

Hitachi Universal Storage Platform® V

The Hitachi Universal Storage Platform® V delivers proven enterprise-class functionality — advanced virtualization of externally attached storage, logical partitioning, thin provisioning and universal replication — with the industry's most reliable, scalable and highest performing storage services platform.

Enterprise-class Functionality with Common Storage Services

As legal and regulatory requirements for long term data protection and retention intensify, many enterprises face escalating data growth. Simultaneously, they must improve application performance, availability, business continuity and backup windows, while simplifying the management of increasingly complex infrastructures.

Hitachi Universal Storage Platform V, powered by the Hitachi Universal Star Network™ massively parallel crossbar switch architecture, executes the Services Oriented Storage Solutions approach to storage management by Hitachi Data Systems. The platform enables common storage services, including virtualization, thin provisioning and business continuity across storage assets from Hitachi Data Systems and other providers — whether file, object or block based.

The Universal Storage Platform V further extends the enterprise-class capabilities introduced with the Hitachi Universal Storage Platform. With Hitachi Dynamic Provisioning software, it supports both internal and external virtualized storage, simplifies storage administration, improves performance and helps reduce overall power and cooling costs.

Business Benefits

Simplify — Save Time and Money

- Improve utilization and flexibility of legacy systems by aggregating internal storage and externally attached Hitachi and third party storage systems into a single, flexible storage pool.
- Increase efficiency through massive consolidation or aggregation of storage platforms, including those from other vendors.
- Reduce management complexity with optimized storage services managed from a centralized user console and a common set of software tools across storage assets connected to the Universal Storage Platform V.
- Continuously run operations during storage expansion activities with Dynamic Provisioning software — allocating virtual storage capacity without interrupting critical business applications, requiring fewer physical disks and adding disks only when physical pool size is exceeded.

Maximize Availability and Performance — Improve Support to End Users

- Count on the unique and proven fourth-generation parallel crossbar switch architecture to meet demanding workloads.
- Ensure application quality of service by partitioning storage resources with Hitachi Virtual Storage Machine™ technology. Independent Virtual Storage Machines

Business Solutions

Hitachi Data Systems and its Hitachi TrueNorth Channel Partners offer industry leading solutions to help organizations of all sizes meet their unique requirements for business continuity, regulatory compliance and data recovery. Together, we provide cost effective storage products and solutions that leverage world renowned Hitachi global R&D resources to deliver performance, availability and scalability — supporting business critical applications and strengthening competitive advantage.

Complementary Solutions

- Hitachi Basic Operating System V software
- Hitachi Storage Command Suite
- Hitachi In-System Heterogeneous Replication software bundle
- Hitachi Adaptable Modular Storage and Hitachi Workgroup Modular Storage

offer a synergistic linkage of disk, cache and ports for creation of virtual storage systems to simplify asset tracking and for chargeback purposes.

- Match application requirements to storage attributes to improve storage cost effectiveness.

Universal Storage Platform V Specifications

Frames (Cabinets)

Integrated Control/Drive Group Frame and 1 to 4 optional Drive Group Frames

Universal Star Network™ Crossbar Switch

Number of switches	8
Aggregate bandwidth (GB/sec)	106
Aggregate IOPS	Over 4 million

Cache Memory

Number of cache modules	1-32
Module capacity	8 or 16GB
Maximum cache memory	512GB

Control/Shared Memory

Number of control memory modules	1-8
Module capacity	4GB
Maximum control memory	28GB

Front End Directors (Connectivity)

Number of Directors	1-14
Fibre Channel host ports per Director	8 or 16
Fibre Channel port performance	4Gb/sec
Maximum Fibre Channel host ports	224
Virtual host ports	1,024 per physical port
Maximum IBM® FICON® host ports	112
Maximum IBM ESCON® host ports	112

Logical Devices (LUNs) — Maximum Supported

Open systems	65,536
IBM z/OS®	65,536

Disks

Type: Flash	73, 146 and 200GB
Type: Fibre Channel	146, 300, 400 and 450GB
Type: SATA II	1TB
Number of disks per system (min/max)	4-1,152
Number spare disks per system (min/max)	1-40

Maximum Internal Raw Capacity

Maximum (1TB disks)	1,134.5TB
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Maximum Usable Capacity — RAID-5

Open systems (1TB disks)	986.0TB
z/OS-compatible 1TB disks)	931.7TB

Maximum Usable Capacity — RAID-6

Open systems (1TB disks)	845.0TB
z/OS-compatible (1TB disks)	796.4TB

Maximum Usable Capacity — RAID-1+

Open systems (1TB disks)	565.3TB
z/OS-compatible (1TB disks)	527.4TB

Other Features

Maximum internal and external capacity	247PB
Virtual Storage Machines	32 max
Back end directors	1-8

Operating System Support

Mainframe — Fujitsu: MSP; IBM z/OS, z/OS.e, z/VM®, z/VSE™, TPF; Red Hat: Linux for IBM S/390® and zSeries®; SUSE: Linux Enterprise Server for System z.

Open systems — HP: HP-UX, Tru64 UNIX, Open VMS; IBM: AIX®; Microsoft® Windows Server: 2000, 2003, 2008; Novell: NetWare; SUSE Linux Enterprise Server; Red Hat: Enterprise Linux; SGI: IRIX; Sun Microsystems: Solaris; VMware: ESX.

- Ensure business continuity by simplifying and unifying data protection and replication between storage systems.

Facilitate Regulatory Compliance — Protect Your Business

- Meet regulatory compliance and corporate governance requirements with industry leading data protection and storage security services that guarantee data availability and tamperproof long term data retention.
- Build the foundation of a complete data life-cycle management solution by enabling the dynamic, nondisruptive movement of data between different storage tiers.
- Lower costs by archiving mainframe data to either internal high capacity SATA hard drives or to virtualized, externally attached SATA-based storage systems.
- Enable cost effective, large scale data storage for open systems and mainframe environments through tiered storage implementations.

Feature Highlights

Optimized Data Center Environment

- Offers industry leading availability, performance and connectivity
- Allows deployment of applications within a new framework for tiered storage, business continuity and/or storage simplification
- Enables consolidation of open systems and mainframe data onto fewer physical storage

devices to minimize maintenance costs and lower software license fees, capital expenditures and environmental costs

- Protects investments and reduces total cost of ownership
- Extends the life of existing storage systems

For details on Hitachi Universal Storage Platform V capabilities, visit www.hds.com.

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