Thunder 9580V Storage System Specifications

### System Specifications

**Software**
- HP-UX®
- Microsoft® Windows® 2000/Windows®2003
- Microsoft® Windows NT®
- Autodetect (1Gbit/sec or 2Gbit/sec)       yes
- Physical ports        4 - 8 per system
- Number of 2Gbit/sec backend loops    8

**Capacity**
- 146GB 10,000RPM      yes
- 73GB 10,000RPM        yes
- 36GB 15,000RPM yes
- Cache size (GB) max per system 2GB – 4GB per controller, 4GB – 8GB per system
- Capacity RAID-5        60TB
- Capacity RAID-1+0 32TB
- Capacity RAID-1 32TB
- Capacity RAID-0        64TB
- Raw capacity 64TB

**Expansion**
- Command/expansion modules       3 EIA*
- LUN Management       yes
- Maximum number of LUNs 2048

**Resource Management**
- Resource Manager required**
- QuickShadow—copy-on-write snapshot optional
- ShadowImage—in-system replication optional
- Hi Command Tuning Manager optional
- Hi Command Device Manager optional
- Hi-Track   mandatory
- LAN maintenance connections   4
- Maximum hot spares 15
- Battery backup yes
- Hitachi Dynamic Link Manager (failover) yes, optional

**Accounting**
- HP OpenVMS
- HP Tru64TM UNIX
- Novell® NetWare®
- LUSE—LUN size expansion included
- FlashAccess—cache residency manager included
- Host Storage Domains—virtual private storage

For platform-specific feature availability, please contact your Hitachi Data Systems account representative or visit our Web site at www.hds.com.

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DISK-451-00  October 2003

Thunder 9580V™ Ultra-high-end modular storage system

Partner Beyond Technology
The Thunder 9580V™ is an ultra-high-end modular storage system for open systems that helps customers best match the value of data to the cost of storage while providing data protection and high performance in a grow-as-you-go modular form factor.

The Thunder 9580V™ Storage System: Doing it all.

The Thunder 9580V system sets a new standard for entry-level enterprise storage. It provides the versatility IT managers long for, thoroughly capable of meeting specific needs like data replication and satisfying stringent compliance regulations for email and records security and retention. Complementing the Lightning 9900™ V Series systems, the Thunder 9580V system delivers sought-after reliability, high availability, and high performance along with cost-efficiency.

The Thunder 9580V system supports demanding business applications, replicates data seamlessly with Hitachi Lightning 9900 V Series enterprise systems, addresses rigorous data compliance regulations, and provides an immediate answer for IT managers who want to reduce their total cost of ownership (TCO) with a tiered storage infrastructure.

The Thunder 9580V™ Storage System: Doing it all.

A powerful addition to the Thunder 9500 V Series, the Thunder 9580V entry-level enterprise storage system incorporates innovative features and functions of the standard-setting Lightning 9900 V Series models. Just like all members of the Thunder 9500 V Series, the Thunder 9580V storage system is functionally compatible with the full range of Lightning 9900 V Series software offerings. The lower-TCO Thunder 9580V system is also a versatile team player. Its large capacity can consolidate open systems storage while the availability of many third-party products increases storage management productivity. Better still, the HiCommand® Management Framework provides a single unifying platform for centrally managing all Lightning 9900 V Series, Thunder 9500 V Series, and Sun™ StorEdge™ systems.

For core storage or tiered networks, the Thunder 9580V storage system helps protect your investment for the long term.

The Thunder 9580V storage system is designed for data-dependent markets, such as life sciences, retail, healthcare,
and broadcast, where throughput and performance are the make-or-break factors. It provides rapid support for data warehousing, data mining, and 24/7 online transactions, some of today’s most demanding applications.

The Thunder 9580V storage system offers more connectivity than any other modular option, with up to 8 ports—1,024 virtual host ports—plus concurrent support of 13 open systems platforms. And it provides fully addressable 8GB cache with dual controllers to ensure high performance. Born into a stellar family, with five other modular form factor deskside and rackmount models that scale and upgrade in an easy-to-grow footprint, the cost-efficient Thunder 9580V storage system continues to deliver on the Hitachi TrueNorth™ vision of a simplified storage infrastructure for easy management, protection for critical information, and optimised resources.

Thunder 9580V Storage System

Simplify
:: Centralises management resources
:: Installs and expands quickly
:: Configures easily for diverse applications
:: Consolidates for fewer licenses, lower TCO

Protect
:: Adapts/scales for investment protection
:: Provides resilient architecture for business continuity
:: Supports advanced data protection software

Optimize
:: Delivers 99.999 percent data availability
:: Increases productivity—no single point of failure
:: Offers industry-leading speed for business
:: World-class service and support

Thunder 9500 V Enterprise Modular Series
:: Thunder 9580V™—Ultra-high-end modular storage
:: Thunder 9570V™—High-end modular storage
:: Thunder 9530V™—Entry-level storage deck
Simplify your life with our growing family of storage systems and the advantages of single-view storage management, a high level of availability, and the versatility to carry out standalone and distributed storage strategies. With a broad range of configurations and support for the most operating systems in the mid-range marketplace, the Thunder 9500 V Series storage systems are built to help you simplify your IT operations—and your life.

- Centralise storage management with the HiCommand Management Framework—an open, extensible storage management software based on industry standards
- Control Hitachi storage and partner products with HiCommand Device Manager software
- Simplify infrastructure through virtual ports and virtual private storage

Costs are reduced by minimising support and downtime while optimising server and storage configurations for improved storage utilisation and staff productivity.

- Support for multiple RAID types
- Flexible LUN support
- Administrators master just one management interface; many procedures automated
- Storage pooling eases planning and provisioning of data resources, no matter which server’s application requires access

Lower cost of ownership—use the Thunder 9580V to:

- Form centralised host group pools
- Replace several systems with one—save on floor space, power, cooling
- Reduce management tasks—lower staff costs
- Reduce licensing and maintenance costs
- Simplify and expand your connectivity
- Data-in-place upgrade from Thunder 9530V to Thunder 9570V storage systems

Protect your data with user-defined point-in-time copies that allow operations to recover quickly from disasters, plus the benefits of:

- Easy distributed deployment and off-site redundancy for 24/7 data availability and complete data integrity
- “Server-less” disk copy and tape backup
- Hi-Track® predictive maintenance system
- Nondisruptive expansion to over 64TB
- Sophisticated and scalable backup/restore functions
- Alternate path and clustering support
- Permanently assignable LUNs to cache data-in-place
The Thunder 9580V storage system: built for business continuity

- No single point of failure
- Mirrored write cache with battery backup
- Nondisruptive microcode upgrades
- Highly resilient optional dual controller, based on the Hitachi performance-enhanced RAID architecture
- Continuous monitoring of RAID disk health via patrol function
- RAID-0, RAID-1, RAID-1+0, and RAID-5 support
- Redundant, hot-swap-pable components
- Error Correction Code memory
- Point-in-time and remote copy software for data backup and rapid recovery
- Global dynamic hot sparing
- Hi-Track “call-home” predictive maintenance service
- Host failover and alternate path support

Deployed to support core applications or in distributed, edge locations such as retail outlets, business franchises, or professional offices, the high-speed, high-capacity Thunder 9580V storage system allows you to install the storage you need now and expand as your business grows—while you reduce your TCO.

Optimising resources from the outset, the Thunder 9580V storage system delivers:

- Multi-dimensional scalability, including capacity, bandwidth, connectivity, workload mix, and embedded applications
- Vertical market compliance for embedded applications
- Capacity scaling to over 64TB
- High throughput 10,000RPM and 15,000RPM dual-ported Fibre Channel disk drives
- Set-and-forget management: Use HiCommand Tuning Manager for proactive performance and capacity monitoring of storage resources
- SAN and NAS coexistence with HDS-NetApp®Enterprise NAS Gateway
- Fast and intelligent algorithms

The Thunder 9580V model, as well as the rest of the Thunder 9500 V Series, is based on the innovative Hi-PER Architecture and a set of common components, such as cabinetry, microcode, and software.

- Control large amounts of data with a single view
- Enable centralised storage pooling through consolidation
- Reduce physical complexity and lower cost with virtualised ports and virtual private storage
- Establish reliable distributed storage environments
- Optimise connectivity with ultrahigh-speed controller interconnects
- Protect investment with trouble-free integration and upgrades

Critical information is protected for business continuity with nondisruptive, real-time copies for backups, application testing, and data warehousing/data mining.
As the need for capacity increases, all Thunder 9500 V Series systems leverage your initial investment and scale seamlessly, without disrupting mission-critical business applications. Customers, partners, and employees have learned to expect instant access to information. With the Thunder 9500 V Series systems, you can increase productivity, shorten time to market, and mitigate risk. The Thunder 9500 V Series systems, powered by our Hi-PER Architecture, easily respond to need-it-now markets and internal operations.

With a Thunder 9580V storage system, you can consolidate existing storage systems into one footprint. Not only do you reduce the initial purchase costs for your organisation, but you also lower your total cost of ownership over each system’s lifetime. By simplifying your information infrastructure and management responsibilities, you continue to save on operating and resource expenditures.

Replace your existing server-integrated or external storage with a single Thunder 9500 V Series system. You’ll spend less time managing storage and greater time working on your business efforts. Leverage your IT investment by consolidating storage resources and sharing information across disparate platforms.

The Thunder 9580V storage system is ready for SAN NAS and iSCSI. A number of storage network protocols and connectivity methods are available: Fibre Channel SAN, iSCSI, FC/AL loops, or SAS for open systems and SAN interconnect. The Thunder 9580V storage system inherently supports them all. Backed by our integrated high-performance RAID architecture, and iSCSI, FC/AL loops, and high-performance iSCSI, all Thunder 9500 V Series systems easily handle both FC and SAS through multiple protocols and connections.

Hitachi Data Systems Global Solution Services ensures that our Professional Services team are trained in architectural analysis, configuration, planning, and enterprise assessment to deliver fully effective data protection services and management and consolidation.

We work with structured methodologies that promote consistent results. Our industry-leading software, based on high-performance platforms, allows us to implement essential copy solutions. We perform data replication and migration tasks for massive consolidation projects. And we establish rock-solid backup and disaster recovery copy facilities that will keep your business up and running.

Measure your ROI Use our HiReturn investment analysis program to quantify your return on investment. HiReturn consists of return-on-investment tools, methodologies, best practices, industry empirical data, and one-on-one coaching that allows you to calculate the costs and benefits of implementing Hitachi storage technology and solutions. This service provides the objective validation you need to cost-justify your purchases.

Storage Area Management
HiCommand Management Framework
HiCommand Omni Manager
HiCommand Tuning Manager
Hitachi Resource Manager
HiTrack “call home” predictive residency manager
Post Storage Domains—virtual private storage
HiCommand SAN/SSe software—SAN security
Hi-Track—LIR size expansion, component of USM Manager software, dramatically improves LUN residency allowing you to expand LUNs to 36 TBs and present them to the operating system at a single LUN, to simplify management
Hi-Track—Hi-Track’s “call home” predictive maintenance system

Business Continuity
Hitachi TrueCopy—synchronous replication
Hitachi ShadowImage—in-system replication
Hitachi SnapView™—remote replication
Hitachi TrueCopy™—copy on-demand
Hitachi TrueCopy™—remote replication
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Softwarer Available for the Thunder 9500V

Data Movement
- ShadowImage—in system replication
- SnapView™—remote replication
- SnapView™—copy on-demand
- SnapView™—remote replication

Performance Enhancement
- Hitachi Dynamic Lin Manager
- HiCommand Tuning Manager

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As the need for capacity increases, all Thunder 9500 V Series systems leverage your initial investment and scale seamlessly, without disrupting mission-critical business applications. Customers, partners, and employees have learned to expect instant access to information. With the Thunder 9500 V Series systems, you can increase productivity, shorten time to market, and mitigate risk. The Thunder 9500 V Series systems, powered by our Hi-PER Architecture, easily respond to need—now markets and internal operations.

To Switches / Servers

Front-End Data Ports

To Drives

Back-End FC/AL Loops

Software Available for the Thunder 9500V

Business Continuity
- Hitachi TrueCopy™—synchronous replication
- Hitachi ShadowImage™—in-system replication
- Hitachi ShadowImage™—remote replication
- TrueCopy for VNXEVMS Cluster Server

Performance Enhancement
- Hitachi Dynamic Lin Manager™
- HiTrack Call Home predictive maintenance system

Hitachi Data Systems Global Solution Services ensures that our Professional Services teams are trained in architectural analysis, configuration planning, and enterprise assessment to deliver fully effective data protection services and disaster recovery and consolidation.

With a Thunder 9500V storage system, you can consolidate existing storage systems into one footprint. Not only do you reduce the initial purchase costs for your organisation, but you also lower your total cost of ownership over each system lifetime. By simplifying your information infrastructure and management responsibilities, you can continue to save on operating and resource expenditures.

Replace your existing server internal or external RAID storage with a single Thunder 9500V storage system, and you spend less time managing storage and greater time creating and delivering IT services.

Leverage your IT investment.
Reduce the amount of software and costs for licensing and maintenance fees.

SAN/NAS Convergence
Deploy your Thunder 9500V storage system with a HDS Metapa Enterprise Management interface to readily manage multiple NAS filers and a SAN environment.

SAN/NAS integration provides a common platform and optimises the use of your storage assets. Leverage your enterprise-wide SAN infrastructure and our storage systems to form flexible pools for storing SAN and NAS data formats. And design manageable file access for your employees and customers to:

- Improve utilisation of storage assets
- Expand investment protection
- Expand storage management complexity
- Lower storage management costs

You’ll be surprised at how quickly you can achieve new levels of availability and performance with highly productive solutions such as SAN and NAS.

Our Host Storage Domains virtual private storage capability allows host pointing at the LUN level, optimising connectivity and reducing the network infrastructure, and when combined with Hitachi SANtinel™ security software, authorised access is ensured. This process consistently lowers your IT costs and extends your capital investment by consolidating storage resources and sharing information across disparate platforms.

The Thunder 9500V storage system is ready for NAS and RCS. A number of storage network protocols and connectivity methods are available, including Fibre Channel SANs, iSCSI, i Fibre, or RCS for open systems and SAN interconnect. The Thunder 9500V storage system inherently supports them all. Backed by our integrated high-performance RAID architecture, and i- and Fibre, and high-performance iSCSI, all Thunder 9500V Series systems easily handle data traffic through multiple protocols and connections.

Hitachi Data Systems Global Solution Services ensures that our Professional Services teams are trained in architectural analysis, configuration planning, and enterprise assessment to deliver fully effective data protection services and disaster recovery and consolidation.

We work with structured methodologies that promote consistent results. Our high-performance platforms, allows us to implement essential high performance solutions. We perform data relocation and migration tasks for massive consolidation projects. And we establish our high-speed, self-healing and disaster recovery copy facilities that will keep your business up and running.

Measure your ROI
Use our HiReturn™ investment analysis program to quantify your return on investment. HiReturn consists of return on investment tools, methodologies, best practices, and one-on-one coaching that allows you to calculate the costs and benefits of implementing Hitachi storage technology and solutions. This service provides the objective validation you need to cost-justify your purchases.

Protect your data and your IT investment. The Thunder 9500 V Series systems allow you to fulfill new application commitments and meet surges in demand—problem-free.
As the need for capacity increases, all Thunder 9500 V Series systems leverage your initial investment and scale seamlessly without disrupting mission-critical business applications. Customers, partners, and employees have learned to expect instant access to information. With the Thunder 9500 V Series systems, you can increase productivity, shorten time to market, and mitigate risk. The Thunder 9500 V Series systems are powered by our Hi-PER Architecture, easily respond to need-it-now markets and internal operations.

With a Thunder 9500V storage system, you can consolidate existing storage systems into one footprint. Not only do you reduce the initial purchase costs for your organisation, but you also lower your total cost of ownership over each system’s lifetime. By simplifying your information infrastructure and management responsibilities, you can save on operating and maintenance expenditures.

Replace your existing server internal or external SSD storage with a single Thunder 9500 V Series system. You can expect to spend less time managing storage and greater time focusing on business efforts. Leverage your IT investment by consolidating storage resources and sharing information across disparate platforms.

The Thunder 9500 V Series storage system is ready for NAS and SIS. A number of storage network protocols and connectivity methods are available: Fibre Channel SANs, iSCSI and remote replication. The Thunder 9500 V Series storage system inherently supports them all. Backed by our integrated high-performance NAS architecture, and iSCSI, TrueCopy agent for VERITAS, and high-performance iSCSI, all Thunder 9500 V Series systems easily handle data movement through multiple protocols and connections.

Hitachi Data Systems Global Solution Services ensures that our Professional Services teams are trained in architectural analysis, configuration planning, and enterprise assessment to deliver fully effective data protection services and solutions.

We work with structured methodologies that promote consistent results. Our industry-leading software, based on high-performance platforms, allows us to implement essential copy solutions. We perform data recreation and migration tasks for massive consolidation projects and we establish robust backup and disaster recovery copy facilities that will keep your business up and running.

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Software Available for the Thunder 9500V

**Data Movement**
- HiCommand Device Manager
- HiCommand Management Framework
- HiCommand Storage Manager
- HiCommand Tuning Manager
- Hitachi Resource Manager
- Hitachi TrueCopy™—synthetic full copies
- Hitachi SANtinel™—SAN data protection
- Hitachi ShadowImage™ —in-system replication
- Hitachi Dynamic Link Manager™
- Hitachi QuickShadow™—copy-on-write snapshot

**Business Continuity**
- Hitachi SANtinel™—SAN data protection
- Hitachi ShadowImage™ —in-system replication
- Hitachi Dynamic Link Manager™
- Hitachi QuickShadow™ —copy-on-write snapshot

**Backup and Recovery**
- Hitachi Data Protectors
- HiCommand Device Manager

**Performance Enhancement**
- Hitachi Dynamic Link Manager
- HiCommand Tuning Manager
## Thunder 9580V Storage System Specifications

### Physical Characteristics
- **LUNs:**
- **Host Ports:**

### Availability
- **HP-UX®**
- **IBM® AIX®**

### RAID Configurations
- **RAID-0, 1, 1+0:** yes
- **Hosts per port:** 128
- **Autodetect (1Gbit/sec or 2Gbit/sec):** yes
- **Speed Gbit/sec:** 2Gbit/sec
- **Physical ports:** 4 - 8 per system
- **Number of 2Gbit/sec backend loops:** 8
- **73GB 15,000RPM:** yes
- **73GB 10,000RPM:** yes
- **36GB 15,000RPM:** yes

### Cache Size
- **Cache size (GB) max per system:** 2GB – 4GB per controller, 4GB – 8GB per system

### Capacity
- **Capacity RAID-5:** 60TB
- **Capacity RAID-1+0:** 32TB
- **Capacity RAID-0:** 64TB
- **Raw capacity:** 64TB

### Number of Disk Drives
- **Number of disk drives:** 5 - 449

### Maximum Number of Expansion Modules
- **Maximum number of expansion modules:** 30

### LUN Management
- **LUN Management:** yes
- **Maximum number of LUNs:** 2048

### RAID-5 Configuration
- **RAID-5 (3 - 16 disk drives with floating parity):** yes

### Resource Management
- **Resource Manager required:** yes
- **HiCommand Tuning Manager:** optional
- **HiCommand:**
- **TrueCopy—synchronous remote replication:** optional
- **Hi Command:**
- **VERITAS DMP support:** yes
- **Hitachi Dynamic Link Manager (failover):** yes, optional
- **Continuous background disk check function:** yes
- **All parts redundant and hot-swappable:** yes

### Support for Other Platforms
- **Supports most other failover & clustering software:** yes

### Note
- **1GB = 1,000,000,000 bytes**

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**DISCLAIMER:**

Thunder 9580V storage system

Ultra-high-end modular storage system

Partner Beyond Technology
Thunder 9580V Storage System Specifications

- **LUNs**
  - Disk Drives Supported (all 2 Gbit/sec, dual-ported fiber)

- **Operating Systems Supported**
  - SGITM IRIX®
  - IBM® AIX®
  - Microsoft® Windows® 2000/Windows®2003
  - SunTM SolarisTM
  - Turbolinux®
  - SuSE® Linux®
  - Novell® NetWare®

- **Availability**
  - Autodetect (1Gbit/sec or 2Gbit/sec)       yes
  - Speed Gbit/sec            2Gbit/sec
  - Physical ports        4 - 8 per system
  - 146GB 10,000RPM      yes
  - 73GB 10,000RPM        yes
  - 36GB 15,000RPM yes

- **Capacity RAID-1+0 32TB**
  - Capacity RAID-0        64TB
  - Raw capacity 64TB

- **Maximum number of LUNs** 2048

- **LUSE—LUN size expansion included**
  - SNMP included
  - FlashAccess—cache residency manager included

For platform-specific feature availability, please contact your Hitachi Data Systems account representative or visit our Web site at www.hds.com.