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Hitachi Adaptable Modular Storage 2000 Family

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## Highly Reliable, Cost-effective Modular Storage for Medium and Large Businesses, and Enterprise Organizations

Organizations of all sizes are looking for ways to improve their return on investment (ROI) and better manage data growth and complex storage infrastructures. They need high availability, cost-effective performance, scalability and data protection, but budget, staff and data center space are limited.

With many years experience serving FORTUNE 500® companies, Hitachi Data Systems understands these challenges. Our solutions match application and business requirements to storage attributes, helping IT professionals take control of multivendor storage environments by decreasing management complexities, redundancies and risks. We provide a platform that can be readily reconfigured and optimized to accommodate changing business requirements. These proven solutions are built on modular, cost-effective products that deliver

superior performance, availability, scalability and reliability, along with advanced storage management features previously unavailable in these segments.

Hitachi Data Systems extends its technical leadership with the Hitachi Adaptable Modular Storage 2000 family of storage systems. As the first midrange products to offer a serial attached SCSI (SAS) architecture and Hitachi dynamic load balancing controllers, the family delivers highly resilient, enterprise-quality storage in an affordable and easy-to-manage modular package.

### Hitachi Adaptable Modular Storage 2000 Family

This flexible storage platform helps organizations achieve key business benefits, such as meeting service level agreements (SLAs), attaining cost-effective performance and

ensuring nondisruptive operations, while realizing better administrative efficiencies and investment protection.

Models offered include:

- Hitachi Adaptable Modular Storage 2100
- Hitachi Adaptable Modular Storage 2300
- Hitachi Adaptable Modular Storage 2500
- Hitachi Adaptable Modular Storage 2500DC

These advanced systems are certified and tested with the leading business applications, employ an easy-to-use management interface and provide extensive scalability and outstanding system reliability. All models support RAID-6 disk configurations, Fibre Channel and iSCSI host interfaces, and the ability to intermix Flash drives with SAS and SATA disk drives in the same tray.

The family offers standalone storage for data consolidation and high volume applications, as well as a solutions-ready platform to manage business continuity, regulatory requirements and lower tier storage (when attached to a Hitachi Virtual Storage Platform). All models are well suited to serve as: inexpensive lower tier data storage with the highest levels of reliability and centralized management; modular storage for disaster recovery, virtual tape or tape displacement solutions; and remote office storage or archive solutions.

The Adaptable Modular Storage 2000 family has important features that were not previously available the midrange market:

#### Dynamic Load Balancing Controllers

This feature provides integrated, automated, hardware-based, front-to-back-end I/O load balancing. It ensures I/O traffic from hosts to disk drives is dynamically managed, balanced and shared equally across both controllers. There is neither a requirement to manually set ownership between volumes and controllers, nor a need to monitor utilization rate imbalances between the controllers that may lead to performance bottlenecks. Overall administration is greatly simplified. Servers can be connected to either controller without establishing a primary and failover path to their volumes. Even microcode



### BETTER THAN THE COMPETITION

The Hitachi Adaptable Modular Storage 2000 family offers these unique features:

- High reliability, with 99.999% data availability and no single point of failure
- Greater throughput and concurrent I/O capacity due to the most advanced point-to-point SAS-based architecture
- Integrated symmetric active-active controllers with automated front-to-back I/O load balancing
- Ease of configuration with the removal of manual controller-to-volume mapping requirements of other modular systems
- Up to 9600MB/sec of total back-end system bandwidth
- Full integration and support of native operating system-based multipathing software
- Superior data recovery capabilities from logical data corruptions with support of up to 32 snapshots per source volume

updates can be done on either controller while the system is operating. This controller design is fully integrated with standard host-based multipathing and host load balancing, and it eliminates requirements to implement proprietary multipathing software.

### SAS Architecture

SAS is the interface used to transmit data from the controllers to the disk drives in the Adaptable Modular Storage 2000 family. The SAS interface is a full duplex, point-to-point architecture with up to 9600MB/sec of total system bandwidth and up to 32 links available for concurrent I/O activity: it has more total back-end bandwidth than any other midrange product on the market. This design eliminates loops arbitration for better performance and improves end user troubleshooting by detecting and displaying failed drives.

### Relieve Your Biggest Storage Burdens

As your organization seeks competitive advantage and smart growth while meeting regulatory requirements, you may face many data storage challenges and pain points:

- Achieving SLAs on budget
- Obtaining a reliable, cost-effective storage platform to grow with business
- Gaining more flexibility to affordably match storage to application requirements
- Achieving better efficiencies and centralized management for storage administrators
- Meeting high availability, disaster recovery and business continuity objectives
- Avoiding downtime
- Optimizing interoperability and performance for major applications and operating systems
- Meeting data protection and retention regulations
- Performing complex manual volume and RAID configurations

Hitachi Data Systems lets you solve the most difficult storage challenges with enterprise-class reliability, interoperability, manageability and services.

Many FORTUNE 500® companies rely on the legendary quality of Hitachi storage systems. With the expertise of Hitachi TrueNorth™ Partners, the Hitachi Adaptable Modular Storage 2000 family helps you align IT and business objectives and cost-effectively manage storage without sacrificing performance or functionality.

### Reduce Complexity, Cost and Risk to Better Meet Business Objectives

#### Cost-effective Performance

Meeting SLAs and budgets is much easier with the progressive features in the Adaptable Modular Storage 2000 family: SAS architecture, large cache, faster CPUs, cache partitioning to match application workloads, outstanding performance and sustained throughput.

#### Virtualized Capacity

Hitachi Dynamic Provisioning software provides performance improvements through proprietary, automatic and optimized wide striping of data across all available disks. It eliminates application service interruptions, reduces costs and simplifies administration. Purchase less capacity up front and expand in line with actual business usage. This also reduces operational costs (electricity and floor space) since uninstalled disks don't consume energy.

#### Tremendous Scalability

Grow storage capabilities as needed. The Hitachi Adaptable Modular Storage 2000 family lets you cost-effectively scale capacity to 940TB. The SAS architecture gives massive bandwidth to the drives so performance continues to increase as more drives are added to the system. Expand as business grows with data-in-place upgrades to larger models in the family.

#### Highly Flexible Systems

Better match storage to application requirements while reducing the total cost of ownership (TCO). The Hitachi Adaptable Modular Storage 2000 family lets you intermix Flash, SAS and SATA drives in the same tray. This reduces the need for multiple systems to manage multiple requirements. You can also combine Fibre Channel and iSCSI host interfaces for exceptional storage consolidation.

### Reliability and Availability

Meet high-availability demands for disaster recovery and business continuity with 99.999% data availability and no single point of failure. Hitachi Adaptable Modular Storage systems let you run applications continuously and nearly eliminate unplanned system downtime or data loss. All models support host path failover, fully redundant, hot swappable components, online micro-code updates and mirrored cache with battery backup. They include active-active controllers with automatic failover.

### System and Data Security

Meet regulations for data protection and retention. Advanced security capabilities include Hitachi Data Retention Utility software with its "write once, read many" (WORM) feature that protects data from overwrites or erasures for long periods of time. System management access limits authorization to change the system. System audit logging records all system changes. Communications between the management software and storage are encrypted.

### Cost-effective Reliability for Tiered Storage, Remote Offices and Power Savings

#### Tiered Storage in a Single Box

Effortlessly move data to less expensive drive types and lower TCO. The Adaptable Modular Storage 2000 family lets you choose drives to meet your business needs: Flash, high performance SAS or capacity optimized SATA.

#### Lower Tier Storage

The high reliability of the Adaptable Modular Storage 2000 family makes it an excellent choice for lower tiers. Low cost SATA drive configurations with dynamic load balancing controllers provide cost-effective storage. Integrate with Hitachi Virtual Storage Platform for lower tier data storage in a virtualized environment.

#### Primary Storage for Remote Offices

Support the requirements for a branch office with dependable, simple-to-manage data storage. The product line is virtually

trouble free and includes an optional remote monitoring service, making it ideal for non-technical users.

### High Density Tray Options

As the data stored onsite continues to grow, data centers are under pressure to expand floor space. The High Density Storage Trays are the solution with up to forty-eight 3.5 inch disks in a 4U (176mm) high tray or up to twenty-four 2.5 inch disks in a 2U (88mm) high tray. Nearly 1 petabyte of storage capacity can be installed in a single rack without sacrificing any of the industry-leading performance, easy-to-use features or 99.999% availability that the Adaptable Modular Storage 2000 family provides.

### Power Savings Options

Reduce energy consumption in data centers by retracting the heads on SATA disk drives or even intelligently spinning down drives that are not active. The Power Savings Service from Hitachi Data Systems enables the integration of disk drive spin down for inactive applications. For more energy savings the system fans operate at variable speeds, determined by the system's internal temperature.

### Broad Control with Hitachi Adaptable Modular Storage 2000 Family

How do Hitachi modular storage systems help storage administrators control the big picture? The Adaptable Modular Storage 2000 family has been designed and built to:

## AT YOUR SERVICE

Hitachi Data Systems Global Solution Services helps you maximize investments and efficiencies with a suite of professional services. For the Adaptable Modular Storage 2000 family, Global Solution Services offers professional services to assist with:

- Remote Copy Planning and Design
- Implementation of Hitachi TrueCopy® Synchronous or TrueCopy Extended Distance software
- Implementation of Hitachi ShadowImage® Replication software
- Data Migration Planning, Design and Implementation

For information on services to help meet regulatory compliance requirements, protect data, reduce TCO or develop a disaster recovery plan, contact your Hitachi Data Systems representative or go to [www.HDS.com](http://www.HDS.com).

- Reduce storage management complexity, cost and risk by offering the highest performance, availability, scalability and reliability for the midrange market, with easy-to-use software wizards and web-based tools for configuration, management and maintenance.
- Deliver application-specific performance, availability and protection across systems, from a few terabytes to over 940TB per frame, with a choice of SAS, SATA or Flash drives.
- Protect storage investments for customers who migrate from iSCSI to Fibre Channel storage networks. All models are available with both host interfaces.
- Offer more cost-effective options for increased data protection and disaster recovery than any other midrange storage.
- Enable a complete data lifecycle management solution to deploy the right class of storage and to match it to application requirements, when used in combination with the Virtual Storage Platform and Hitachi Dynamic Tiering, as well as other Hitachi software.
- Improve energy efficiency with Hitachi power down options to reduce consumption and utility expenses.
- Enhance availability and reliability for more uptime with fewer outages, planned and unplanned. Even micro-code updates and data migration to a new RAID group can be done while the system is operating.



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