-5, RAID-6			
<b>NAS Modules Options</b>	VSP F400, VSP F600 and VSP F800 can be ordered with two internal NAS modules. Each NAS module has 6 x 10 gigabit Ethernet (GbE) ports for a total of 12 x 10GbE per system.			Not Available
<b>NAS Module Main Memory Board</b>	96GB (8GB NVRAM)			Not Available
<b>File System Size</b>	1PB pool, single namespace up to maximum capacity			
<b>Max. File Systems</b>	500			
<b>Max. Files per Directory</b>	16M			
<b>Max. NAS Snapshots</b>	1,024 per file system			
<b>Hitachi Enterprise Virtual Server for NAS</b>	64 servers (max.) 32 IP addresses per server (max.)			
<b>Protocols</b>	NFS, SMB, FTP, iSCSI and HTTP to the cloud			

\* Based on specific workload. Latency may vary based on other factors in the environment.

\*\* All capacities are expressed in Base 10: 1MB = 1,000,000 bytes.

\*\*\* Average data reduction ratios are based on capacity savings from data deduplication and data compression. Actual data reduction ratios can vary and depend on individual environments and data structures.

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