IBM Flex System V7000 Software V6.4 delivers integrated, innovative storage for IBM PureSystems - HVEC

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At a glance

Each IBM Flex System™ V7000 Storage Node operates using IBM Flex System V7000 Base Software V6.4 and is designed to use IBM® System Storage® SAN Volume Controller (SVC) technology to deliver high performance, advanced function, high availability, and modular and scalable storage capacity:

- Support for SAN-attached 8 Gbps Fibre Channel (FC), 10 Gigabit Ethernet (GbE) Fibre Channel over Ethernet (FCoE), and iSCSI host connectivity
- RAID 0, 1, 5, 6, and 10 support
- Accommodates up to twenty-four 2.5-inch disk drives installed within the IBM Flex System V7000 Control Enclosure with additional attachment support for up to nine Expansion Enclosures using either IBM Flex System V7000 Expansion Enclosures (max 2), IBM Storwize® V7000 Expansion Enclosures (max 9), or a combination of both, providing modular and highly scalable storage solutions that range up to 240 TB physical storage capacity, and 960 TB physical storage capacity in a clustered system
- Supports intermixing of SAS drives, Nearline SAS drives, and solid state drives (SSDs) within IBM Flex System V7000 Control Enclosures and IBM Flex System V7000 Expansion Enclosures
- Includes IBM Easy Tier® technology for automatically moving heavily used data extents onto high-performance SSD storage
- Supports IBM Real-Time Compression technology for high efficiency data storage
- Supports attachment of other storage devices via the FC interface or FCoE interface using external virtualization
- Supports a complete set of Storwize V7000 functions, including FlashCopy®, Remote copying, Volume Mirroring (local via FC or FCoE host protocols & long distance via FC host protocols), External Virtualization, compression, Easy Tier, and thin provisioning

For further information about IBM Flex System V7000 hardware, refer to IBM Flex System V7000 Hardware Announcement ZG12-0225, dated November 13, 2012.

In addition to the base IBM Flex System V7000 Software V6.4, the following licensed products are also available:

- IBM Flex System V7000 Remote Mirroring Software to license the use of remote copy
- IBM Flex System V7000 External Virtualization Software to license the use of IBM Flex System V7000 virtualization capabilities (like SAN Volume Controller) for external storage devices
IBM Flex System V7000 Real-Time Compression Software to license the use of compression
Refer to the Description section for details about each.

Overview

IBM Flex System V7000 Storage Node is an integrated storage system for IBM PureFlex™ System and IBM Flex System, designed to deliver high performance, advanced function, high availability, and modular and scalable storage capacity.

IBM PureFlex System and IBM Flex System represent a new category of computing that integrates multiple server architectures, networking, storage, and system management capability into a single system that is easy to deploy and manage. IBM PureFlex System and IBM Flex System have built-in virtualization support of servers, storage, and networking to speed provisioning and increase resiliency. In addition, it supports multiple open industry standards, operating systems, networking and storage fabrics, virtualization, and system management protocols, to easily fit within existing and future datacenter environments. IBM PureFlex System and IBM Flex System are scalable and extendable with multigeneration upgrades to protect and maximize IT investments.

The new IBM Flex System V7000 Storage Node is a powerful block storage system designed to integrate into the IBM PureFlex System or IBM Flex System infrastructure, enabling extremely rapid storage deployment and breakthrough management simplicity. By enabling virtualization, consolidation, and tiering in business of all sizes, it is designed to improve application availability and resource utilization. Flex System V7000 offers easy-to-use, efficient, and cost-effective management capabilities for both new and existing storage resources in your IT infrastructure. This new class of storage system combines no compromise design along with virtualization, efficiency, and performance capabilities.

IBM Flex System V7000 Storage Node is built on the industry-leading storage virtualization and efficiency capabilities of IBM Storwize V7000, including

- IBM System Storage Easy Tier for automated SSD optimization
- IBM Real-Time Compression for data footprint reduction

While also being physically and logically integrated into IBM PureFlex System or IBM Flex System.

IBM Flex System V7000 helps simplify and speed IBM PureFlex System and IBM Flex System deployment, providing superior integration of server and storage management to automate and streamline provisioning for greater responsiveness to business needs and lower overall cost.

Speed time to value with:

- Integration by design: Deployment is automated with integration into IBM PureFlex System or IBM Flex System infrastructure in minutes instead of weeks.
- Simplified experience: Management is simplified with an integrated, intuitive user interface for ease of use and faster system accessibility, increasing administrative efficiency and simplicity.
- Built-in expertise:
  - Virtualized storage: virtualizes third-party storage for investment protection and nondisruptive migration of the current storage infrastructure.
  - Helps optimize performance and costs for mixed workloads: up to 200% higher performance than with HDD alone by optimizing SSD usage with Easy Tier.
Key prerequisites

This program requires at least one IBM Flex System V7000 (4939-H49) Control Enclosure for installation. IBM Flex System V7000 V6.4 software is preinstalled and shipped on the required IBM 4939-H49 IBM Flex System V7000 Control Enclosure.

Planned availability date

December 10, 2012

Description

Please note that the examples in this section related to ordering IBM Flex System V7000 Software refer to product identifiers (PIDs), in the form of 5766-xxx, which are not part of this announcement. They are used to provide the necessary clarity needed when explaining which type of software licenses should be ordered in a given scenario. The actual part numbers used will vary and can be found by name in this announcement. Refer to the announcement listed in the Reference information section for more details.

IBM Flex System V7000 Base Software (5766-NX1)

Each IBM Flex System V7000 (4939-H49) Control Enclosure and IBM Flex System V7000 Disk Expansion Enclosure (4939-H29) uses the IBM Flex System V7000 Base Software, 5766-NX1. A quantity of one 5766-NX1 IBM Flex System V7000 Base Software license is required for each enclosure, whether control or expansion enclosure. For example, a IBM Flex System V7000 order consisting of one control enclosure and three expansion enclosures requires four IBM Flex System V7000 Base Software licenses, 5766-NX1, one for each enclosure.

The Flex System V7000 Base Software includes the following features and capabilities:

- Simplified management with an intuitive GUI to aid rapid implementation and deployment.
- Easy Tier technology for increased storage performance up to 200%.
- FlashCopy and snapshot functions for instant copies of data to help avoid data loss and improve space utilization.
- Thin provisioning to allow you to purchase only the disk capacity you need.
- Dynamic migration to speed time-to-value from weeks or months support to days, eliminating the cost of add-on migration tools and continuous availability of applications.
- Nondisruptive volume moves across clustered systems delivers greater flexibility with and enhanced data mobility. Flex System V7000 provides the ability to move volumes nondisruptively between the dual controllers within one enclosure. Additionally, Flex System V7000 supports moving volumes anywhere within a clustered system without disrupting host access to storage.
- Four-way clustering of Flex System V7000 control enclosures provides increased scalability and performance with four-way clustered systems. Flex System V7000 supports clustered systems with up to four control enclosures, essentially quadrupling the maximum capacity and performance of a single Flex System V7000 system.

IBM Flex System V7000 External Virtualization Software (5766-EV1)

Each IBM Flex System V7000 (4939-H49) Disk Control Enclosure has the ability to attach and manage external storage devices on the SAN in the same way as the SAN Volume Controller. To authorize use of this function, you must license the IBM Flex System V7000 External Virtualization Software, 5766-EV1. You will need to
license the number of storage enclosures attached externally to the IBM Flex System V7000. IBM Flex System V7000 (4939-H49) Control Enclosures and IBM Flex System V7000 Expansion Enclosures (4939-H29) which are clustered do not need to be included in this External Virtualization license, however any IBM Flex System V7000 Control Enclosures or Expansion Enclosures which are SAN attached and virtualized are included in this license.

A storage enclosure externally managed by IBM Flex System V7000 is defined as an independently powered, channel-attached device that stores data on magnetic disks or SSDs, such as disk controllers and their respective expansion units, each constituting separate enclosures. Therefore, an enclosure can be either the main controller housing disk (or SSD) drives or the expansion chassis that house additional disk (or SSD) drives for the purpose of expanding the total capacity of the storage system. If there exists any confusion for an external storage enclosure that does not conform to this definition, consult your IBM sales representative for an equivalent measure based on a disk drive count.

For example, adding a DS5020 consisting of three enclosures to an IBM Flex System V7000 consisting of one control enclosure and one expansion enclosures, then you will need one license with quantity of three enclosure authorization feature codes (one for each of the DS5020 enclosures) of the IBM Flex System V7000 External Virtualization software, 5766-EV1.

**IBM Flex System V7000 Remote Mirroring Software (5766-RX1)**

Global (long distance of greater than 300 Km) mirroring is only supported over an FC SAN infrastructure. Local Mirroring (less than 300 Km) is supported over either an FC or FCoE SAN infrastructure. Mirroring over iSCSI fabric is not supported at this time. Consult System Storage Interoperability Center for supported configurations.

To authorize use of remote copy capabilities of the IBM Flex System V7000, you must purchase a license for IBM Flex System V7000 Remote Mirroring Software (5766-RX1) with the quantity of authorization features that match the number of licensed enclosures managed by the IBM Flex System V7000 Disk System, including each internal enclosure licensed with the IBM Flex System V7000 Base Software (5766-NX1) and each external enclosure licensed with the IBM Flex System V7000 External Virtualization Software (5766-EV1).

For example, if you have a DS5020 consisting of three enclosures managed by an IBM Flex System V7000 consisting of one control enclosure and one expansion enclosure, then in order to authorize remote mirroring for this configuration you will need a license to the IBM Flex System V7000 Remote Mirroring Software, 5766-RX1, for a quantity of five enclosures.

**Lower bandwidth global mirror**

Customers who wish to use the global mirror capability with Flex System V7000 can do so on a low bandwidth link between sites. This provides options to help administrators balance network bandwidth requirements and RPO times for applications, helping reduce operation costs for disaster recovery solutions. Remote mirroring supports higher RPO times by allowing the data at the disaster recovery site to get further out of sync with the production site if the communication link limits replication, and then approaches synchronicity again when the link is not as busy. This low bandwidth remote mirroring uses space-efficient FlashCopy targets as sources in remote copy relationships to increase the time allowed to complete a remote copy data cycle.

**Remote mirroring between Flex System V7000, SVC, and Storwize V7000**

Customers have greater flexibility in their expanding environments using Flex System V7000, Storwize V7000, and SVC with the ability now to remote mirror from one system to the other. With the wide variety of storage systems that can be managed under any of these systems, the options available for replicating data between a number of storage systems is multiplied. Remote deployments for disaster recovery for current SVC and Storwize V7000 environments can easily be fitted with the Flex System V7000 or vice versa.
This function does not affect how Metro/Global Mirror on the SVC or Remote Mirroring on the Flex System V7000 or Storwize V7000 is licensed. You must still license usage for volumes replicated at the source and the target. Because of a difference in metrics, SVC mirroring can be licensed for a subset of the total storage virtualized, but Flex System V7000 and Storwize V7000 mirroring is licensed for the entire storage system.

**IBM Flex System V7000 Real-time Compression™ Software (5766-CX1)**

IBM Flex System V7000 is designed to improve storage efficiency by supporting real-time compression for block storage to improve efficiency by compressing data by as much as 80%, enabling storage of up to five times as much data in the same physical disk space. Unlike other approaches to compression, IBM Real-time Compression is designed to be used with active primary data such as production databases and email systems, dramatically expanding the range of candidate data that can benefit from compression. IBM Real-time Compression operates as data is written to disk to eliminate wasted space storing uncompressed data awaiting post-processing.

To authorize use of Real-time Compression capabilities of the IBM Flex System V7000, you must purchase a license for IBM Flex System V7000 Real-time Compression (5766-CX1) for each licensed enclosure managed by the IBM Flex System V7000 Disk System, including each internal enclosure licensed with the IBM Flex System V7000 Base Software (5766-NX1) and each external enclosure licensed with the IBM Flex System V7000 External Virtualization Software (5766-EV1).

For example, if you have IBM Flex System V7000 consisting of one control enclosure and one expansion enclosures (two 5766-NX1 licenses), managing a DS5020 consisting of four enclosures (four 5766-EV1 licenses), in order to authorize Real-time Compression for this configuration, you will need a license for the IBM Flex System V7000 Real-time Compression (5766-CX1) with a quantity of six enclosure authorization features.

**45-Day migration allowance**

With the benefit of external virtualization, the Flex System V7000 allows customers to bring a system into their storage environment to quickly and easily migrate data from existing storage systems to the Flex System V7000. In order to facilitate this migration, IBM allows customers 45 days from the date of purchase of the Flex System V7000 system to use the external virtualization function for the purpose of migrating data from an existing storage system to the Flex System V7000 system. Any use thereafter, and ongoing use of the external virtualization function of Flex System V7000, requires the purchase of a Flex System V7000 External Virtualization license at a quantity equal to the capacity managed under the Flex System V7000 system. Migrations performed at later points in time that are to completely replace other storage systems with the Flex System V7000, thereby requiring temporary virtualization of that external storage system to perform that replacement activity, are granted a 45-day period for use of external virtualization without having to purchase a license to complete such a migration effort. Customers must make their sales representative aware of their intent and when they will be starting this migration so that an end date can be tracked. It is the customer's responsibility to ensure that they are properly licensed for all external storage managed by Flex System V7000 after those 45 days.

**Reference information**

For information on IBM Flex System V7000 hardware machine type 4939, refer to IBM Flex System V7000 Hardware Announcement ZG12-0225, dated November 13, 2012.

For information on Storwize V7000 hardware machine type 2076, refer to Hardware Announcement ZG11-0136, dated May 09, 2011, and Hardware Announcement ZG10-0340, dated October 07, 2010.
For information on IBM Storwize V7000 Software, refer to Storwize V7000 (V6.4) Software Announcement ZP12-0234, dated June 04, 2012.

### Product number

#### Software options

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**Pseudo options**

**Note:** The following pseudo part numbers cannot be ordered as stand-alone parts and can only be ordered by configurator.

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00D7996  IBM Flex System V7000 External Virtualization SW License with Four-year Software Maintenance
00D7997  IBM Flex System V7000 External Virtualization SW License with Five-year Software Maintenance
00D7983  IBM Flex System V7000 Real-time Compression SW License with One-year Software Maintenance
00D7985  IBM Flex System V7000 Real-time Compression SW License with Three-year Software Maintenance
00D7984  IBM Flex System V7000 Real-time Compression SW License with Two-year Software Maintenance
00D7986  IBM Flex System V7000 Real-time Compression SW License with Four-year Software Maintenance
00D7987  IBM Flex System V7000 Real-time Compression SW License with Five-year Software Maintenance
Additional information

**IBM Implementation Services for Flex System**

IBM services can assist you with the planning, implementation, configuration, and testing of Flex System compute nodes, storage nodes, software, and management. IBM Services provide basic skills instruction on the IBM Flex System to your key IT personnel. Some of the tasks that we perform as part of the implementation service are:

- System hardware review
- Hardware connectivity check
- Network switch configuration
- Flexible Systems Manager (FSM) set up (if applicable)
- Compute node management and update management
- V7000 storage implementation and configuration

Additional information is available at IBM:

Direct to offering

https://w3-03.sso.ibm.com/services/salesone/sosf/dyno.wss?oid=52328&lloc=All&langcd=en-US#1

Business Partners


**Education support**

Web Lecture Courses available to IBM and Business Partners

Storage Technical Online Education courses on the IBM Flex System V7000 product will be available to IBM and Business Partners. The following courses will be available on the announcement date:

Storage Considerations for PureSystems™ Part 1

- Business Partners
  
  http://www.ibm.com/services/weblectures/dlv/partnerworld/ltu39558

Storage Considerations for PureSystems Part 2

- Business Partners
  
  http://www.ibm.com/services/weblectures/dlv/partnerworld/ltu39559

Storage Considerations for PureSystems Part 3

- Business Partners
  
  http://www.ibm.com/services/weblectures/dlv/partnerworld/ltu39853

General information can be obtained here:

- Business Partners access
  
  http://www.ibm.com/services/weblectures/dlv/smartzone/storagetech

Classroom Courses available to IBM, Business Partners, and Customers.
Classroom hands-on courses will be available. For more information and course schedules, visit

http://www.ibm.com/training

Publications

The following publications can be downloaded in PDF format from the websites that follow this list:

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<th>Title</th>
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<td>IBM Flex System V7000 Storage Node Installation Guide</td>
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<tr>
<td>IBM Flex System V7000 Storage Node Troubleshooting, Recovery, and Maintenance Guide</td>
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<td>Safety Information</td>
<td>GI11-9874-01</td>
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Additional copies of the above listed publications will be available on December 10, 2012.

Use the following options to order or download additional copies:

- To view online information and link to a download site, visit
- To order additional selected hardcopy publications for a fee or download free PDF format publications, visit the IBM Publications Center website
  http://www.ibm.com/shop/publications/order
- Contact your IBM representative.

The IBM Publication Center

Hardcopies of selected IBM Flex System V7000 Storage Node publications are available for a fee from the IBM Publications Center, as well as free softcopy publications. The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card or customer number. A large number of publications are available online in various file formats, and they can all be downloaded free of charge.

Planned and supported geography translations are available for web download, at

http://www.ibm.com/storage/support
Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit


Select your country, and then select the product as the category.

Technical information

Specified operating environment

Hardware requirements

This program requires at least one IBM Flex System V7000 Control Enclosure (4939-A49, 4939-X49, or 4939-H49) for installation. Current support summaries, including specific software, hardware, and firmware levels supported, are maintained at the IBM Flex System V7000 Support website

http://www.ibm.com/support/entry/portal/overview/hardware/puresystems/pureflex_system/storage_node/flex_system_v7000

Software requirements

For all current storage systems and host environments supported, refer to the support website

http://www.ibm.com/storage/support

Compatibility

Refer to the IBM System Storage Interoperation Center (SSIC) for a comprehensive list of supported environments, devices, and configurations

http://www.ibm.com/systems/support/storage/config/ssic

Limitations

For additional information, refer to Usage restrictions in the Terms and conditions section of this announcement, or to the license information document that is available on the IBM Software License Agreement website

Planning information

Customer responsibilities

Service support for the server and its operating system which houses the browser from which the IBM Flex System V7000 console is accessed is a customer responsibility (and is separately ordered).

Customers with any Flex System V7000 External Virtualization Software, Flex System V7000 Remote Mirroring Software, and Flex System V7000 Compression Software enclosure licenses are responsible for combining the total number of enclosures managed for each function to ensure they are within the enterprise license entitlement (within that country) for each function.

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM Internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Security, auditability, and control

Use of supplementary antivirus software is recommended, but not required. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Global Technology Services

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

IBM Electronic Services

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a Web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your
questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

http://www.ibm.com/support/electronic

Terms and conditions

Yes. When ordering through the program number process, a 15% education allowance applies to qualified education institution customers.

Education software allowance program applies when ordering through the program number process.

**ESAP available**
Yes, to qualified customers.

**Field-installable features**
No

**Model conversions**
No

Pricing

For all local charges, contact your IBM representative.

**IBM Global Financing**

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

http://www.ibm.com/financing

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Financing solutions from IBM Global Financing can help you stretch your budget and affordably acquire the new product. But beyond the initial acquisition, our end-to-end approach to IT management can also help keep your technologies current, reduce costs, minimize risk, and preserve your ability to make flexible equipment decisions throughout the entire technology life cycle.

Announcement countries

All European, Middle Eastern, and African countries.
**Trademarks**

IBM Flex System, PureFlex, Real-time Compression, PureSystems and Electronic Service Agent are trademarks of IBM Corporation in the United States, other countries, or both.

IBM, System Storage, Storwize, Easy Tier and FlashCopy are registered trademarks of IBM Corporation in the United States, other countries, or both.

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For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

http://www.ibm.com/planetwide/

**Corrections**

(Corrected on December 13, 2012)

45-Day migration allowance information has been added to the end of the Description section.