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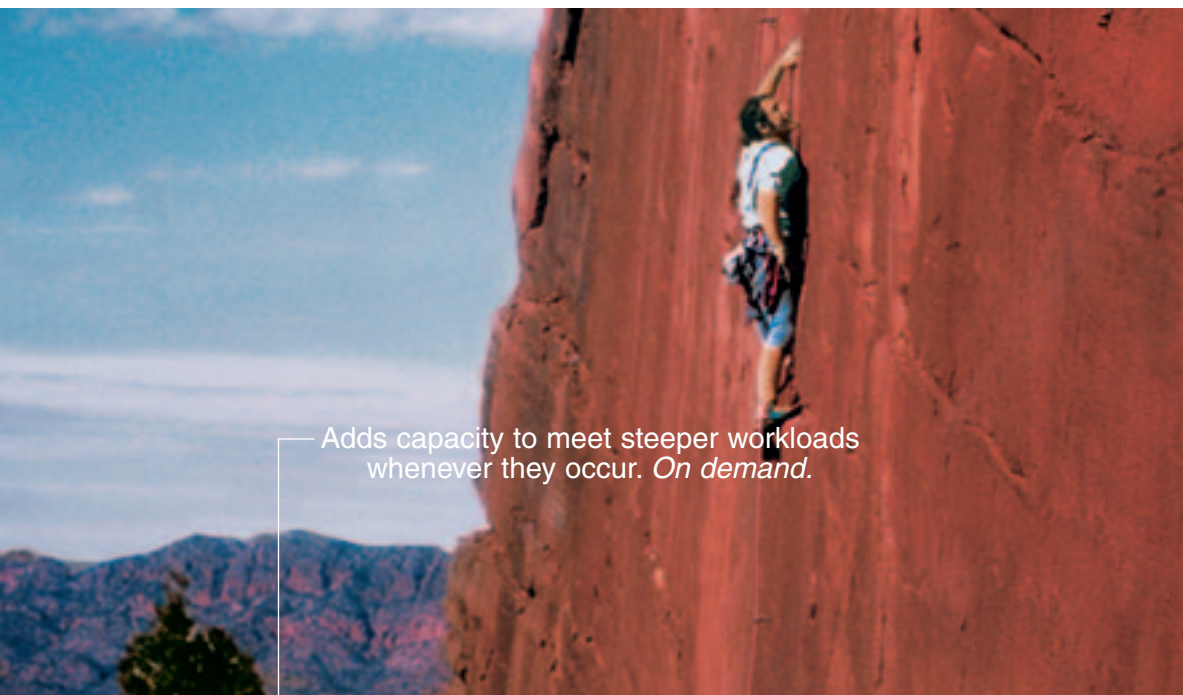
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— Ditto.



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Take the next step in storage

IBM delivers industry-leading virtualisation products.



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Enterprise Storage Server

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FAST600 & FAST900 Storage Servers

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LTO Ultrium tape drives


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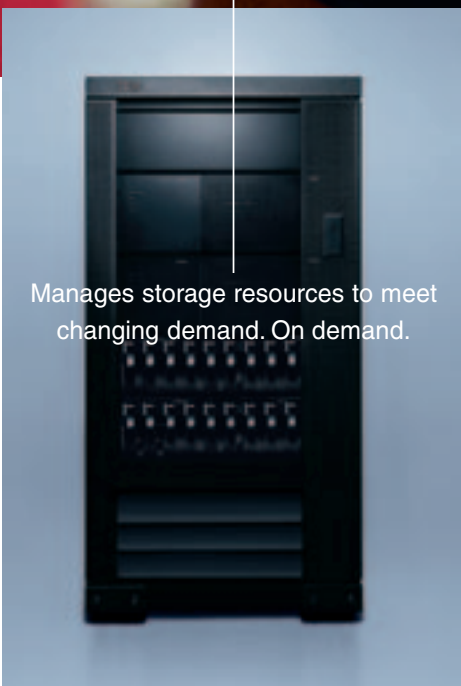
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@business on demand.



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Manages storage resources to meet changing demand. On demand.

IBM TotalStorage

The human body has an amazing capacity to adapt to shifting demands. So do IBM TotalStorage products. The IBM TotalStorage Virtualisation Family manages your individual storage resources as one common virtual pool. It can then allocate storage to your servers, helping to improve availability and utilisation. On demand. Helping to lower your costs.

TotalStorage: storage for on demand business.

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FCC Class B - Suitable for home or office use. See product documentation for complete FCC statements. NOTE: Installing an FCC Class A adapter in an FCC Class B system changes the system classification to FCC Class A and makes it unsuitable for use in a residential environment.

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Storage Networking



Storage systems are moving onto the network, and nobody gives you more storage networking choices than IBM. Choose an open and interoperable IBM TotalStorage SAN (Storage Area Network) solution if you need exceptional configuration flexibility and any-to-any device connectivity. Or use a high-performance, highly reliable NAS (Network Attached Storage) solution to cost-effectively provide pooled storage and file sharing for your heterogeneous LAN clients and servers.

We offer IBM TotalStorage SAN and NAS solutions to meet the full range of infrastructure and application needs. No matter which one you choose, you'll benefit from:

- **Increased availability** Reliable and efficient 24/7 access to data and applications
- **Superior protection and recovery** Data and applications are protected and backed up quickly and efficiently using PPRC
- **Enterprise-wide file sharing** Storage consolidation reduces file duplication and increases storage capacity and efficiency
- **Reduced cost of ownership** Storage networks integrate easily with existing hardware and applications
- **Enhanced Storage Management** Centralised storage management simplifies the management process and optimises storage utilisation.

Let an IBM TotalStorage storage networking solution give your organisation the competitive edge it needs in today's marketplace. Chances are we have a solution that's just right for your business and budget.

SAN Fabric	8-11	Network Attached Storage (NAS) 300G	12
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*SAN connections to fit many different environments***IBM TotalStorage SAN Fabric Products Overview****Reduced
Prices**

The products below provide the interconnect of servers and storage devices into high availability storage networks, scalable to thousands of devices.

Midrange Fibre Channel Switches

IBM TotalStorage SAN Switch F32 – provides 32-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics for UNIX® and Intel®-based servers and storage.

IBM TotalStorage SAN Switch F16 – provides 16-port, 2 Gigabit per second, high availability core-to-edge SAN fabrics.

IBM TotalStorage SAN Switch F08 – Full-fabric switch feature provides 8-port, 2 Gigabit per second switch for high availability dual redundant core/edge SAN fabrics.

McDATA Sphereon 4500 Fabric Switch (2031-224 and entry model) – is a 24-port, 2 Gigabit per second (Gbps), scalable and affordable modular switch for departmental, core or edge switching requirements. It is McDATA's first fabric switch to provide support for IBM loop tape devices. It provides UNIX® and Intel®-based servers and storage with highly scalable, core-to-edge fabrics for large enterprise SANs with a common management system.

McDATA Sphereon 3216 and 3232 Fabric Switches – provides 32-port, 2 Gigabit per second, scalable, high availability departmental fibre channel switching for UNIX and Intel-based servers and storage. When combined with McDATA Directors they provide a 2 Gigabit per second, high availability Enterprise-to-edge switched fabric with a common management system.

Enterprise Core Fabric Switch and Fibre Channel/FICON Directors

IBM TotalStorage SAN Switch M12 – Core Fabric Switch provides one or two 64-port, 2 Gigabit per second switch(s) for high availability dual redundant core/edge SAN fabrics. Provides UNIX and Intel-based servers and storage with highly scalable large enterprise SANs with a common management system. Fabric Manager 3.0 feature simplifies management of complex fabrics.

INRANGE FC/9000 Fibre Channel Director family – provides 64-, 128- and 256-port, 1 Gigabit per second data center class fibre channel switching for: IBM S/390 G5/G6

and IBM @server zSeries 900 servers and IBM storage with FICON adapters; IBM and non-IBM UNIX-based and Intel-based servers and IBM and non-IBM storage with Fibre Channel adapters; IBM FC-AL attached tape devices and IBM Ultra-SCSI-attached tape devices with gateways and routers.

McDATA Intrepid 6140 Director (2032-140) – provides 140-port, 2 Gigabit per second, high availability switching and enterprise-level scalability for data centre class core/edge fabrics. It provides UNIX and Intel-based servers and storage with highly scalable large enterprise SANs with a common management system. It provides IBM @server zSeries FICON server and storage connectivity with improved performance, fewer fibre cables and automated FICON management.

McDATA Intrepid 6064 – provides 64-port, 2 Gigabit per second high availability, data centre class fibre channel switching. Supports: IBM S/390 G5/G6 and zSeries 900 servers and IBM storage with FICON adapters; IBM and non-IBM UNIX-based and Intel-based servers and IBM and non-IBM storage with Fibre Channel adapters; and IBM FC-AL attached tape devices with the McDATA Switch.

Cisco MDS 9509 Multilayer Director

Cisco MDS 9509 Multilayer Director provides 32 to 224 ports, with 2 Gigabit per second performance and a high-availability design. For more information visit:

ibm.com/storage/uk/ibmsan/products/cisco/index.html

Cisco MDS 9506 Multilayer Director

Cisco MDS 9509 Multilayer Director provides 16 to 128 ports, with 2 Gigabit per second performance and a high availability design. For more information visit:

ibm.com/storage/uk/ibmsan/products/cisco

Cisco MDS 9216 Multilayer Fabric Switch

Cisco MDS 9216 Multilayer Fabric Switch provides 16 to 48 ports, with 2 Gigabit per second performance and a modular design with improved availability capabilities.

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*From entry level to enterprise ... the right fabric switch for you***IBM TotalStorage SAN Switch Family****Reduced
Prices**

IBM TotalStorage SAN Switches support link speeds up to 2 Gbps. Each port supports 100MB/sec or 200MB/sec full-duplex data transfers. Auto-sensing ports can automatically negotiate to the highest speed supported by the attached device. Universal ports automatically determine the

port type when connected to a fabric, loop or expansion port. Fabric services include automatic self-discovery of new devices and dynamic path selection based upon Fabric Shortest Path First (FSPF).

Common IBM SAN Switch firmware helps simplify SAN fabric expansion. Standards-based Management Server and Simple Name Server support in-band discovery of SAN fabric changes. Management access of SNMP information is provided via an external Ethernet interface or in-band over a Fibre Channel link through a single fabric connection.

Extended Fabrics Activation extends SAN fabrics beyond the Fibre Channel standard 10 km, enabling high-performance applications over extended distances.

Remote Switch Activation extends the distance of SAN fabrics by enabling two Fibre Channel switches to interconnect over an ATM Wide Area Network (WAN).

QuickLoop enables servers with Fibre Channel Arbitrated Loop (FC-AL) private loop Host Bus Adapters (HBAs) to communicate with FC-AL storage devices through IBM TotalStorage SAN Switches. Individual switch ports may be designated as FL-Ports, allowing a private host initiator to communicate with FC-AL storage devices.

Inter-Switch Link (ISL) Trunking combines up to four Fibre Channel links between IBM SAN Switches to form a single logical ISL. High-speed trunks help optimise bandwidth utilisation, enhance availability and balance the load across all of the ISLs, enabling administrators to focus on overall network performance by monitoring trunk performance rather than specific devices. Network reliability and performance are increased because failed links do not require rerouting of traffic.

Advanced Security Activation Feature extends basic fabric security provided by Advanced Zoning hardware-enforced WWN zoning. It provides a comprehensive, policy-based security system.

IBM SAN Switch management framework is designed to support the widest range of solutions – from the very small workgroup SANs up to very large enterprise SAN fabrics with thousands of devices. IBM SAN Switch management options include:

- WEBTOOLS, a comprehensive set of management tools that support a Web browser interface into existing enterprise storage management structures
- Fabric Watch, included in Full-fabric Switch Activation, monitors fabric resources, port traffic, switch environmental values and operational values for GigaBit Interface Converters (GBIC) and optical transceivers.

Fabric Manager V4 offers new capabilities:

- Configuration change management with fabric snapshot and compares
- Secure Fabric OS management including security policy control, audit and reporting
- SAN topology visualisation and at-a-glance views
- Call home facility sends e-mail notification to support personnel as events occur

Fabric Manager V4 can manage up to eight separate fabrics. WEBTOOLS and Fabric Manager work together on the same management server attached to any switch in the core/edge fabric.

The IBM TotalStorage SAN Switch Family includes:

- IBM TotalStorage SAN Switch F08
- IBM TotalStorage SAN Switch F16
- IBM TotalStorage SAN Switch F32
- IBM TotalStorage SAN Switch M12

The Models F08, F16, and F32 switches provide, respectively, 8-, 16-, and 32-port, 2 Gigabit per second, high availability, core-to-edge SAN fabrics for UNIX and Intel-based servers and storage, scalable from small workgroups to large enterprise SANs with a common management system.

The Model M12 Core Fabric Switch provides one or two 64-port, 2 Gigabit per second switch(es) for high availability dual redundant core/edge SAN fabrics. Provides UNIX and Intel-based servers and storage with highly scalable large enterprise SANS with a common management system.

For more information - ibm.com/storage/europe/uk/ibmsan/products/2109/san_switch_solu.html

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High performance and scalability to enable IBM Enterprise Storage Area Networks

INRANGE IN-VSN FC/9000-256 Fibre Channel Director



IBM Enterprise Storage Area Network

Storage Area Networks (SAN) are high-speed switched fabrics of centrally managed, heterogeneous servers and storage systems. By enabling centralised data management, data access, and consolidated backups, SAN fabrics can help companies improve the overall efficiency and performance of their IT operations.

Your company needs high system availability to support 24x7 operation. Data still needs to be accessed during component replacement and software upgrades.

Designed for availability and performance

For high-performance, high-availability switching service to help provide high data availability across the SAN, IBM now offers the INRANGE IN-VSN FC/9000-256 Fibre Channel Director, which provides the scalability required by rapidly growing e-business and other mission-critical applications.

The Director's design is based upon S/390 FICON server requirements for a large number of ports in a single director (256 ports in a single footprint) and upgradeability to larger configurations in the future. The Director is also designed to provide the high levels of availability, performance, and integrity required by today's most demanding data centres.

The Director features N+1 redundancy at all critical points of design, automatic internal failover, extensive hot-swapping, nondisruptive firmware updates, and automatic fault detection and isolation. In addition, "call-home" and pager capabilities can automatically alert support and maintenance personnel to accelerate problem resolution.

For more information -
ibm.com/storage/uk/ibmsan/products/directors

Designed to:

- **Support e-business and other mission-critical applications**
- **Provide enterprise-level scalability and data centre-level availability**
- **Provide Fibre Channel connectivity for S/390 and IBM @server zSeries 900 servers, UNIX®-based servers, and Intel® processor-based servers running Windows® NT® and 2000**
- **Enable connectivity to FICON- and Fibre Channel-attached storage**
- **Features a 256-port Fibre Channel switched fabric with N+1 redundancy for all active components**
- **Uses IN-VSN Enterprise Manager software to centralise control for multiple FC/9000 Fibre Channel Directors across the enterprise.**

Type	Mod	Description
2042	001	INRANGE FC/9000-64 Fibre Channel Director, 24- to 64-ports, upgradeable to 128-ports
2042	128	INRANGE FC/9000-128 Fibre Channel Director, with (48 ports) IN-VSN Enterprise Manager and one IN-VSN Enterprise Client
2042	256	INRANGE FC/9000-256 Fibre Channel Director, 48- to 256-ports
2042	C40	INRANGE FC/9000 40u Cabinet

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*A storage solution for today – and for the future***McDATA Core-to-Edge Switch Solutions****Reduced
Prices**

McDATA Enterprise-to-edge SAN Solutions satisfy your present demands and are ready to tackle your future needs with:

■ **99.999% availability**

■ **Compatibility with IBM and many non-IBM servers and storage**

■ **Investment protection through support of a buy-and-grow SAN implementation strategy.**

McDATA Enterprise-to-edge SAN solutions are the only complete line of open storage networking products designed with a common architecture and an integrated enterprise-wide management system. Extensive IBM and McDATA interoperability testing provides a wide range of support for IBM and non-IBM servers and storage systems. Your business has the opportunity to initially deploy separate data centre SANs and departmental SANs and then interconnect them into an integrated enterprise SAN in the future as your experience and requirements grow and change.

Highest availability

McDATA Directors deliver the performance, manageability, and availability demanded by mission-critical applications. Built-in redundancy of all active components and non-disruptive maintenance provide 99.999% availability. That means less than five minutes of unavailability a year!

Scalability

McDATA Director fibre channel switched fabrics can scale up to 140-ports. McDATA Fabric Switches can scale to 32-ports. McDATA Directors and Fabric Switches may be interconnected to support the most demanding enterprise SAN requirements.

Space efficiency

McDATA Directors and Switches offer the highest port density in the industry.

Wide range of server platforms

McDATA Directors support both IBM S/390 and IBM *@server* zSeries FICON as well as a wide range of Windows NT/2000 and UNIX servers from IBM, Sun, and Hewlett Packard.

Flexible Management Options

McDATA Enterprise Fabric Connectivity Manager, Open Systems Management Server, FICON Management Server, and embedded Web Server management are the most extensive in the industry.

Whether you are starting with a new department or upgrading your entire enterprise, IBM's McDATA SAN Solutions can help solve your growing storage needs.

For more information - ibm.com/storage/uk/ibmsan/product/2032

Type	Mod	Description
2031	E24	McDATA Entry Switch, 2 Gb/sec., 8, 16, or 24 ports
2031	224	McDATA Sphereon 4500 Fabric Switch, 2 Gb/sec., 8, 16, or 24 ports
2031	232	McDATA Sphereon 3232 Fabric Switch, 2 Gb/sec., 32 ports
2032	064	McDATA Intrepid 6064 Director, 2Gb/sec., 24 - 64-ports
2032	140	McDATA 6140 Director, 2Gb/sec, 48 - 140-ports
2032	C40	McDATA FC-512 Cabinet

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Bridge the gap between LAN and SAN

IBM TotalStorage Network Attached Storage Gateway 300



■ **Increased access – IP clients and servers can access storage area network (SAN) devices without each server or client being directly connected by Fibre Channel**

■ **Scalable – Non-disruptive capacity for growth provides up to 22TB¹ of SAN-attached storage**

■ **Flexible – Cross-platform file sharing (CIFS [Microsoft® Windows®], NFS [UNIX®], HTTP, FTP, AppleTalk and NetWare²) helps reduce network complexity and expense, and allows data to be used across the organisation.**

■ **Manageable – Integrated system diagnostics and management tools help minimise downtime**

■ **High performance – Tivoli SANergy software provides high-speed exchange of metadata information over IP networks**

■ **Consolidation – Centralised data management helps increase efficiency of scarce IT resources**

■ **Performance – Innovative design incorporates dual 2.4 GHz Intel Xeon processors (per node) to help keep productivity high, even during peak usage**

■ **Technology Advancements – Integrated TCP/IP Off load Engine (TOE) technology offloads TCP/IP cycles from main processors helping to increase performance by 61% over previous models.**

¹11TB is the maximum storage tested and recommended per engine. Customers might choose to allocate less storage depending on the data traffic driven across each engine.

² Windows services for NetWare is included enabling file services for NetWare clients. Services for NetWare only supports server emulation of NetWare 3.12 in binary emulation mode. This support is only available over an IPX interface.

The new IBM TotalStorage Network Attached Storage Gateway 300 series is part of the overall IBM Storage Networking offering of hardware, software and services. IBM network-attached storage (NAS) products provide you with additional building blocks to increase the flexibility, efficiency and effectiveness of your storage networking solutions.

The NAS Gateway 300 series consists of cost-effective, innovative devices that connect clients and servers on an IP network to a SAN, bridging the gap between LAN and SAN. These dedicated devices, available in single or dual engine configurations, perform high-speed block and file protocol conversions to enable the transfer of data to clients in a distributed environment. They use standard network protocols such as CIFS and NFS to make the integration and management of information easier. Access to SAN storage is more available to IP users when using the NAS Gateway 300 series. The NAS Gateway 300 series can reduce the requirement for direct Fibre Channel connections to servers and clients that require SAN access, resulting in significant cost savings.

The NAS Gateway 300 series is compatible with several SAN storage devices, which makes it ideal for providing storage access to IP users. As situations and storage requirements change, an administrator is able to reallocate storage to fit the growing needs of the organisation. When requirements for storage increase, the NAS Gateway 300 series can also access multiple SAN devices to provide additional storage. Some of the compatible devices include the IBM Enterprise Storage Server, FASTT200, FASTT500 and FASTT700.

For more information -
ibm.com/storage/europe/uk/snetwork/nas/300G

Type	Mod	Description
5196	G02	IBM TotalStorage Network Attached Storage Gateway 300, Model G02 (single node)
5196	G27	IBM TotalStorage Network Attached Storage Gateway 300, Model G27 (dual node)

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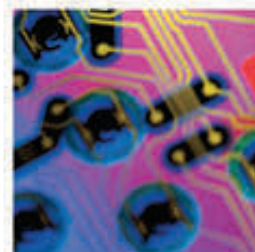
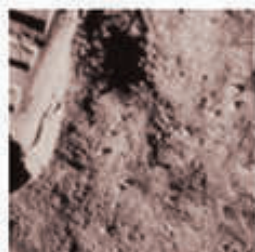
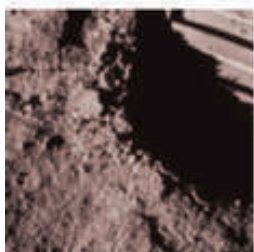
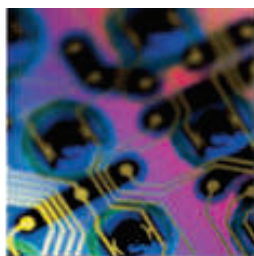
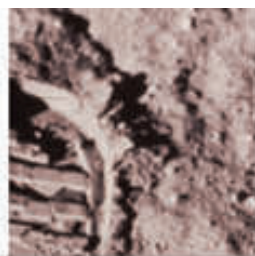
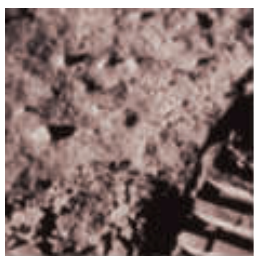
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MODEL
G02

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Storage for an on demand world

IBM TotalStorage Virtualisation Family



IBM sponsored research¹ shows that over the course of one year, the average SAN customer with five terabytes (TB) of storage could potentially save more than £260,000 in improved hardware utilisation, more than £124,000 in improved administrator productivity, and up to £4 million in lost opportunity costs by reducing planned and unplanned downtime to obtain better application availability.

Is your storage environment giving you the flexibility and speed that today's on demand world requires? Saving money is important, but so is having an on demand operating environment that helps you respond in real time to your customers' demands, market opportunities or competitive threats.

An on demand environment has the potential to drive higher bottom-line business results by helping your business become more adaptive. With an integrated and reliable on demand operating environment, you can meet the changing needs for storage that are being driven by your business and business applications. Integrated information is key. A consolidated and integrated on demand storage environment can enhance your ability to leverage information, focus on what's core and differentiating about your business, and be resilient around the clock.

IBM has introduced the first products in the IBM TotalStorage family of virtualisation products. These

products are designed to help reduce the complexity and costs of managing SAN-based storage. With the IBM TotalStorage family of virtualisation products, you can manage your storage infrastructure from a centralised point of control with centralised volume, file and device management. Together, the products are designed with the goal of helping customers drive down the cost and complexity of storage management while providing greater flexibility to address rapidly changing storage needs.

The initial offerings are the **IBM TotalStorage SAN Volume Controller** – a storage virtualisation solution designed for integration in an existing SAN environment – and the **IBM TotalStorage SAN Integration Server** – a complete, integrated SAN storage solution.

In the longer term, the planned road map for the IBM TotalStorage family of virtualisation products includes the IBM TotalStorage SAN File System – a SAN-based, centralised file system. Together, these solutions can help you take the next step towards building an on demand operating environment.

For more information - ibm.com/storage/uk/software/virtualization

¹ IBM total cost of ownership research study of more than 200 customers conducted 4Q 2002. Research covered customers with an average of 5.1 TB of storage.

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ibm.com/totalstorage/uk

call 0800 169 1458

Centralise control and reduce complexity and costs

IBM TotalStorage SAN Volume Controller



■ **Provides a centralised point of control for managing an entire heterogeneous SAN**

■ **Reduces downtime for planned and unplanned outages, maintenance and backups**

■ **Improves resource utilisation and increases administrator productivity and efficiency**

■ **Provides a single, cost-effective set of advanced copy and backup services.**

Your information resources are spread over a variety of locations and storage environments, with products from different vendors, and everything from mainframes to laptops. For the best utilisation of resources, you need to share resources from all environments, regardless of the vendor.

The SAN Volume Controller supports a virtualised pool of storage from the storage subsystems attached to a SAN and represents storage to applications as virtual disks, created from the pool of managed disks.

Storage administrators can scale performance by adding storage engines and scale capacity by adding disks to the managed storage pool. A dynamic data-migration function helps administrators migrate storage from one device to another, without taking it off-line.

SAN Volume Controller moves copy services from individual storage controllers to the SAN so administrators can apply copy services across disparate storage devices within the network. Advanced copy services – such as FlashCopy and Peer-to-Peer Remote Copy (PPRC) – are supported across the managed storage.

For more information -
ibm.com/storage/uk/software/virtualization/svc

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An integrated, complete, out-of-the-box virtualised SAN

SAN Integration Server



■ **An integrated storage solution intended for easy SAN infrastructure implementations**

■ **Highly scalable system architecture supports investment protection**

■ **Improved resource utilisation**

■ **Avoidance of downtime for planned and unplanned outages, maintenance and backups**

■ **Centralised point of control for volume management**

■ **A single, cost-effective set of advanced copy functions.**

IBM TotalStorage SAN Integration Server

IBM SAN Integration Server is designed to integrate IBM virtualisation technology with Fibre Channel switches and RAID storage technologies into a preconfigured, comprehensive solution. Delivered and installed as an integrated unit, it helps provide the benefits of SANs with ease of manageability. The SAN Integration Server can help manage over 100 terabytes (TB) of storage capacity¹ and support up to 42 hosts.

The SAN Integration Server provides centralised management through a single interface to support easier storage allocation and address application demands. This flexibility helps to provide better storage utilisation and to reduce required administrative time and resources.

The SAN Integration Server features hardware redundancy and elements of IBM advanced autonomic computing technologies to help minimise downtime and improve availability.

IBM has designed and tested the SAN Integration Server for integration into existing environments, including heterogeneous hardware and operating systems. It is interoperable with a wide range of servers running Linux, UNIX® and Microsoft® Windows® operating systems, whether from IBM or other vendors.

For more information -
ibm.com/storage/uk/software/virtualization/sis

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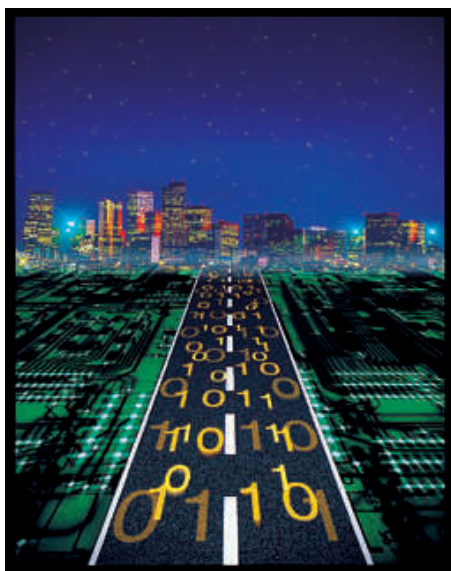
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High performance software for storage

Storage Management Software



Get robust, comprehensive storage management capabilities, tied into Enterprise Management – a major key to providing dynamic, successful on demand environment.

IBM TotalStorage Expert – Get the maximum potential from your IBM Disk and Tape Subsystems by using the information provided by the IBM TotalStorage Expert.

IBM TotalStorage Management Toolkit – The IBM TotalStorage Management Toolkit is a collection of products designed to provide a comprehensive menu of solutions in order to meet the storage management requirements of z/OS customers. The Toolkit is positioned to complement and extend the storage management capabilities of DFSMS. The products contained in the Toolkit allow IBM to provide a more complete suite of storage management solutions.

DFSMS – DFSMS is a software suite that automatically manages data from creation to expiration. DFSMS provides allocation control for availability and performance, backup/recovery and disaster recovery services, space management, tape management, and reporting and simulation for performance and configuration tuning.

DFSORT – DFSORT is IBM's high-performance sort, merge, copy, analysis and reporting product. DFSORT is an optional feature of z/OS and OS/390.

IBM Tivoli Storage Management – Today's storage management needs go beyond traditional backup and recovery solutions. Data is the currency of today's e-business economy, and planning to store this data needs to encompass data reliability, solution scalability, disaster planning and recovery, and impact the overall infrastructure as well as individual mission-critical applications. IBM Tivoli Storage Management protects your organisation's data from hardware failures and other errors by storing backup and archive copies of data on offline storage. Scaling to protect thousands of computers running dozens of OS platforms, its intelligent data movement and store techniques, and complete automation, reduce administration costs while increasing service levels. Tivoli storage products are unmatched in providing a combination of scalability, intelligent data technology, disaster preparation, and broad platform and application support, all through one centralised, automated solution.

For more information - ibm.com/storage/software

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Manage enterprise-wide storage assets from a single, Web-based interface

IBM Tivoli Storage Resource Manager



Tivoli software

- **Comprehensive enterprise reporting, monitoring and alerts**
- **Intelligent, policy-based management**
- **Chargeback support**
- **Extremely rapid time-to-install and time-to-value**
- **Single, Web-based interface provides an intelligent console for the entire environment.**

IBM Tivoli Storage Resource Manager provides a set of policy-driven automated tools for managing storage capacity, availability, events, performance and assets in your enterprise environment, including DAS, NAS and SAN technologies.

Tivoli Storage Resource Manager helps you identify, evaluate, control and predict your storage management assets and, through its autonomic self-healing capabilities, it can detect potential problems and automatically make adjustments based on the policies you have established.

For more information -
ibm.com/software/tivoli/solutions/storage/resource/

Product No.	Description
D51T8LL	IBM Tivoli Storage Resource Manager
D51SQLL	IBM Tivoli Storage Resource Manager for Databases
D51SMLL	IBM Tivoli Storage Resource Manager for Chargeback

Contact your local IBM rep for latest prices.

Efficient management for your SAN solution

IBM Tivoli Storage Area Network Manager

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- **Produces topology maps of all components across the storage network**
- **Helps to ensure high availability of your storage network**
- **Helps reduce administrative costs and workloads.**

IBM Tivoli Storage Area Network Manager discovers, monitors, and manages your SAN fabric components. It provides network management capabilities for SAN configurations that have at least one server connected to the SAN running one of the following operating systems: Windows NT, Windows 2000, Solaris or AIX.

For more information -
ibm.com/software/tivoli/products/storage-san-mgr/

Product No.	Description
D51M0LL	IBM Tivoli Storage Area Network (SAN) Manager

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ibm.com/totalstorage/uk

call 0800 169 1458

Centralised, scalable & automated data protection

IBM Tivoli Storage Manager and Data Protection Modules



Tivoli software

■ Managed backup and archive

■ Hierarchical storage management, disaster recovery planning and execution.

The IBM Tivoli Storage Manager (TSM) family of products protects data from hardware failures, errors, and unforeseen disasters by storing backup and archive copies on offline and offsite storage. Scaling to protect thousands of computers running more than a dozen OS ranging from laptops to mainframes and connected together via the Internet, WANs, LANs or SANs, TSM's centralised Web-based management, intelligent-data-move and store techniques and comprehensive policy-based automation all work together to minimise administration costs and the impact of data protection to both computers and networks. Optional modules enable business-critical application servers to utilise TSM as their centralised data protection

application for on-line (hot) incremental backup for all supported databases/platforms. If 24x7 operation is a requirement of your database, e-mail, ERP or WebSphere servers from IBM, the TSM modules allow applications to run uninterrupted while data is automatically backed-up and archived. With Tivoli Storage Manager for Hardware, applications using IBM TotalStorage Enterprise Storage Server or EMC's Symmetrix held data will gain these backup/archive benefits.

For more information - ibm.com/software/tivoli/solutions/storage

Product No.	Description
D5127LL	IBM Tivoli Storage Manager
D51MFLL	IBM Tivoli Storage Manager Extended Edition
D51N1LL	IBM Tivoli Storage Manager for Space Management
D5102LL	IBM Tivoli Storage Manager for Mail
D510ELL	IBM Tivoli Storage Manager for Databases
D512QLL	IBM Tivoli Storage Manager for ERP
D510BLL	IBM Tivoli Storage Manager for Application Servers
D510JLL	IBM Tivoli Storage Manager for Hardware
D51MULL	IBM Tivoli Storage Manager for SAN

Contact your local IBM rep for latest prices.



SAN – NAS fusion

IBM Tivoli SANergy



■ Gives high-bandwidth applications a direct connection to centralised shared storage

■ Takes those high-bandwidth apps off the LAN – freeing LAN bandwidth for other users.

Tivoli SANergy from IBM fuses the easy administration and heterogeneous, cross-platform sharing of Network Attached Storage (NAS) with the high bandwidth, scalability and CPU efficiency of Storage Area Networks (SAN). For computers running applications that need a very high-bandwidth connection to storage across a network, Tivoli SANergy enables the use of standard network attached file servers or NAS gateways and all the benefits they provide along with all the benefits of Storage Networks to provide a centralised networked storage system that is easy to maintain, administer and scale.

For more information - ibm.com/software/tivoli/solutions/storage

Product No.	Description
5698-SFS	Tivoli SANergy
D57ETLL	Tivoli SANergy File Sharing
D57DULL	Tivoli SANergy High Availability

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IBM Global Financing has a unique understanding of the fast developing IT sector. More than any other financier, IBM Global Financing understands the many challenges and opportunities of e-business on demand. And by specialising in innovation IT financing solutions, our aim is to give companies far greater freedom to innovate, grow and prosper.

With EasyLease, IBM Global Financing is offering you a total solution financing programme that covers IBM and non-IBM hardware, software and services. You can now acquire the latest IBM technology with competitive rates. So stay within your budget and deliver solutions on time with the EasyLease programme from IBM Global Financing, your specialist IT financier.

For more information: ibm.com/financing/uk/programmes/easylease.html



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FLEXIBLE financing offers tailored financing solutions to match your individual requirements. From payment deferrals, variable payment patterns, asset management services - whatever your business requires - we will work with you to tailor the most suitable option. Acquire your IBM solution now and start your projects earlier. Deliver your plans now with Flexible Financing from your preferred IT financier.

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Tailored options

For more information visit:

<http://www-1.ibm.com/financing/uk/programmes/flexible.html>

Disk

Disk is still the fastest and most economical storage medium available for interactive production databases. High-performance IBM TotalStorage disk solutions are also among the most reliable, scalable and interoperable in the industry.

Need to consolidate servers and pool storage for your large, heterogeneous operating environment? The IBM TotalStorage Enterprise Storage Server (ESS) can deliver the superior performance and high-availability functions required for your critical business applications across multiple platforms, including S/390. For more cost-effective, yet scalable and flexible storage requirements, the IBM FAStT family of storage servers with its Fibre Channel data access and multi-channel connectivity can be the best solution. For high availability and performance requirements, our IBM TotalStorage 7133 Serial Disk System is the shared-storage solution for fast-growing UNIX, Windows and/or NetWare server environments.

When your people must access and update the same databases online, all day long, they need the unmatched speed and reliability of an IBM TotalStorage disk solution.

Enterprise Storage Server (ESS)	20	FAStT Storage Servers (200/600/700/900)	22-24
2104 Expandable Storage Plus	21	7133 Serial Disk System	25

*Unprecedented scalability – outstanding performance***IBM TotalStorage Enterprise Storage Server (ESS) Model 800****NEW
FEATURES
and
enhancements.**

Visit: [ibm.com/
storage/europe/uk/
disk/ess/index.html](http://ibm.com/storage/europe/uk/disk/ess/index.html)



3 Year
Limited
Warranty

**Designed to provide:**

- **Storage sharing for IBM @server pSeries and UNIX®, Windows NT®, Windows® 2000, Novell NetWare, Linux and SGI IRIX platforms, IBM @server iSeries and AS/400, IBM @server zSeries and S/390 servers**
- **Dual cluster RISC SMP processors, large cache, and serial disk attachments**
- **State-of-the-art copy services including FlashCopy and Peer-to-Peer Remote Copy**
- **Low cost-of-ownership and ease-of-use with the IBM TotalStorage Enterprise Storage Server Specialist**
- **Redundant hardware and RAID 5 and RAID 10 disk arrays for high availability**
- **Fast data transfer rates with attached hosts via ESCON, FICON, Fibre Channel, 2 Gigabit Fibre Channel/FICON, or Ultra SCSI.**

Performance for today's business needs

The IBM TotalStorage Enterprise Server (ESS) Model 800 is designed to meet – and exceed – the performance requirements of most of today's demanding applications. High-speed disks provide rapid data access. Internal Serial Storage Architecture (SSA) disk paths support pipelined data movement. Data is automatically striped across multiple disks to enhance I/O parallelism and reduce the need for manual, after-the-fact tuning. Electronic cache is efficiently managed to provide faster access to more of your data.

Built-in flexibility

The award-winning IBM TotalStorage Enterprise Storage Server (ESS) Model 800 is the storage solution of choice for users wanting comprehensive enterprise storage consolidation and disk sharing between multiple, heterogeneous server platforms.

Scalability for fast-growing environments

The Enterprise Storage Server is especially designed for e-business and other applications with unpredictable growth requirements. It provides scalability up to 55.9TB while maintaining excellent performance. On demand capabilities like the ESS "Step Ahead" offering provide the option of immediate access to additional storage. This allows you to only pay for what you need, when you need it.

High availability to safeguard data access

Support for 24x7 operations is built into the IBM Enterprise Storage Server. Intermixable RAID 5 and RAID 10 disk arrays help provide data protection, while remote copy technologies allow fast data backup and disaster recovery. The IBM ESS features dual active processing clusters with fail-over switching, hot spares, hot swappable disk drives, nonvolatile fast write cache and redundant power and cooling.

For more information - ibm.com/storage/europe/uk/disk/ess

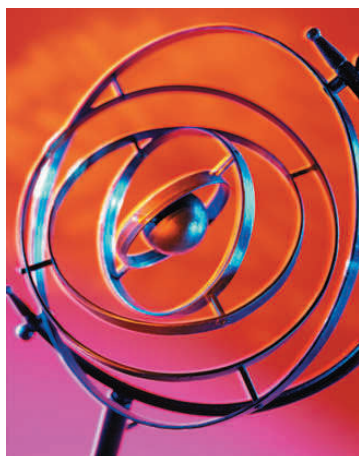
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Get maximum potential from IBM Disk and Tape Subsystems

IBM TotalStorage ESS Expert (ESS Expert)



3 Year
Limited
Warranty



IBM TotalStorage ESS Expert (ESS Expert) gathers and presents information that can significantly help storage administrators manage the IBM TotalStorage Enterprise Storage Server (ESS)

■ **Performance Management - performance information in a relational database enabling the generation of reports that help you make informed decisions**

■ **Asset Management - flexible asset management capabilities**

■ **Capacity Management - data to help identify trends, determine when capacity should be added, and avoid performance degradation or outages.**

A complete management solution

The ESS Expert provides asset, capacity, and performance tracking and reporting for the IBM Enterprise Storage Server.

The ESS Expert helps administrators to efficiently monitor their disk resources across S/390 and open systems from any location within their enterprise helping to simplify storage management, increase productivity, and reduce overall storage costs.

Product No.	Description
5648-TSE	ESS Expert V2 1.1 Enterprise Storage Server Feature

Contact your local IBM rep for latest prices.

Never be short on storage again

IBM TotalStorage 2104 Expandable Storage Plus (EXP Plus)



3 Year
Limited
Warranty

■ **Low-cost Ultra3 SCSI disk storage for IBM @server pSeries and RS/6000 servers**

■ **Features up to fourteen 10,000 rpm 18.2GB, 36.4GB, 73.4GB and 146.8GB disk drives**

■ **Scales from up to 2TB of capacity per drawer or tower to more than 28TB per rack.**

You will appreciate the economy, capacity, and space-saving design of the 5.1" high rack-mountable storage drawer or desktower. These storage units utilise 160MB/sec Ultra3 SCSI technology and house up to 14 hot-swappable disk drives, attached via SCSI adapters. (RAID 0, 1, 1E, 5 and 5E options available.)

For more information - ibm.com/storage/europe/uk/disk/expplus

Type	Mod	Description
2104	DU3	Rack-Mount Drawer Expandable Storage Plus
2104	TU3	Desktower Tower Expandable Storage Plus

Contact your local IBM rep for latest prices.

External 18.3 and 36.7GB disk drives

IBM 7204 Disk Drives

The 7204 Models 518 and 536 are low-cost storage devices for the IBM @server pSeries and RS/6000 family of workstations and servers. Benefits provided by these cost effective, external 10K rpm drives include:

- A formatted capacity of 18.3GB and 36.7GB of data provided in a low voltage differential or single-ended (LVD/SE) multi-mode drive
- Improvement in maximum media data transfer rate to 64.0MB per second
- Average read seek time of 4.9 milliseconds; write 5.3 milliseconds
- Average latency of 3.0 milliseconds
- Magnetoresistive (MR) heads.

For more information - ibm.com/storage/disk/7204

Type	Mod	Description
7204	518	18.3GB External Disk Drive
7204	536	36.7GB External Disk Drive

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*Low-cost storage solution***IBM TotalStorage FAST200 Storage Server (FAST200)**3 Year
Limited
WarrantyReduced
Prices

■ **A full-fibre, compact, entry-level storage system for UNIX and Intel-based servers**

■ **Scales from 18GB to 1.4TB in a compact 3U size with a maximum system capacity of 8TB**

■ **Offers a wide range of data protection options with RAID levels 0, 1, 3, 5 and 10.**

The FAST200 is the entry level product in the FAST family. It provides flexible and affordable storage for workgroup and departmental servers. The single controller model provides a cost-effective solution, while the FAST200 High Availability (HA) model features a fully redundant configuration with dual-active controllers.

The IBM TotalStorage FAST Storage Manager provides remote management capabilities and the ability to share storage resources among servers through storage partitioning. It supports up to 128 logical units (LUNs) and up to 16 storage partitions.

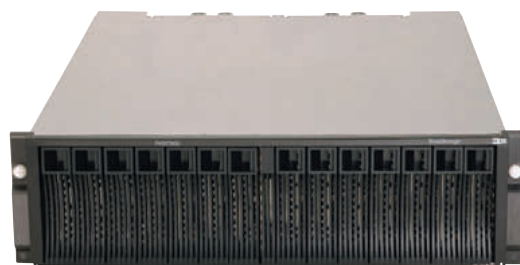
For more information -
ibm.com/storage/europe/uk/disk/fastt/fast200

Type	Mod	Description
3542	1RX	FAST200 RAID/Storage Unit, Single Controller
3542	2RX	FAST200 RAID/Storage Unit, Double Controller (includes batteries)

Contact your local IBM rep for latest prices.

*Scalable, high-performance storage for on demand environments***IBM TotalStorage FAST600 Storage Server (FAST600)**

New



■ **Provides 2Gb Fibre Channel host ports designed to economically support multi-path failover**

■ **High performance of up to 768MB/sec (with turbo option)**

■ **Scales to more than 16TB of capacity (with turbo option)**

■ **Includes failover drivers for most popular platforms and systems**

■ **Includes FAST Storage Manager to help centrally manage all FAST storage subsystems**

■ **Can help improve service response time with automated alerts from the optional FAST ServiceAlert feature.**

The FAST600 is an entry level, highly scalable 2Gb Fibre Channel Storage Server offering best-in-class performance for an unbeatable solution in UNIX and Intel workgroups.

The IBM TotalStorage FAST600 Storage Server is designed to be a cost-effective, scalable storage server for consolidation and clustering applications. Its modular architecture can support on demand business models by enabling an entry configuration that can easily grow as storage demands increase.

For more information -
ibm.com/storage/europe/uk/disk/fastt/fast600

Type	Mod	Feature	Description
1722	60U	2104	FAST Host Adapter
1722	60U	2210	Short Wave SFP GBIC
1722	60U	2220	Long Wave SFP GBIC

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**HOTTEST
DEALS:**
**FAST200 SAN
Starter
Configuration**
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Enterprise storage with exceptional performance, capacity and reliability

IBM TotalStorage FAST700 Storage Server (FAST700)



Product
Update



3 Year
Limited
Warranty



■ **Superior performance and bandwidth of the new 2Gbps technology provides faster access to your data**

■ **Attaches to Windows® NT, Windows® 2000, Novell NetWare, Red Hat Linux and AIX servers**

■ **Offers business continuance with FlashCopy and Remote Mirroring functions**

■ **Offers enhanced management functions such as Dynamic Volume Expansion with new FAST Storage Manager 8.21**

■ **Scales from 36GB to 32TB of storage**

■ **Provides broad range of RAID levels (0, 1, 3, 5, 10).**

The IBM TotalStorage FAST700 Storage Server (FAST700) delivers superior performance with 2Gbps Fibre Channel technology. It is designed to offer investment protection with advanced functions and flexible features. Its high scalability supports growing storage requirements created by e-business applications. FAST700 offers advanced replication services to support business continuance. It is truly an outstanding storage server for any enterprise seeking performance without borders.

For more information -
ibm.com/storage/europe/uk/disk/fastt/fast700

Excellent performance and scalability

IBM TotalStorage FAST900 Storage Server (FAST900)



New



■ **Uses 2Gb Fibre Channel connectivity to support high performance (772MB/sec throughput from disk) for faster, more responsive access to data**

■ **Facilitates storage consolidation for Storage Area Network (SAN), Network Attached Storage (NAS) and direct-attach storage environments**

■ **Supports continuous availability through redundant components and mirrored, battery backed-up cache.**

The IBM TotalStorage FAST900 Storage Server is the latest addition to the FAST family of disk storage products. The FAST900 is an enterprise-class storage server that is designed to provide excellent performance and flexibility for today's demanding data-intensive computing environments. With more than 32TB of storage capacity, this server is well suited for high-performance applications such as online transaction processing (OLTP), data mining and digital media.

In addition, the performance capabilities of the FAST900 exceed that of other FAST Storage Servers, with a 772MB/sec disk throughput. It also uses advanced caching algorithms to optimise disk performance.

For more information -
ibm.com/storage/europe/uk/disk/fastt/fast900

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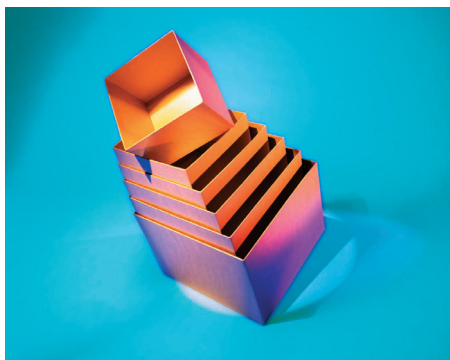
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High-speed for large amounts of storage

IBM TotalStorage EXP500 and EXP700 Storage Expansion Units



FAStT EXP500 Storage Expansion Unit

A highly available, fully-redundant data storage unit for enterprise, business-critical applications that require high-speed transfer and large amounts of data storage protected by fault-tolerant, high-availability features. The 3U unit supports up to 10 slim-high or half-high fibre channel hot-swap hard disk drives to provide up to 1468GB of additional storage per expansion unit (using 146GB disk drives).

Built-in reliability features include: Dual hot-swap redundant power supplies and fans, and Light-Path Diagnostic technologies with LED indicator lights to warn of any abnormalities.

The FAStT EXP500 Expansion Unit can attach to any of the FAStT200, FAStT500 or FAStT700 Storage Servers. It supports 10K rpm 18, 36, 72 or 146GB fibre channel drives or 15K rpm 18GB fibre channel drives.

FAStT EXP700 Storage Expansion Unit

Expands the high-performance FAStT family with a 14-bay, 2 Gbps, rack-mountable Fibre Channel (FC) disk drive enclosure. The new EXP700 is designed to provide incremental support for over one terabyte of disk storage per unit. When used with the FAStT700 Storage Server, it provides a full end-to-end 2 Gbps FC storage solution.

The EXP700 Expansion Unit supports four new, slim-profile, dual-loop, hot-swappable disk drive modules: 18.2 and 36.4GB 15K rpm, and 36.4, 73.4 and 146.8GB 10K rpm fibre channel drive. The four new 2 Gbps Fibre Channel disk modules can also be used with the FAStT EXP500 Storage Expansion Unit, and with the FAStT200 Storage Server operating at 1 Gbps. This is intended to provide a growth path for future usage of these drives with the EXP700.

Connect fibre channel to SSA

IBM TotalStorage SAN Controller 160 (7140)

■ **Connectivity for fibre channel based servers to IBM's Serial Storage Architecture (SSA)-based disk subsystems**

■ **All the advantages of SSA architecture, including high performance, high reliability, and scalability**

■ **Easy-to-use, graphical user interface setup and ongoing management tools**

■ **Advanced functions such as RAID-1 data replication for added data protection and Instant Copy for SSA loop availability**

■ **Support for large amounts of SSA-based disk storage when users take advantage of multiple SAN Controllers 160.**

The IBM TotalStorage SAN Controller 160 (7140) enables fibre channel based servers to connect to IBM's SSA-based disk systems. The SAN Controller 160 is designed to provide a solution to connection problems with SSA systems while offering excellent performance and reliability.

The SAN Controller 160 supports up to 64 serial disk drives in a single loop and enables nondisruptive growth in disk capacity from 18.2GB to 2.3TB. Up to eight UNIX and Windows NT host systems can be attached to a single loop. Additional performance gains can be realised as more SAN Controllers are added to the serial loop.

A stand-alone, table-top SAN Controller 160 unit provides one fibre channel port and two SSA ports. Short-and long-wave laser optical interfaces are supported. An optional rack-mounted enclosure can hold up to four SAN Controllers in a compact 2U-high space in an industry-standard 19-inch rack.

For more information - ibm.com/storage/7140

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ibm.com/totalstorage/uk

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Step up to 14TB of Serial Storage Architecture

IBM TotalStorage 7133 Serial Disk System (7133)



3 Year
Limited
Warranty

■ **Performance capability of up to 60,000 I/Os per second and 600MB/sec in 8-server clusters**

■ **Data protection with RAID 1, RAID 0+1 and RAID 5 provided by SSA adapters.**

The high-capacity IBM TotalStorage 7133 Serial Disk System (7133) can accept up to 16 "hot-swappable" disk drives. The models D40 and T40 can be configured with 18.2GB, 36.4GB, 72.8GB, or 145.6GB disk drives. The 7133 D40 and

T40 models can provide a total capacity of up to 2.32TB per drawer or tower and up to 14.0TB in a fully loaded 6-drawer rack. With SSA dual data paths to every disk, redundant power and cooling, host bypass features, and the ability to connect to multiple UNIX®, Novell NetWare and Windows® NT® servers, the 7133 is suitable for multi-host attachments of IBM @server pSeries, RS/6000 and other open systems servers.

For more information - ibm.com/totalstorage/7133

Type	Mod	Description
7133	D40	Rack-Mount Drawer Maximum Storage Up to 1.6TB
7133	T40	Deskside Tower Maximum Storage Up to 1.6TB

Contact your local IBM rep for latest prices.

Monitor and manage serial networks centrally and remotely

IBM TotalStorage Serial Storage Expert (Serial Storage Expert)

Designed to:

- **Simplify monitoring and management of SSA network adapters, disk drives, and enclosures**
- **Provide graphical planning tools to streamline network development**
- **Help improve the management of serial devices, the allocation of disk space and the reassignment of resources**
- **Enable centralised, remote management of serial networks throughout the enterprise.**

IBM TotalStorage Serial Storage Expert (Serial Storage Expert), a graphical configuration planning and management tool for IBM 7133, 7131, and 3527 serial disk systems, simplifies the management of serial networks

attached to IBM RS/6000 and SP systems running AIX and systems running Windows® NT®.

You can monitor events, identify errors in the network, make corrections, and generate reports in a real-time environment from any location.

The Expert Planner helps storage administrators lay out SSA Storage Network Topologies. The Expert Live Viewer scans, inventories and visually displays the topology and attributes of an existing SSA network. The Storage Network Navigator is designed to simplify viewing large management sets helping you easily and quickly see the big picture.

The Serial Storage Expert runs on networked PCs running Windows® 95, Windows® 98, and Windows® NT® systems.

For more information - ibm.com/storage/software/expert

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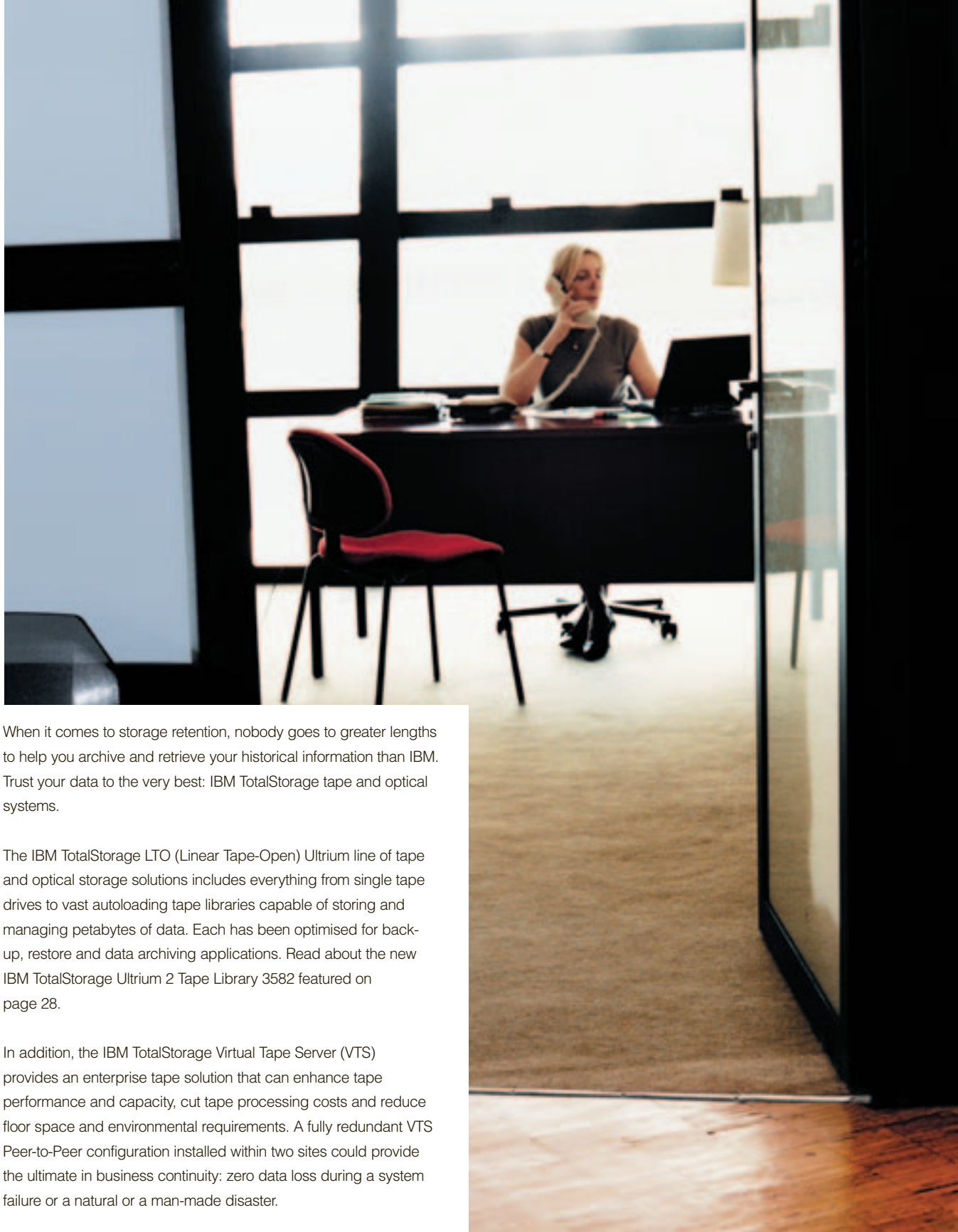
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Tape/Optical



When it comes to storage retention, nobody goes to greater lengths to help you archive and retrieve your historical information than IBM. Trust your data to the very best: IBM TotalStorage tape and optical systems.

The IBM TotalStorage LTO (Linear Tape-Open) Ultrium line of tape and optical storage solutions includes everything from single tape drives to vast autoloading tape libraries capable of storing and managing petabytes of data. Each has been optimised for back-up, restore and data archiving applications. Read about the new IBM TotalStorage Ultrium 2 Tape Library 3582 featured on page 28.

In addition, the IBM TotalStorage Virtual Tape Server (VTS) provides an enterprise tape solution that can enhance tape performance and capacity, cut tape processing costs and reduce floor space and environmental requirements. A fully redundant VTS Peer-to-Peer configuration installed within two sites could provide the ultimate in business continuity: zero data loss during a system failure or a natural or a man-made disaster.

LTO Ultrium Family	27-30	External Tape Drives	32-33
Enterprise Tape Family	28-31	Optical Libraries and Drives	34

Next-generation LTO technology doubling speed and capacity

IBM TotalStorage LTO Ultrium Tape Family



IBM has recently announced the IBM TotalStorage Ultrium 2 Tape Drive in both the IBM TotalStorage UltraScalable Tape Library 3584 and the IBM TotalStorage Ultrium External Tape Drive 3580. The new Ultrium 2 tape drives double the capacity (up to nearly a petabyte of compressed data in the 3584) and more than double the performance over the first generation of IBM Ultrium offerings. Compared with competing LTO 2 drives from Hewlett Packard, the new IBM drives are 17 percent faster.

In addition to improved data reads and writes, many parts of the drive have been optimised for faster performance, including tape loading and unloading time, so that even the basic mechanics of the drive result in higher performing archival solutions. Another new addition with Ultrium 2 technology is a "sleep" function, which switches the drive to a lower power setting when it is not in use, helping to maximise energy efficiency.

For more information - ibm.com/storage/europe/uk/tape/lto

NEW ULTRIUM 2 MODELS

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Featuring new Ultrium 2 drives

IBM TotalStorage Ultrium External Tape Drive 3580



New Ultrium 2 models of the IBM TotalStorage Ultrium External Tape Drive have a capacity of up to 400 GB with compression (2:1) with the use of the new IBM TotalStorage LTO Ultrium 200 GB Data Cartridge. With its higher capacity and tape drive performance that more than doubles up to 35MB/sec native data transfer rate (70 MB/sec with 2:1 compression), the new IBM Ultrium External Tape Drive 3580 is an excellent alternative to DLT/SDLT; 1/4-inch, 4mm or 8mm tape drives.

For more information - ibm.com/storage/uk/tape/lto/3580

Type	Mod	Description
3580	H23	IBM 3580 Ultrium 2 Tape Drive model H23 for servers supporting Ultra/Wide SCSI High Voltage Differential (HVD) interface specifications (includes three-year Customer Element Exchange warranty)
3580	L23	IBM 3580 Ultrium 2 Tape Drive model L23 for servers supporting Ultra2/Wide SCSI Low Voltage Differential (LVD) interface specifications (includes three-year Customer Element Exchange warranty)

Contact your local IBM rep for latest prices.

■ **Offers breakthroughs in capacity, performance, and reliability for midrange and network tape storage environments**

■ **Provides an entry-level Ultrium tape solution**

■ **Enables cost-effective backup, save/restore, and archival storage**

■ **Provides continuous, easy-to-understand drive information with an LCD status display**

■ **Adheres to widely supported Linear Tape-Open (LTO) design specifications.**

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*Entry level, high capacity tape library for backup and archive***IBM TotalStorage Ultrium Tape Library 3582**

- **Features 1 or 2 Ultrium 2 drives**
- **High Capacity – up to 9.6TB of compressed data**
- **High Performance – data transfer rates up to 70MB/sec with compressed data**
- **Uses Linear Tape-Open (LTO) design specifications**
- **Native Fibre Channel option with support for switched fabric**
- **Compact 4U standalone or rack mount configuration.**

The TotalStorage Ultrium Tape Library 3582 is designed to provide a cost-effective solution for handling a wide range of backup, archive, and disaster recovery data storage needs.

IBM LTO Ultrium drives share best-of-breed technology. Advanced multi-track recording capabilities, state-of-the art magneto-resistive (MR) heads, and a sophisticated track following servo system work together to produce extremely high recording densities. IBM Ultrium 2 drive enhancements

include digital speed matching, power management, channel calibration and 512 data tracks. Error correction code (ECC) function helps provide data integrity.

The IBM TotalStorage Ultrium Tape Library 3582 supports up to two IBM TotalStorage Ultrium 2 Tape Drives. The IBM TotalStorage Ultrium 2 Tape Drives can read and write original LTO Ultrium data cartridges at first generation Ultrium 1 capacities with improved performance. The compact 4U 3582 Ultrium Tape Library is designed with a variety of advanced features. The new multi-path architecture is designed to allow simultaneous attachment of heterogeneous servers and applications to LTO logical library partitions.

The 3582 Ultrium Tape Library has a barcode scanner for quick media verification and inventory. An LCD display on the front panel supports convenient local review of library status and provides control over local functions. LTO I/O expansion capability is available with a standard 1-cartridge I/O feature. Remote management capabilities using a Web browser provide library control and configuration. A control path failover for an AIX option is also available.

For more information - ibm.com/storage/uk/tape/lto/3582

Type	Mod	Description
3582	L23	IBM Ultrium 2 Tape Drive - 23 cartridge Slots and one I/O slot for an available capacity of 4.8 TB of data (9.6 TB with 2:1 data compression) and native data transfer rates up to 35 MB per second using 200 GB Ultrium 2 tape cartridges
3582	1660	RMU specialist
3582	1680	Control path failover
3582	2200	Stand alone kit

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For backup, restore and archival solutions

IBM TotalStorage LTO Ultrium Tape Autoloader (3581)



- Provides autoloading capabilities with Ultrium tape drives
- Enables cost-effective backup, save/restore, and archival storage
- Provides continuous, easy-to-understand drive information with an LCD status display
- Adheres to widely supported Linear Tape-Open (LTO) design standards.

IBM TotalStorage LTO Ultrium Tape Autoloader (3581)

With its single Ultrium drive and up to seven tape cartridges, the IBM Autoloader is designed to leverage Linear Tape-Open (LTO) technology to cost effectively handle growing storage requirements.

Autoloader Models L13, L17, H13, and L17 incorporate an IBM Ultrium tape drive to provide a maximum media capacity of 1.4 TB of data (compressed 2:1) with a sustained data transfer rate of up to 30 MB/sec (compressed 2:1).

Autoloader Models L23 and H23 use the new IBM TotalStorage Ultrium 2 Tape Drives providing a capacity of up to 2.8TB with 2:1 compression. IBM TotalStorage Ultrium 2 Tape Drives can read and write first generation LTO Ultrium Data Cartridges at original capacities and with improved performance.

For more information - ibm.com/storage/uk/tape/lto/3581

Type	Mod	Description
3581	L17	3581 Model L17 for servers supporting Ultra2/Wide SCSI LVD interface specs with 1 year 'on site' warranty
3581	H17	3581 Model H17 for servers supporting Ultra/Wide SCSI HVD specs with 1 year 'on site' warranty
3581	L13	3581 Model L13 for servers supporting Ultra2/Wide SCSI LVD interface specs with 3 year 'mail-in' warranty
3581	H13	3581 Model H13 for servers supporting Ultra2/Wide SCSI HVD interface specs with 3 year 'mail-in' warranty
3581	L23	IBM TotalStorage Ultrium Tape Autoloader 3581 for LVD Ultra 160 SCSI applications
3581	H23	IBM TotalStorage Ultrium Tape Autoloader 3581 HVD Ultra SCSI applications

Contact your local IBM rep for latest prices and configuration assistance.

High capacity – high performance

IBM TotalStorage LTO Ultrium Tape Library (3583)



- Capacity, performance, and reliability for midrange and network tape storage environments
- Designed to protect your technology investment
- Optional integrated SAN Data Gateway Module
- Remote management capability is available through a Web browser.

IBM TotalStorage LTO Ultrium Tape Library (3583)

Using advanced Linear Tape-Open (LTO) technology, the 3583 is designed to provide a cost-effective solution for handling a wide range of backup, archive, and disaster recovery data storage needs.

The IBM TotalStorage Ultrium Scalable Tape Library 3583 now supports the IBM TotalStorage Ultrium 2 Tape Drive that more than doubles tape drive performance over the first generation LTO Ultrium Tape Drive. The Ultrium 2 Tape Drives can read and write original LTO Ultrium data cartridges at first generation Ultrium 1 capacities but with improved performance. The Ultrium 2 tape drives and cartridges can be resident in the same 3583 library with first generation Ultrium tape drives and cartridges.

For more information - ibm.com/storage/uk/tape/lto/3583

Type	Mod	Description
3583	L18	LTO Ultrium Scalable Tape Library; 18 cartridge capacity
3583	L36	LTO Ultrium Scalable Tape Library; 36 cartridge capacity
3583	L72	LTO Ultrium Scalable Tape Library; 72 cartridge capacity

Additional features are required for components such as drives and the SAN Gateway Module
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Tape/
Optical



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UltraScalable, ultra-flexible tape library

IBM TotalStorage LTO UltraScalable Tape Library (3584)



- Provides an UltraScalable solution to help protect your technology investment
- Exclusive IBM Multi-path Architecture increases configuration flexibility with logical library partitioning and heterogeneous host attachment

- Adheres to widely supported Linear Tape-Open (LTO) Ultrium design specifications

- Offers native switched fabric 2 Gb Fibre Channel LTO Ultrium 2 Drives.

IBM TotalStorage LTO UltraScalable Tape Library (3584) – a flexible solution

From midrange systems to large-scale server-based operations, the LTO UltraScalable Tape Library is designed to handle backup, archive, and disaster recovery data storage needs with ease.

Advanced features

The 3584 has a variety of advanced technical features. The IBM Multi-path Architecture is designed to enable you to simultaneously attach heterogeneous servers and applications to LTO logical library partitions. Remote management capabilities using a Web browser provide library control and configuration. Simple Network Management Protocol (SNMP) functionality is also included.

For more information - ibm.com/storage/uk/tape/lto/3584

High capacity, performance and reliability

IBM TotalStorage LTO Ultrium 200GB Data Cartridge



- Contains half-inch metal particle tape
- Adheres to widely supported Linear Tape-Open (LTO) Ultrium design specifications.

High capacity

By combining extremely high storage capacity (200GB native, 400GB with 2:1 compression), performance, and reliability, IBM TotalStorage LTO Ultrium 200 Data Cartridge continues the IBM commitment to enhancing tape technology.

Cost-effective design

Increasing cartridge capacity and performance can help reduce the amount of equipment, space, and human intervention required for daily tape operations. In addition, reducing the number of cartridges needed for backup and restore operations can lower operational costs.

Advanced LTO-CM chip

LTO Ultrium 200 Data Cartridges – along with IBM Ultrium drives – support the Linear Tape-Open Cartridge Memory (LTO-CM) chip, which enables the IBM Ultrium drive to read and write to the data cartridge by using a radio frequency transmission. The LTO-CM enables fast, simultaneous transfer of cartridge-dependent data with IBM Ultrium drives during media load and unload cycles.

For more information - ibm.com/media/lto/index/html

Product No.	Description
3589-3020	100GB Ultrium Tape, pack of 20
3589-7020	200GB Ultrium 2 Tape, pack of 20
3589-2020	100GB Ultrium Tape with Label, pack of 20
3589-6020	200GB Ultrium 2 Tape with Label, pack of 20
3589-8000	Jewel case
3589-4005	Ultrium cleaning cartridge, pack of 5 (useful life of this cartridge is 50 cleanings)

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Manage 1122TB of critical data

IBM TotalStorage Enterprise Automated Tape Library (ETL) and Virtual Tape Server (VTS)*



- **Connect to available FICON channel attachment**
- **Perform up to 610 cartridge mounts/dismounts per hour with DAA option**
- **Accommodate the spiraling growth in data storage.**

Customers requiring full-scale tape automation can utilise the scalable and flexible IBM TotalStorage Enterprise Automated Tape Library (ETL). The library can grow from as small as three frames to as large as the 1,122TB (3:1 Compression) 16-frame offering. Customers with 7x24x365 requirements and/or with critical data processing windows can choose the Model HA1 Enterprise.

The IBM TotalStorage Virtual Tape Server (VTS) is designed to accommodate the spiraling growth in data storage demanded by e-business infrastructure and business continuity requirements. Combining the benefits of virtualisation technology, high speed disk access and low cost tape storage may improve system performance, increase storage capacity, reduce total cost of computing and extend the service level of business continuity and data security.

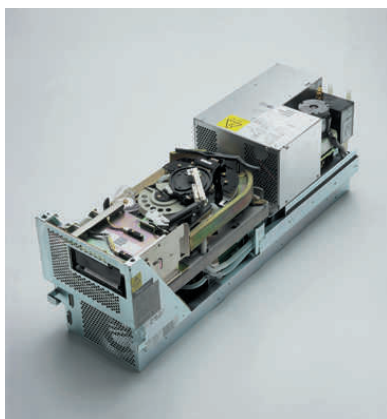
* Formerly known as the Magstar 3494 Tape Library and Virtual Tape Server.

For more information -
ibm.com/storage/uk/tape/libraries-autoloaders/3494

SPECIAL OFFERS
on the 3590 and more.
See pages 2-3.

Designed for mission-critical data storage

IBM TotalStorage Enterprise Tape Drive 3590 (3590)*



Configuration Flexibility

IBM TotalStorage Enterprise Tape Drive 3590 (3590) offers configuration flexibility with models for large scalable automation solutions to small auto cartridge loaders.

Exceptional Performance

With a native drive data rate of up to 14MB/sec, the 3590 is designed to provide industry-leading performance. Its native Fibre Channel connection drives are capable of reaching sustained data rates of up to 42MB/sec with 3:1 compression. The 3590 can be used with SCSI, Fibre Channel, ESCON, or FICON connected servers.

Connectivity for Open and Distributed Environments

The 3590 is designed to provide multiple platform connectivity to IBM @server iSeries and AS/400 servers, IBM @server pSeries and RS/6000 servers, and IBM @server zSeries and S/390 servers, as well as Sun Microsystems, Hewlett-Packard and Intel compatible based systems running Microsoft Windows NT/2000 and Linux.

* Formerly known as the Magstar 3590 Tape Subsystem.

For more information - ibm.com/storage/uk/tape/drives/3590

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High-capacity, high-performance

IBM TotalStorage Digital Linear Tape Drive (7205)




The never-ending growth in stored data is causing the size of backup jobs to increase. The IBM TotalStorage 7205 Model 550 External SDLT230 Tape Drive offers improved capacity, performance and data reliability for IBM @server pSeries and RS/6000 servers. The 7205 Model 550 addresses the unique drive firmware and hardware functions of the pSeries and RS/6000 servers. Its LED and messaging features are similar to other external type drive products on these servers.

For more information - ibm.com/totalstorage/7205

■ **New Model 550 provides four times the capacity of the IBM TotalStorage 7205 Model 440 DLT Tape Drive at a similar price point**

■ **Offers compatability with 7205 Model 440 Tape Drives used on IBM @server pSeries and IBM RS/6000 servers**

■ **Features a sustained data rate of 16MB/sec native and 32MB/sec compressed.**

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Large capacity – low cost

IBM 7206 Model VX2 External Tape Drive



Features include:

- **Increased capacity**
- **Higher data transfer rate – up to 6.0MB per second**
- **Data formatted in packets with variable speed scan**
- **Multiple data packet scans in one single tape pass.**

The IBM 7206 Model VX2 External Tape Drive is a large-capacity tape drive that writes data to tape using a Discrete Packet Format with a data transfer rate up to 6.0MB per second. The Model VX2 can provide a data capacity of up to 80GB native per cartridge (160GB with 2:1 compression[†]), up to four times that of the 7206 Model 220. A stand-alone, SCSI, VXA-2 streaming drive, the IBM 7206 Model VX2 External Tape Drive attaches to the IBM @server pSeries and RS/6000 families of workstations and servers.

Providing an excellent migration path from 4mm tape drives, the 7206 Model VX2 is a cost-effective solution for your save, restore, and archiving functions.

For more information - ibm.com/totalstorage/7206

Autoloading save-and-restore

IBM TotalStorage 7332 4mm DDS Tape Cartridge Autoloaders



- **Both models use Digital Audio Tape (DAT) / Digital Data Storage (DDS) tape technologies**

■ **The 7332 Model 110 uses the 12GB tape drive implemented in the IBM 7206 Model 110 DDS-3 Tape Drive. The 7332 Model 220 uses the 7206 Model 220 DDS-4 40GB capacity tape drive.**

The 7332 family of 4mm tape cartridge autoloaders is designed to provide an externally-attached, cost effective tape storage solution consisting of 4mm tape drive technology and a tape autoloader. The tabletop unit, which is designed to attach to IBM @server pSeries and RS/6000 servers and workstations, includes one 7206 4mm tape drive, robotics and a cartridge magazine with slots for 4mm cartridges. It operates in streaming mode by using the autoloader to sequentially feed cartridges.

A device driver used by save/restore utilities of the AIX operating system is provided. Further ease of use is attainable when the 7332 is managed by industry-standard tape management software solutions.

Both the 7332 Tape Cartridge Autoloaders are backward read and write compatible for two previous generations of DDS tape cartridges. Investment protection is provided by this enhanced migration and data interchange capability.

	Technology	Capacity [†]	Data Transfer Rate
7332-220	DDS4	20GB to 40GB	3.0MB/sec. to 6.0MB/sec.

For more information - ibm.com/totalstorage/7332



Boost your optical storage

IBM TotalStorage 3995 Optical Library



3 Year
Limited
Warranty

■ **8x drives double the previous capacity with capability to read 4x, 2x and 1x optical cartridges**

■ **Granular capacities ranging from 104GB to 1,341GB of direct access storage**

■ **Support of WORM, rewritable, and CCW (Continuous Composite Write-Once) optical cartridges.**

The IBM 3995 C-Series Optical Library for iSeries and AS/400 is the low-cost, high-capacity solution for storage-hungry applications or infrequently accessed data. Multiple users can access records at the same time within seconds. You gain efficiency as you reduce labour and supply costs. You also control user access to better manage information security.

For more information - ibm.com/totalstorage/3995

iSeries rewritable DVD drive

IBM TotalStorage 7210 External DVD-RAM Drive

■ **DVD-RAM Read CD-ROM, CD-R, and CD-RW**

■ **Read data rate up to 3.6MBps average sustained**

■ **26GB compressed data capacity per DVD-RAM cartridge.**

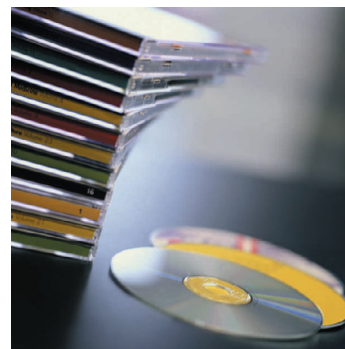
DVD-RAM is a new optical technology that advances the capabilities that CD-ROM brought to the IBM @server iSeries. It provides the software distribution capability of CD-ROM, but can also write DVD media.

The capacity of the media is eight times larger than CD-ROM. The speed at which it transfers data from the media is roughly equivalent to a 24X speed CD-ROM, or about 3.6MB/sec average sustained.

This DVD-RAM function is also available as an integrated feature (#4487 or #4587) in iSeries servers.

Convenient rack-mount or desktop storage enclosures

IBM TotalStorage 7212 Model 102 Storage Device Enclosure



■ **Features a compact design that can be configured with up to two storage devices in one EIA unit (1U) of a standard 19-inch server rack, or as a low-profile desktop solution**

■ **Offers several storage device options, including a DDS-4 tape drive, a VXA-2 tape drive, a 40X CD-ROM drive and a DVD-RAM drive**

■ **Provides a solution choice for environments in which cabling space and server storage bays are limited**

■ **Connects to IBM @server pSeries servers and RS/6000 workstations and servers.**

The IBM TotalStorage 7212 Model 102 Storage Device Enclosure features the latest technology options in tape, CD-ROM and DVD-RAM drives that are read/write-or read-compatible with previous generation media. It also provides an excellent migration and interchange path from other current generations of storage drives. The 7212 packaging is a low-profile, modular design that is an excellent choice for rack-mount or limited-space desktop applications.

The 7212 can accommodate up to two of the following storage features:

- **Digital Data Storage (DDS-4) tape drive** – Storage capacity of up to 40GB with a data transfer rate of 6MB/sec (2:1 compression). The DDS-4 drive is read/write compatible with DDS-4, DDS-3 and DDS-2 media formats
- **VXA-2 tape drive** – Storage capacity of up to 160GB with a data transfer rate of 12MB/sec (2:1 compression). The VXA-2 drive is a cost-effective alternative to DDS tape technology, offering excellent capacity and performance at a price point similar to DDS-4.

For more information - ibm.com/storage/tape/drives/7212

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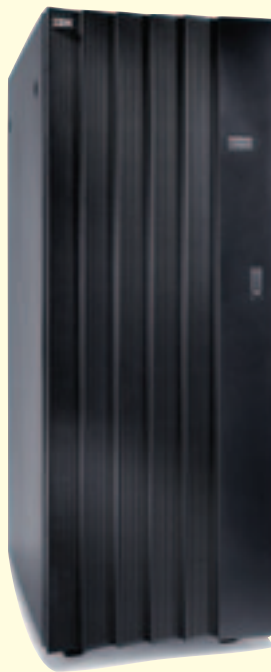
Quick Reference Storage/Server Chart

	High-end >3TB	Midrange 500GB <x <3TB	Low-end 100GB <x <500GB	Entry <100GB
zSeries	2105, 3582, 3590, 3494	2105, 3590	2105, 3950, Internal disk	No offering
pSeries	2105, 3582, 3590, 3584, 3494	2105, 7133, FAST700, 3583, NAS	FAST500, NAS, 3581, 7133	NAS, Exp, 3580, 3581, FAST200
iSeries	2105, 3582, 3584, 3590	3583	3580, 3581	3580, 3581
xSeries	FAST700, 3584, NAS	FAST700, FAST500, 3583, NAS	3580, 3581, FAST500, FAST200, NAS	FAST200, 3580, 3581, NAS
iSeries & pSeries, xSeries	2105, 3582, 3584, 3590	2105, 3583	2105, 3581, 3580	N/A
zSeries & pSeries, iSeries, xSeries	2105, 3582, 3590, 3494	2105, 3590	2105, 3590 Internal disk	
pSeries & xSeries	FAST700, 3584, 2105, NAS	FAST700, 3583, NAS	3580, 3581, FAST500, NAS	NAS, 3580, 3581, FAST200

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