

IBM Virtualization Engine TS7530



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The IBM Virtualization Engine™ TS7530 (TS7530 Server) combines hardware and software into an integrated tiered solution to help provide tape virtualization for open systems servers connecting over Fibre Channel and iSCSI physical connections. When combined with real tape resources for longer term data storage, the TS7530 Server can help provide an increased level of operational simplicity and energy efficiency, support a low cost of ownership and increase reliability to provide significant operational efficiencies.

Highlights

- ***Simplify the backup and restore process by incorporating IBM servers, disk and tape into an integrated appliance***
- ***Optional high availability features for redundancy***
- ***Improve growth management up to 1.7 PB***
- ***Investment protection with innovation that matters***
- ***Manage data growth and cost***

One of the biggest challenges for backup planning is the growing amount of data requiring backup, while the time allotted for a backup (the backup window) is shrinking or remaining static. The TS7530 Server offers high-performance and scaleable configurations to help address those challenges.

The IBM Virtualization Engine TS7530 solution is a high-performance, high-capacity open systems virtual tape solution designed to augment the tape backup and restore process in large tape environments.

The TS7530 Server can help improve business continuity by supporting better restore time. The TS7530 helps reduce restore time by utilizing the data resident on disk. With support for up to 4,096 virtual tape drives and 512 virtual tape libraries, each backup server can be allocated its own virtual resources, allowing multiple and disparate backup applications to use the same physical resources. This offers the potential for infrastructure simplification. Various multiple tape libraries and tape drives can be aggregated to one or more TS7530s, helping centralize the backup resources and further reduce the operational cost.

TS7530 Server

The TS7530 Server (3954 Model CV7) contains dual core processors to help improve performance. Every TS7530 configuration must contain at least one TS7530 Virtualization Engine. A second optional TS7530 Virtualization Engine enables the TS7530 to operate in a dual-node high-availability configuration. A TS7530 dual-node high-availability configuration can have more virtual cartridges, virtual volumes and interface ports.

Each TS7530 Server supports up to sixteen 4 Gb Fibre Channel connections. Four of the Fibre Channel ports are connected to the TS7530 Cache Controllers, and twelve are available for host server or tape attachment. In a dual node system there are 24 Fibre Channel ports available for host server or tape attachment.

A newly introduced disk drive feature provides 16 TB of unformatted storage capacity (RAID 5 formatted capacity of 13 TB) using sixteen 1 TB GB/7200 rpm Serial Advanced Technology Attachment (SATA) Enhanced Disk Drive Modules (E-DDMs) per enclosure.

Fibre Channel switch features are also available on IBM 3952 Model F05 Tape Frames installed as TS7530 base units. A 32-port switch with 16 ports active may be ordered on the Model F05 Tape Frame. One or two optional 8 port enablement features may be added to activate additional Fibre Channel ports.

The TS7530 consists of three hardware machine types and a software program (5697-P19) Enterprise Edition. The 3952 Tape Frame Model F05 is an independent frame used to contain the other components of the TS7530.

The frame 3952-F05 can provide redundancy for critical hardware components and connections between components in a TS7530. Key functional features of the TS7530 are:

- *Virtual support of IBM LTO 2, LTO 3 and LTO 4 Tape Drives, TS1120, and 3592 Tape Drives Model J1A and E05*
- *Virtual support of IBM TS3500, TS3400, TS3310, TS3200, and TS3100 Tape Libraries*
- *Physical direct attach support for TS3500, TS3400, TS3200, TS3100, TS3310 and 3494 Tape Libraries*
- *Physical tape export offered in these modes:*
 - *Backup software controlled*
 - *Operator initiated*
 - *Policy based physical tape migration*

- *Configuration of two TS7530 Virtualization Engines as an active-active failover cluster.*
- *Support for optional hardware compression of data, potentially reducing disk storage requirements.*
- *RAID 5 & 6.*
- *On demand allocation of disk storage to help maximize storage utilization using virtual cartridges. Static allocation is also supported for customized environments.*
- *Support of import/export to an IBM 3494 Tape Library using an Ethernet interface to manage the library.*

- *Interaction with the TS7520 Cache Controllers to perform transparent fail-over/fail-back from path (HBA, port, switch, channel) or storage controller failure to minimize disruption to backup or restore activities.*

The 3952 F05 Tape Frame can contain:

- *Two TS7530 Servers (3954 Model CV7) in a base unit frame*
- *Two TS7520 Cache Controllers (3955 Model SV6)*
- *Up to six TS7520 Cache Modules (3955 Model SX6) in a base unit frame*
- *Up to ten TS7520 Cache Modules (3955 Model SX6) in an expansion frame*

The TS7530 can provide up to 1.7 PB of useable capacity for data backup and recovery requirements.

TS7530 Virtualization Engine at a glance

Physical Specifications—TS7530 Server

Width:	483 mm (19 in)
Depth:	711 mm (28 in)
Height:	178 mm (7 in)
Weight:	43.2 kg (95.25 lb)

Operating Environment

Temperature:	10 to 35 C, 0 to 900 m, above 900 m, derate upper temperature 1 C/300 m
Recommended	20 to 25° C
Relative Humidity:	8 to 80%
Recommended Relative Humidity:	40 to 55%
Maximum wet bulb:	23° C
Altitude (maximum):	2133 m
Heat Output	16,400 Btu/hr (4,800 watts)
Maximum configuration:	4.8 kVA

Operating Systems

The TS7520 Virtualization Engine supports the following operating systems at the minimum levels indicated¹:

- AIX 5L™ V5.1, V5.2 and V5.3
- V5R3 and V5R4 i5/OS
- Sun Solaris 8, 9 and 10
- Microsoft® Windows® 2003 (build 3790, or greater)
- 64-HP-UX 11iv1 and 11iv2
- Linux® distributions:
 - xSeries® and Intel® 32-bit servers (x86) and 64-bit servers (ia64) with Linux SLES 10 kernel 2.6.16.21-0.8 bigsmp/smp/up
 - xSeries and Intel 32-bit servers (x86) and 64-bit servers (ia64) with Linux RHEL 4.4 kernel 2.6.9-42.EL hugemem/smp/up
 - xSeries and Intel 32-bit servers (x86) and 64-bit servers (ia64) with Linux SLES 9 SP3 kernel 2.6.5-7.244
 - xSeries and Intel 32-bit servers (x86) with Linux Asianux 2.0 kernel 2.6.9-11.19AX hugemem/smp/up

TS7530 Virtualization Engine at a glance

Specifications

Max No. of Virtual Libraries	128 virtual libraries per server; 512 virtual libraries per system
Max No. of Virtual Drives	1,024 per server; 4,096 per system
Max No. of Virtual Cartridges	64,000 per server; up to 256,000 per system
System Performance	Max. Configuration
Read	Up to 4,760 MB/sec
Write	Up to 4,400 MB/sec
Max. system capacity (2:1 Compression)	3.4 PB Cache Capacity at 2:1 Compression

IBM Tivoli® Storage Manager and other compatible software offerings provide storage and tape management software for the TS7520. Supporting software and applications must be obtained separately from IBM, IBM Business Partners, or ISVs. A list of compatible software is available from your IBM representative or visit: ibm.com/systems/storage/tape

For more information

Contact your IBM representative or
IBM Business Partner or visit:

- [ibm.com/systems/storage/
virtualization](http://ibm.com/systems/storage/virtualization)
- ibm.com/systems/storage/tape



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May 2008
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¹List the minimum software level requirements for basic support. Please refer to the technical documentation for specific function or feature support.