

Technical Specifications—Comparison Chart

Operating Systems Supported	Thunder 9531V	Thunder 9532V	Thunder 9533V	Thunder 9570V	
Microsoft Windows NT	Physical Characteristics	3 EIA	3 EIA	3 EIA	3 EIA
Microsoft Windows 2000					
Sun Solaris					
HP-UX					
IBM AIX					
Red Hat Linux	Command/expansion modules	3 EIA	3 EIA	3 EIA	1 EIA = 1 3/4 inches/44.5mm
SuSE Linux	Maximum number of expansion modules	0	0	0	14+1
Turbolinux	Number of disk drives	5	9	13	4 - 224
HP OpenVMS	Raw capacity	358GB	645GB	931GB	32TB
HP Tru64 UNIX	Capacity RAID-0	NA	NA	NA	32TB
NCR MP-RAS	Capacity RAID-5	201GB	410GB	696GB	30TB
IBM DYNIX/ptx	Floor models	yes	yes	yes	yes
Novell NetWare	Cache size (GB) max per system	1	2	2	4
SGI IRIX	Controllers	1	2	2	1 or 2
Disk Drives Supported (all 2Gbit/sec)					
	36GB 15,000RPM	no	no	no	yes
	73GB 10,000RPM	yes	yes	yes	yes
	73GB 15,000RPM	no	no	no	yes
	146GB 10,000RPM	no	no	no	yes
	Number of 2Gbit/sec backend loops	2	4	4	4
Host Ports					
	Maximum physical ports	1	2	2	4
	Speed Gbit/sec	2	2	2	2
	Autodetect (1, 2Gbit/sec)	yes	yes	yes	yes
	Hosts per port	128	128	128	128
	Host Storage Domains	yes	yes	yes	yes
	Operating systems supported	14	14	14	14
	F-port, FL-port	yes	yes	yes	yes
LUNs					
	RAID-0, 1, 1+0	no	no	no	yes
	RAID-5 (2 - 16 disk drives with floating parity)	yes	yes	yes	yes
	Maximum # of RAID groups	1	2	2	45
	Maximun number of LUNs	256	256	256	512
	LUN Management (including Free format LUN size, LUN expansion, LUN deletion, Queuing LUN format, Quick LUN format)	yes	yes	yes	yes
Availability					
	All parts redundant and hot-swappable	yes	yes	yes	yes
	Disk drives, Controller Patrol function	yes	yes	yes	yes
	Hitachi Dynamic Link Manager™ (failover)	optional	optional	optional	optional
	VERITAS DMP support	yes	yes	yes	yes
	Supports most other failover	yes	yes	yes	yes
	Battery backup	yes	yes	yes	yes
	Optional UPS battery	later	later	later	later
	Maximum hot spares	1	1	1	15
	LAN maintenance connections	2	2	2	2
	Hi-Track	mandatory	mandatory	mandatory	mandatory
Software					
	Hitachi TrueCopy™	no	no	no	optional
	Hitachi ShadowImage™	optional	optional	optional	optional
	Hitachi Resource Manager™	included	included	included	required*
	HiCommand Device Manager	optional	optional	optional	optional
	Hitachi SANTinel™	included	included	included	optional
	FlashAccess	included	included	included	optional
	SNMP	included	included	included	optional

* One copy of Resource Manager software is required for a Thunder 9570V system environment

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The direction you can trust



Hitachi Freedom Storage™ Thunder 9500™ V Series Sets a New Standard for Modular Storage Systems

Incorporating innovative features and functions of the technology- and market-leading Hitachi Freedom Storage Lightning 9900™ V Series systems, the Thunder 9500 V Series systems redefine the notion of modular storage.

Simplify infrastructure for easy management

Our growing "Thunder family" of storage offers you the advantages of single-view virtualized storage management and an unflinching high level of availability. With a broad range of configurations and support for more operating systems than any other competitor in the modular marketplace, Thunder 9500 V Series systems help you simplify your IT operations—and your life.

- > Centralize storage management with the HiCommand™ Management Framework—open, extensible modular storage management software based on industry standards (see *HiCommand sidebar*)
- > Control Hitachi Freedom Storage and partner products with HiCommand Device Manager
- > Simplify infrastructure through virtual ports and Host Storage Domains
- > Easily support SAN and NAS data access
- > Protect your investment: Thunder 9570V™ storage system Expansion Module; upgrade path for the Thunder 9531V™, Thunder 9532V™, and Thunder 9533V™ models

Choose the perfect fit for your business from four Thunder 9500 V Series models to support a variety of deployment options.

For strategic use in mid- to large-scale enterprises, the Thunder 9570V storage system allows you to:

- > Consolidate storage across open systems servers
- > Form centralized host group pools or distribute throughout the enterprise
- > Reduce licensing and/or maintenance costs
- > Simplify management tasks
- > Improve staff productivity

For small to mid-sized businesses, such as retail or professional organizations, the pre-configured Thunder 9531V, Thunder 9532V, and Thunder 9533V models provide:

- > A range of capacities, upgradeable to Thunder 9570V
- > Standalone or distributed options
- > Ease of installation and management control

Protect critical information

Thunder 9500 V Series storage systems, Hitachi Freedom Storage software, and Data Protection Services (offered by Hitachi Data Systems Global Solution Services) can support your special projects and position your operations to recover quickly should a disaster occur.

- > Instant, user-defined point-in-time copies
- > Nondisruptive, real-time copies for backups, application testing, and data warehousing/data mining
- > Easy deployment and offsite redundancy for 24/7 data availability and complete data integrity
- > "Server-less" disk copy and tape backup
- > Tapeless data vaulting
- > Hi-Track® service
- > Nondisruptive expansion to over 30TB
- > Real-time data movement and online data migration over virtually unlimited distances
- > Sophisticated and scalable backup/restore functions
- > Alternate path and clustering support
- > Power to speed up complex decision support queries
- > Real-time analysis of customer behavior

Optimize storage and staff resources

Strategic deployment of your storage, easy consolidation, and simplified management—these benefits are visible in money saved and in hours re-allotted toward pursuit of new projects. You have a choice of storage systems to best accommodate your IT infrastructure, business objectives, and budget.

- > Multi-dimensional scalability, including capacity, bandwidth, connectivity, workload mix, and embedded applications
- > Vertical market requirement compliance for embedded applications, from entry-level to high-capacity
- > Industry-leading performance—over 4GB/sec aggregate internal system bandwidth—driven by our Hi-PER Architecture™
- > Choose from four models—scale to over 30TB
- > Set-and-forget management
- > Exceptional service and support: survey by FIND/SVP places Hitachi Data Systems *Number One in overall service and support as well as in technical performance—two years in a row (2001-2002)*

Hitachi TrueNorth™—the Direction You Can Trust

Information and knowledge are fundamental determinants for success in the global economy. Thus, the standards for storage infrastructure availability, performance, scalability, and manageability continue to rise. Hitachi TrueNorth™ is our response to the ensuing demand, allowing you to simplify, protect, and optimize your information infrastructure, reducing total cost of ownership and ensuring a more rapid return on investment.

The Hitachi TrueNorth vision and strategic direction, along with an associated product road map, anticipate customer needs. We view the future storage infrastructure as a synergistic combination of management software and powerful, intelligent storage systems that will deliver set-and-forget management, complemented by flexible capacity, performance, and connectivity.

Prepare for the future with Hitachi. As we move forward, we offer you an open and collaborative storage management framework, policy-based automation tools, virtualization capabilities, and the world's finest storage systems.

Performance you can count on

Your technology choices directly impact customer loyalty

Speed and availability—what you need to keep your customers happy and your users on the job

- > Hi-PER Architecture
- > Separate, redundant data and command paths
- > High-throughput 10,000RPM and 15,000RPM 2Gb/sec Fibre Channel disk drives
- > Fully addressable 4GB cache (dual controller)
- > Optional Hitachi FlashAccess™ locks LUNs into cache
- > Extremely fast and intelligent cache algorithms
- > Flexible LUN support

Be there for clients and customers

Provide 24/7 access to data

The advantage begins with no single point of failure

- > Highly resilient optimal dual controller Hi-PER Architecture
- > Redundant, hot-swappable components
- > Global dynamic hot sparing
- > Mirrored write cache with battery backup
- > End-to-end data protection
- > Hi-Track "call-home" predictive maintenance service
- > Host failover and alternate path support
- > Nondisruptive microcode upgrades
- > RAID-0, RAID-1, RAID-1+0, and RAID-5 support
- > Industry-leading point-in-time and remote copy software for data backup and rapid recovery

Ready for networked infrastructures

No other vendor offers such extensive connectivity

Freedom of choice as you implement your infrastructure strategy

- > Nearly unlimited heterogeneous open systems connectivity with virtual ports and Host Storage Domains
- > Ready for SAN and NAS

Hitachi Freedom Storage Software for the Thunder 9500 V Series

Our powerful solutions are made for business

Comprehensive software suites bring additional power and flexibility to seamlessly support business objectives

- > Storage Area Management
- > Business Continuity
- > Backup and Recovery
- > Performance Enhancement
- > Data Movement

Automate storage management and gain new levels of control with the HiCommand Management Framework

Designed to reduce storage management complexity and costs, the HiCommand Management Framework is an excellent choice for Thunder 9500 V storage systems.

- > Open, extensible, modular storage management software based on industry standards:
 - Common Information Model (CIM)
 - Simple Object Access Protocol (SOAP)
 - Storage Network Industry Association's (SNIA) Bluefin Storage Management Initiative
- > Collaborative/cooperative
 - Best-of-breed third-party product integration
 - Completely customizable
- > Policy-based automation
 - Reduces operational errors
 - Maximizes availability
 - Optimizes storage management
- > Heterogeneous system management from any location
- > Simplified storage management through HiCommand Device Manager—allows existing IT resources to be more productive working at the logical or physical level

Major Operating Systems Supported

- | | |
|----------------------------|-------------------------|
| > Sun™ Solaris™ | > Microsoft Windows NT® |
| > Microsoft® Windows® 2000 | > IBM® AIX® |
| > HP-UX® | > IBM DYNIX/ptx® |
| > SGI™ IRIX® | > Novell® NetWare® |
| > HP Tru64™ UNIX® | > Red Hat® Linux |
| > SuSE® Linux® | > Turbolinux® |
| > HP® OpenVMS™ | > NCR™ MP-RAS |

Hitachi Freedom Storage Thunder 9500 V Series storage systems

- | | |
|-----------------|-----------------|
| > Thunder 9570V | > Thunder 9531V |
| | > Thunder 9532V |
| | > Thunder 9533V |



Rackmount

Deskside