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IBM Storwize V3700 delivers innovative and easy-to-use storage to meet needs of small and medium organizations

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At a glance

IBM® Storwize® V3700 delivers powerful and easy to use storage in a compact 2U rack mount design:

- Dual-active intelligent array node canisters with up to 8 GB cache per canister
- 1Gb iSCSI host ports standard with optional 8Gb Fibre Channel (FC) or 10Gb iSCSI / Fibre Channel over Ethernet (FCoE) ports
- Support for twelve (3.5-inch) or twenty-four (2.5-inch) dual-port, hot-swappable 6Gb SAS drives
- Scales up to 120 drives per system with Storwize V3700 expansion enclosures
- Rich set of standard functions, including virtualized internal storage, thin provisioning, data migration, and data replication
- Innovative, intuitive web-based graphical user interface (GUI) for easy system setup and management
- Three-year warranty with customer replaceable units (CRU) and on-site service, along with optional warranty service upgrades

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

Storwize V3700 is the newest addition to the Storwize family of disk systems. Leveraging proven IBM Storwize V7000 and IBM SAN Volume Controller functions and management tools, Storwize V3700 delivers innovation, new levels of storage efficiency, and ease of use in entry disk system designed to meet the budgets of small and medium organizations.

Storwize V3700 features dual node canisters, with 4 GB or 8 GB cache per canister, in a compact, 2U 19-inch rack mount enclosure. 1Gb iSCSI host attachment support is standard, with an option for 8Gb FC or 10Gb iSCSI/FCoE host attachment. A Storwize V3700 system scales up to 120 drives with the attachment of up to four Storwize V3700 expansion enclosures.

Storwize V3700 is available in the following models:

- Control enclosures:
  - Storwize V3700 LFF Dual Control Enclosure

– Storwize V3700 SFF Dual Control Enclosure
- Expansion enclosures:
    – Storwize V3700 LFF Expansion Enclosure
    – Storwize V3700 SFF Expansion Enclosure

The LFF enclosure models support up to twelve 3.5-inch (large form factor) high-capacity, low-cost nearline disk drives, providing up to 36 TB physical capacity within a single enclosure.

The SFF enclosure models support up to twenty-four 2.5-inch (small form factor) drives. High-performance disk drives, high-capacity nearline disk drives, and solid state drives are supported, providing the flexibility to address performance and capacity needs within a single enclosure.

All models support dual-port, hot-swappable 6Gb SAS drives, and drives of the same form factor can be intermixed within an enclosure. You can also intermix LFF and SFF expansion enclosures behind either a LFF or SFF control enclosure.

Storwize V3700 functions, management, and interoperability include:

- RAID levels 0, 1, 5, 6, and 10 for data protection
- Virtualization of internal storage to enable rapid, flexible provisioning and simple configuration changes
- Thin provisioning for improved storage utilization
- FlashCopy® to create instant copies of data for backup or application testing
- One-way data migration to easily move your data onto the Storwize V3700 system
- Innovative and easy-to-use management capabilities with an embedded GUI
- Extensive interoperability support with support for most major server platforms and operating systems

Key prerequisites

Storwize V3700 is supported for attachment to selected:

- IBM System x® and IBM Power Systems™ servers
- IBM Flex System™ , IBM BladeCenter® , and IBM Power® System blades
- Intel™ and AMD processor-based servers
- HP Itanium™ and PA-RISC servers
- Oracle and Sun SPARC servers

Refer to the IBM System Storage® Interoperation Center (SSIC) for additional details

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

Planned availability date

November 23, 2012 except as noted below.

February 22, 2013:

- Argentina: All models, features, and options
- TAA Compliant Order (feature number 8067)

Refer to the Limitations section for additional information regarding Argentina.

Description

Today's smarter planet is built with systems that are increasingly instrumented, interconnected, and intelligent, bringing challenges to businesses that want to stay responsive to dynamic environments. Data generated in huge volumes is becoming increasingly valuable, but storing this data can be costly and difficult to manage. IT organizations have limited resources and cannot afford to make investment mistakes. The smaller the company, the greater the impact of a mistake, potentially jeopardizing operational viability and endangering business sustainability.

IBM Storwize V3700 is the newest addition to the Storwize family of disk systems. Leveraging proven IBM Storwize V7000 and IBM SAN Volume Controller functions and management tools, Storwize V3700 delivers innovation and new levels of storage efficiency with ease of use in an entry disk system to enable organizations to overcome their storage challenges.

Storwize V3700 control enclosures are available in two models:

- **Storwize V3700 LFF Dual Control Enclosure**

  – Dual node canisters with 4 GB cache per canister, with optional 8 GB cache per canister
  – 1Gb iSCSI host interface with optional 8Gb FC or 10Gb iSCSI/FCoE host interfaces
  – 6Gb SAS ports for expansion enclosure attachment
  – Twelve slots for 3.5-inch SAS drive
  – 2U, 19-inch rack mount enclosure with ac power

- **Storwize V3700 SFF Dual Control Enclosure**

  – Dual node canisters with 4 GB cache per canister, with optional 8 GB cache per canister
  – 1Gb iSCSI host interface with optional 8Gb FC or 10Gb iSCSI/FCoE host interfaces
  – 6Gb SAS ports for expansion enclosure attachment
  – Twenty-four slots for 2.5-inch SAS drives
  – 2U, 19-inch rack mount enclosure with ac power

Storwize V3700 expansion enclosures are available in two models:

- **Storwize V3700 LFF Expansion Enclosure**

  – Dual expansion canisters
  – 6Gb SAS ports for control enclosure attachment and expansion enclosure attachment
  – Twelve slots for 3.5-inch SAS drive
  – 2U, 19-inch rack mount enclosure with ac power

- **Storwize V3700 SFF Expansion Enclosure**

  – Dual expansion canisters
  – 6Gb SAS ports for control enclosure attachment and expansion enclosure attachment
  – Twenty-four slots for 2.5-inch SAS drives
  – 2U, 19-inch rack mount enclosure with ac power

iSCSI, FC, and FCoE connectivity with intermix flexibility

With 1Gb iSCSI host interface support, along with optional 8Gb FC or 10Gb iSCSI/ FCoE support, Storwize V3700 is designed to accommodate the most common storage network. This broad networking support enables deployment of Storwize

V3700 in the existing storage network infrastructure with confidence that the system will support additional network technologies should needs change in future.

1Gb iSCSI host interface ports are standard on all Storwize V3700 control enclosure models. 1Gb iSCSI ports, 8Gb FC ports, or 10Gb iSCSI/FCoE ports may also be added as an option. The following configurations are available:

```
Standard      Optional
---------     ------------------------------------
1Gb iSCSI     1Gb iSCSI   8Gb FC      10Gb iSCSI/FCoE
---------     ---------   ---------   ---------------
4 ports       --          --          --
4 ports       8 ports     --          --
4 ports       --          8 ports     --
4 ports       --          --          4 ports
```

Drive options and intermix flexibility to meet a complete range of needs

Storwize V3700 is designed to support the complete range of data storage requirements, from highly utilized applications to high-capacity, low usage applications. The following 6Gb SAS drives are supported:

- Solid state drives
  - 2.5-inch: 200 GB and 400 GB
- High-performance, enterprise class disk drives
  - 2.5-inch: 146 GB and 300 GB 15,000 rpm
  - 2.5-inch: 300 GB, 600 GB, and 900 GB 10,000 rpm
- High-capacity, archival-class nearline disk drives
  - 3.5-inch: 2 TB and 3 TB 7,200 rpm
  - 2.5-inch: 500 GB and 1 TB GB 7,200 rpm

All drives are dual-port and hot-swappable. Drives of the same form factor can be intermixed within the appropriate enclosure. Up to four Storwize V3700 expansion enclosures are supported by a single Storwize V3700 control enclosure. Additional drives and expansion enclosure are designed to be dynamically added with virtually no downtime, helping to quickly and seamlessly respond to ever-growing capacity demands.

With high-capacity, low-cost nearline drives, a single Storwize V3700 LFF control enclosure provides up to 36 TB of physical capacity. With the addition of four Storwize V3700 LFF expansion enclosures, a single system provides up to 180 TB of physical capacity.

A Storwize V3700 SFF control enclosure, with the ability to intermix solid state drives, high-performance disk drives, and high-capacity nearline disk drives, provides the flexibility to address both performance and capacity needs within a single enclosure.

You can also intermix both LFF and SFF expansion enclosures behind either a LFF or SFF control enclosure. This delivers the added flexibility to mix both 3.5-inch and 2.5-inch drives within a single system.

Designed for high availability with data protection

Storwize V3700 is designed to offer high system and data availability with:

- Dual-active, intelligent node canisters with mirrored cache
- Dual port disk drives with automatic disk drive failure detection and RAID rebuild with global hot spares
- Redundant hardware, including power supplies and fans
- Hot-swappable and customer replaceable components
- Automated path failover support for the data path between the server and the drives

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Data protection features include:

- RAID levels 0, 1, 5, 6, and 10 providing the flexibility to choose the level of protection required
- FlashCopy to create logical or physical copies of data for file restoration and backup

Rich set of functional capabilities standard with every system

As a member of the Storwize family, Storwize V3700 leverages proven Storwize V7000 and SAN Volume Controller functions and management tools. The following functions are included with every Storwize V3700:

Virtualization of internal storage to enable rapid, flexible provisioning and simple configuration changes.

Thin provisioning optimizes efficiency by allocating disk storage space in a flexible manner among multiple users, based on the minimum space required by each user at any given time. With thin provisioning, applications consume only the space they are actually using, not the total space that has been allocated to them.

Data migration is designed to easily and nondisruptively move volumes from another storage system onto the Storwize V3700 system using FC connectivity.

FlashCopy allows you to create copies of data for backup, parallel processing, testing, and development, and have the copies available almost immediately. Storwize V3700 supports up to 64 targets per system with the following FlashCopy functions:

- Full and incremental copy
- Multitarget FlashCopy
- Cascaded FlashCopy
- Reverse FlashCopy
- FlashCopy nocopy with thin provisioning (helps to reduce disk space requirements when making copies)
- Consistency groups

Innovative and easy-to-use management capabilities

Each Storwize V3700 system includes a simple and easy-to-use GUI designed to allow storage to be quickly deployed and efficiently managed. The GUI runs on the Storwize V3700 system, so there is no need for a separate console. All you need to do is point your web browser to the system. It is based on the Storwize V7000 management GUI and has a similar look and feel.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Statement of general direction

IBM plans to enhance Storwize V3700 with 6Gb SAS host attachment support and the following optional features:

- Easy Tier®
- Remote mirroring
- FlashCopy support for up to 2,040 targets

For systems shipped prior to the availability of these items:

- The SAS host attachment support can be enabled through a no-charge machine code upgrade
- The optional features can be enabled through the purchase of the applicable feature code / option part number and a no-charge machine code upgrade

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Product number

Description	Machine type	Model	Feature number	SEO/part number
V3700 LFF Dual Control (Dual node canisters, four 1Gb iSCSI ports, 8 GB cache, 12 drive slots)	2072	12C	ACAN	2072L2C
V3700 LFF Expansion (Dual expansion canisters, 12 drive slots)	2072	12E	ACAS	2072LEU
V3700 SFF Dual Control (Dual node canisters, four 1Gb iSCSI ports, 8 GB cache, 24 drive slots)	2072	24C	ACBN	2072S2C
V3700 SFF Expansion (Dual expansion canisters, 24 drive slots)	2072	24E	ACBS	2072SEU

Description	Machine type	Model	Feature number	Option SEO/part number
Host Interface Cards:				
8Gb FC 4 Port Card	2072	12C,24C	ACHK	00Y2491[1]
1Gb iSCSI 4 Port Card	2072	12C,24C	ACHL	00L4584
10Gb iSCSI-FCoE 2 Pt Card	2072	12C,24C	ACHM	00Y2493
Hardware Options:				
8GB Cache Upgrade	2072	12C,24C	ACHB	00Y2479
8Gb FC SFP SW Transceivers	2072	12C,24C	ACHS	00Y2523[1]
Rack Shipment Bracket	2072	12C,12E 24C,24E	3690	90Y8780[2]
3.5-Inch (LFF) Drives:				
2TB 7.2K 3.5" NL HDD	2072	12C,12E	ACKA	00Y2471[1]
3TB 7.2K 3.5" NL HDD	2072	12C,12E	ACKB	00Y2473[1]
2.5-Inch (SFF) Drives:				
146GB 15K 2.5" HDD	2072	24C,24E	ACLA	00Y2497[1]
300GB 15K 2.5" HDD	2072	24C,24E	ACLB	00Y2499[1]
300GB 10K 2.5" HDD	2072	24C,24E	ACLJ	00Y2501[1]
600GB 10K 2.5" HDD	2072	24C,24E	ACLK	00Y2503[1]
900GB 10K 2.5" HDD	2072	24C,24E	ACLL	00Y2505[1]
500GB 7.2K 2.5" NL HDD	2072	24C,24E	ACLS	00Y2509[1]
1TB 7.2K 2.5" NL HDD	2072	24C,24E	ACLT	00Y2511[1]

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200GB 2.5" SAS SSD              2072   24C,24E   ACMA   00Y2518
400GB 2.5" SAS SSD              2072   24C,24E   ACMB   00Y2520

Host Interface Cables:
1m Fiber Cable (LC-LC)          2072   12C,24C   5601   39M5696[2]
5m Fiber Cable (LC-LC)          2072   12C,24C   5605   39M5697[2]
25m Fiber Cable (LC-LC)         2072   12C,24C   5625   39M5698[2]
10m OM3 Fiber Cable (LC)        2072   12C,24C   5810   68Y7501[2]

Expansion Enclosure Attachment Cables:
0.6m SAS Cable (mSAS HD)        2072   12E,24E   ACTA   00Y2465
1.5m SAS Cable (mSAS HD)        2072   12E,24E   ACTB   00Y2467
3m SAS Cable (mSAS HD)          2072   12E,24E   ACTC   00Y2469

Line Cords:
Line Cord (China)              2072   12C,12E   6210   39Y7928[2]
                                      24C,24E
Line Cord (Australia/NZ)       2072   12C,12E   6211   39Y7924[2]
                                      24C,24E
Line Cord (Europe)             2072   12C,12E   6212   39Y7917[2]
                                      24C,24E
Line Cord (Denmark)            2072   12C,12E   6213   39Y7918[2]
                                      24C,24E
Line Cord (S Africa)           2072   12C,12E   6214   39Y7922[2]
                                      24C,24E
Line Cord (UK)                 2072   12C,12E   6215   39Y7923[2]
                                      24C,24E
Line Cord (Swiss)              2072   12C,12E   6216   39Y7919[2]
                                      24C,24E
Line Cord (Italy)              2072   12C,12E   6217   39Y7921[2]
                                      24C,24E
Line Cord (Israel)             2072   12C,12E   6218   39Y7920[2]
                                      24C,24E
Line Cord (S Korea)            2072   12C,12E   6219   39Y7925[2]
                                      24C,24E
Line Cord (Argentina)          2072   12C,12E   6222   39Y7930[2]
                                      24C,24E
Line Cord (India)              2072   12C,12E   6269   39Y7927[2]
                                      24C,24E
Line Cord (US)                 2072   12C,12E   6313   69Y2909[2]
                                      24C,24E
Line Cord (Japan)              2072   12C,12E   6314   23R6982[2]
                                      24C,24E
Line Cord (Taiwan)             2072   12C,12E   6386   23R7158[2]
                                      24C,24E
Line Cord (Brazil)             2072   12C,12E   6532   69Y1988[2]
                                      24C,24E

Miscellaneous:
Overpack Kit                   2072   12C,12E   2030   --
                                      24C,24E
US DoD UID Label               2072   12C,12E   2320   --
                                      24C,24E
TAA Compliant Order            2072   12C,12E   8067   --
                                      24C,24E
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[1] The SEO / part number was previously announced on another machine type for availability in selected countries only. With this announcement, the SEO / part number is now available worldwide.

[2] The SEO / part number was previously announced on another machine type and is shown here only for completeness of the product structure. Additionally, selected line cords may only be available in countries of their designated use.

If you are a Direct Reseller - System Reseller acquiring products from IBM , you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

   https://www.ibm.com/partnerworld/mem/sla.jsp?num=112-181

Additional information

Storwize V3700 control enclosure base configurations and options

Base system models consist of the following items:

- Storwize V3700 LFF Dual Control Enclosure (Model 12C, SEO / part number 2072L2C):
  - 2U, 19-inch rack mount enclosure
  - Two node canisters with 8 GB cache (4 GB per node canister)
  - Four Ethernet ports for use as 1Gb iSCSI host interface ports and for system management (two port per node canister)
  - Two 6Gb SAS ports for attachment of a Storwize V3700 expansion enclosure (one port per node canister)
  - Twelve slots for 3.5-inch SAS drives
  - Two ac power supplies and cooling units
  - Two 2.8-meter rack power distribution (PDU) line cords (C13 to C14)
- Storwize V3700 SFF Dual Control Enclosure (Model 24C, SEO / part number 2072S2C):
  - 2U, 19-inch rack mount enclosure
  - Two node canisters with 8 GB cache (4 GB per node canister)
  - Four Ethernet ports for use as 1Gb iSCSI host interface ports and for system management (two port per node canister)
  - Two 6Gb SAS ports for attachment of a Storwize V3700 expansion enclosure (one port per node canister)
  - Twenty-four slots for 2.5-inch SAS drives
  - Two ac power supplies and cooling units
  - Two 2.8-meter rack power distribution (PDU) line cords (C13 to C14)

All models include the following functions at no additional charge:

- RAID levels 0, 1, 5, 6, and 10
- Virtualization of internal storage
- Thin provisioning
- FlashCopy (up to 64 targets per system)
- One-way data migration
- Interoperability with all environments as listed within IBM System Storage Interoperation Center (SSIC) for Storwize V3700
- Management GUI
- Command line interface (CLI)

The following items are optionally are available for Storwize V3700 control enclosure models. Refer to the Product number section for feature numbers and part numbers:

- 8Gb FC four port host interface card (with two SFP transceivers)
- 1Gb iSCSI four port host interface card
- 10Gb iSCSI / FCoE two port host interface card

- 4 GB to 8 GB cache upgrade (per node canister)
- 3.5-inch 6Gb SAS disk drives:
  - 2 TB and 3 TB 7,200 rpm disk drives
- 2.5-inch 6Gb SAS disk drives:
  - 146 GB and 300 GB 15,000 rpm disk drives
  - 300 GB, 600 GB, and 900 GB 10,000 rpm disk drives
  - 500 GB and 1 TB 7,200 rpm disk drives
- 2.5-inch 6Gb SAS solid state drives (SSD):
  - 200 GB and 400 GB solid state drives
- FC SFP transceivers (pair)
- Fiber optic host interface cables
- Wall outlet line cords
- Rack shipment bracket

Storwize V3700 expansion enclosure base configurations and options

Base system models consist of the following items:

- Storwize V3700 LFF Expansion Enclosure (Model 12E, SEO / part number 2072LEU):
  - 2U, 19-inch rack mount enclosure
  - Two expansion canisters
  - Two 6Gb SAS ports for attachment to a Storwize V3700 control enclosure or to another Storwize V3700 expansion enclosure
  - Twelve slots for 3.5-inch SAS drives
  - Two ac power supplies and cooling units
  - Two 2.8-meter rack power distribution (PDU) line cords (C13 to C14)
- Storwize V3700 SFF Expansion Enclosure (Model 24E, SEO / part number 2072SEU):
  - 2U, 19-inch rack mount enclosure
  - Two expansion canisters
  - Two 6Gb SAS ports for attachment to a Storwize V3700 control enclosure or to another Storwize V3700 expansion enclosure
  - Twenty-four slots for 2.5-inch SAS drives
  - Two ac power supplies and cooling units
  - Two 2.8-meter rack power distribution (PDU) line cords (C13 to C14)

The following items are optionally are available for Storwize V3700 expansion enclosure models. Refer to the Product number section for feature numbers and part numbers:

- 3.5-inch 6Gb SAS disk drives:
  - 2 TB and 3 TB 7,200 rpm disk drives
- 2.5-inch 6Gb SAS disk drives:
  - 146 GB and 300 GB 15,000 rpm disk drives
  - 300 GB, 600 GB, and 900 GB 10,000 rpm disk drives
  - 500 GB and 1 TB 7,200 rpm disk drives
- 2.5-inch 6Gb SAS solid state drives (SSD):
  - 200 GB and 400 GB solid state drives
- SAS expansion enclosure attachment cables
- Wall outlet line cords
- Rack shipment bracket

Publications

The following Storwize V3700 publications are available:

- IBM Storwize V3700 Installation Poster
- IBM Storwize V3700 Quick Installation Guide
- IBM Storwize V3700 Read First flyer
- IBM Systems Safety Notices

The most up-to-date product documentation, including the Storwize V3700 information center, is available and downloadable at

   http://www.ibm.com/support

IBM publications center portal

   http://www.ibm.com/shop/publications/order

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, as well as payment options via credit card. A large number of publications are available online in various file formats, which can currently be downloaded free of charge.

Services

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

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

For details on education offerings related to specific products, visit

   http://www.ibm.com/services/learning/index.html

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

Technical information

Specified operating environment

Physical specifications

- Height: 8.7 cm (3.4 in)
- Width: 48.3 cm (19.0 in)

- Depth: 55.6 cm (21.9 in)
- Approximate weight:
  - LFF control enclosure:
    - -- Empty: 18.0 kg (39.6 lb)
    - -- Fully configured: 28.3 kg (62.2 lb)
  - LFF expansion enclosure:
    - -- Empty: 16.4 kg (36.1 lb)
    - -- Fully configured: 26.7 kg (58.8 lb)
  - SFF control enclosure:
    - -- Empty: 19.0 kg (41.8 lb)
    - -- Fully configured: 27.3 kg (60.0 lb)
  - SFF expansion enclosure:
    - -- Empty: 16.7 kg (36.7 lb)
    - -- Fully configured: 25.0 kg (55.2 lb)

To assure installability and serviceability in non-IBM industry-standard racks, review Storwize V3700 publications for any product-specific installation requirements.

Operating environment

Air temperature:

- Operating: 10° to 35° C (50° to 95° F) at 30.5 below to 3,000 m above sea level (100 below to 9,840 ft above)
- Non-operating: -10° to 50° C (14° to 125° F)

Relative humidity:

- Operating: 20% to 80%
- Non-operating: 10% to 90%

Electrical power:

- Voltage range: 100-240 V ac
- Frequency: 50-60 Hz
- Power :
  - LFF control enclosure: 358 watts
  - LFF expansion enclosure: 300 watts
  - SFF control enclosure: 405 watts
  - SFF expansion enclosure: 338 watts

Heat dissipation (BTU per hour):

- LFF control enclosure: 1,222
- LFF expansion enclosure: 1.024
- SFF control enclosure: 1,383
- SFF control enclosure: 1,154

Acoustical noise emission:

- LFF control enclosure:
  - 6.0 bels (idling)
  - 6.0 bels (operating)
- LFF expansion enclosure:

- 6.0 bels (idling)
- 6.0 bels (operating)
- SFF control enclosure:
  - 6.1 bels (idling)
  - 6.1 bels (operating)
- SFF expansion enclosure:
  - 6.1 bels (idling)
  - 6.1 bels (operating)

Hardware requirements

Storwize V3700 requires licensed machine code level 6.4.1, or later.

Refer to Storwize V3700 product documentation and the IBM Systems Support site for additional information on licensed machine code levels and other requirements

http://www.ibm.com/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

Storwize V3700 systems shipped prior to the published planned availability date for Argentina are not compliant with Argentina certification and product labeling requirements.

If you did not acquire your system from IBM as a direct shipment to Argentina, you are responsible for validating the system has the appropriate certification and product labeling for use in Argentina. Contact your IBM sales representative or business partner for assistance with this validation.

Planning information

Customer responsibilities

Physical configuration and installation planning, along with machine installation and configuration, are customer responsibilities.

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.

Cable orders

As a convenience, a limited selection of cables can be ordered with the Storwize V3700 machine. Refer to the Product number section for features and part numbers.

Cables, along with installation services, are also available from IBM Network Integration and Deployment Services, an IBM Global Services offering.

Host interface cables: Host interface cables are required to connect Storwize V3700 host ports to server or fabric ports.

1Gb iSCSI: Storwize V3700 requires a Category 5 or Category 5E Ethernet cable terminated with an 8P8C modular connector (RJ45 compatible connector). This cable is not available for ordering with the machine and must be supplied by the customer.

Fibre Channel: Storwize V3700 requires a 50.0/125 micrometer fiber optic cable terminated with an LC Duplex connector. The following fiber optic cables can be ordered with Storwize V3700 control enclosure models:

- 1 meter Fiber cable (LC-LC)
- 5 meter Fiber cable (LC-LC)
- 25 meter Fiber cable (LC-LC)
- 10 meter OM3 Fibre cable (LC-LC)

10Gb iSCSI / FCoE: Storwize V3700 requires a 10GBASE-SR cable terminated with an SFP+ connector. The following cable can be ordered with Storwize V3700 control enclosure models:

- 10 meter OM3 Fibre cable (LC-LC)

Expansion enclosure attachment cables: Expansion enclosure attachment cables are required to connect a Storwize V3700 expansion enclosure to the Storwize V3700 control enclosure and to another Storwize V3700 expansion enclosure. This requires a mini-SAS HD 4x cable terminated with an SFF-8644 connector.

The following SAS cables can be ordered with Storwize V3700 expansion enclosure models:

- 0.6 meter mini-SAS HD cable
- 1.5 meter mini-SAS HD cable
- 3 meter mini-SAS HD cable

Management cables: Storwize V3700 management requires a Category 5 or Category 5E Ethernet cable terminated with an 8P8C modular connector (RJ45 compatible connector). One cable is required per controller (node canister). This cable is not available for ordering with the machine and must be supplied by the customer.

Direct customer support

For technical support or assistance, contact your IBM representative for additional information or visit

http://www.ibm.com/support

Security, auditability, and control

This product uses the security and auditability features of host hardware.

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

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

Volume orders: Contact your IBM representative.

IBM Global Financing

Yes

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM .

Warranty period

- System (including the battery): Three years
- Optional features: Three years, unless specified otherwise

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature which replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature is the same as the machine it is installed.

The following have been designated as consumables or supply items and are, therefore, not covered by this warranty:

- None

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM . You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not

guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country and location-specific information.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine.

Based upon availability, a CRU will be shipped for next business day (NBD) delivery. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM . When return is required, return instructions and a container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts or features have been designated as Tier 1 CRUs:

- Battery
- Bezel
- Cache
- Canister
- Drive
- Filler panel
- I/O adapter
- I/O cable
- I/O transceiver
- Power cord
- Power supply unit
- Rack kit

On-site Service

At IBM's discretion you will receive CRU service or IBM or your reseller will repair the failing machine at your location and verify its operation. If required, On-site Repair is provided, 9 hours per day, Monday through Friday excluding holidays, NBD response. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

International Warranty Service

International Warranty Service (IWS) is available in selected countries or regions.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

http://www-304.ibm.com/systems/support/supportsite.wss/warrantyform?brandind=5000008

For more information on IWS, refer to Services Announcement 601-034, dated September 25, 2001 .

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

Maintenance services

ServicePac , ServiceSuite , ServiceElect, and ServiceElite

ServicePac® , ServiceSuite® , ServiceElect, and ServiceElite provide hardware warranty service upgrades, maintenance, and selected support services in one agreement.

Warranty service upgrade

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM . You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

CRUs will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified below.

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM . You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), IBM will ship the CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request.

IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM . When return is required, return instructions and a container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Maintenance service (ICA)

Maintenance services are available for ICA legacy contracts.

Non-IBM parts support

Warranty service

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to its customers, and normal warranty service procedures for the IBM machine apply.

Warranty service upgrades and maintenance services

Under certain conditions, IBM Integrated Technology Services repairs selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

IBM Service provides hardware problem determination on non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, or memory) installed within IBM machines covered under warranty service upgrades or maintenance services and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Warranty service upgrades

IBM hourly service rate classification

Two

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed machine code

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement at

http://www.ibm.com/servers/eserver/support/machine_warranties/machine_code.html

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System Storage technical support website

http://www.ibm.com/support

You may also obtain updated code by contacting your IBM representative.

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Educational allowance

None

Pricing

Product charges

The following are newly announced Storwize V3700 models on machine type 2072.

```
Machine
type-model  Description

2072-12C    V3700 LFF Dual Control
2072-12E    V3700 LFF Expansion
2072-24C    V3700 SFF Dual Control
2072-24E    V3700 SFF Expansion
```

The following are newly announced Storwize V3700 model SEOs/part numbers on machine type 2072.

```
SEO/part
number      Description

2072L2C     V3700 LFF Dual Control
2072LEU     V3700 LFF Expansion
2072S2C     V3700 SFF Dual Control
2072SEU     V3700 SFF Expansion
```

The following are newly announced Storwize V3700 features on specified models of machine type 2072.

```
Feature
Number      Description

ACAN        V3700 LFF Dual Control
ACAS        V3700 LFF Expansion
ACBN        V3700 SFF Dual Control
ACBS        V3700 SFF Expansion
ACHK        8Gb FC 4 Port Card
ACHL        1Gb iSCSI 4 Port Card
ACHM        10Gb iSCSI-FCoE 2 Pt Card
ACHB        8GB Cache Upgrade
ACHS        8Gb FC SFP SW Transceivers
3690        Rack Shipment Bracket
ACKA        2TB 7.2K 3.5" NL HDD
ACKB        3TB 7.2K 3.5" NL HDD
ACLA        146GB 15K 2.5" HDD
ACLB        300GB 15K 2.5" HDD
ACLJ        300GB 10K 2.5" HDD
ACLK        600GB 10K 2.5" HDD
ACLL        900GB 10K 2.5" HDD
ACLS        500GB 7.2K 2.5" NL HDD
ACLT        1TB 7.2K 2.5" NL HDD
ACMA        200GB 2.5" SAS SSD
ACMB        400GB 2.5" SAS SSD
5601        1m Fiber Cable (LC-LC)
5605        5m Fiber Cable (LC-LC)
5625        25m Fiber Cable (LC-LC)
5810        10m OM3 Fiber Cable (LC)
ACTA        0.6m SAS Cable (mSAS HD)
ACTB        1.5m SAS Cable (mSAS HD)
ACTC        3m SAS Cable (mSAS HD)
6210        Line Cord (China)
6211        Line Cord (Australia/NZ)
6212        Line Cord (Europe)
6213        Line Cord (Denmark)
6214        Line Cord (S Africa)
6215        Line Cord (UK)
6216        Line Cord (Swiss)
6217        Line Cord (Italy)
6218        Line Cord (Israel)
6219        Line Cord (S Korea)
6222        Line Cord (Argentina)
6269        Line Cord (India)
6313        Line Cord (US)
6314        Line Cord (Japan)
6386        Line Cord (Taiwan)
6532        Line Cord (Brazil)
2030        Overpack Kit
2320        US DoD UID Label
8067        TAA Compliant Order
```

The following are newly announced Storwize V3700 option SEOs / part numbers on machine type 2071.

```
Option
SEO/part
number      Description

00L4584     1Gb iSCSI 4 Port Card
00Y2493     10Gb iSCSI-FCoE 2 Pt Card
00Y2479     8GB Cache Upgrade
00Y2518     200GB 2.5" SAS SSD
00Y2520     400GB 2.5" SAS SSD
00Y2465     0.6m SAS Cable (mSAS HD)
00Y2467     1.5m SAS Cable (mSAS HD)
00Y2469     3m SAS Cable (mSAS HD)
```

The following are previously announced option SEOs / part numbers on machine type 2071 and are supported on Storwize V3700. With this announcement, the SEO / part number is now available worldwide.

```
Option
SEO/part
number      Description

00Y2491     8Gb FC 4 Port Card
00Y2523     8Gb FC SFP SW Transceivers
00Y2471     2TB 7.2K 3.5" NL HDD
00Y2473     3TB 7.2K 3.5" NL HDD
00Y2497     146GB 15K 2.5" HDD
00Y2499     300GB 15K 2.5" HDD
00Y2501     300GB 10K 2.5" HDD
00Y2503     600GB 10K 2.5" HDD
00Y2505     900GB 10K 2.5" HDD
00Y2509     500GB 7.2K 2.5" NL HDD
00Y2511     1TB 7.2K 2.5" NL HDD
```

The following SEOs / part numbers were previously announced on another machine type and are supported on Storwize V3700. They are shown here only for completeness of the product structure. Refer to the item's original announcement letter for pricing information.

```
Option
SEO/part
number      Description

90Y8780     Rack Shipment Bracket
39M5696     1m Fiber Cable (LC-LC)
39M5697     5m Fiber Cable (LC-LC)
39M5698     25m Fiber Cable (LC-LC)
39Y7928     Line Cord (China)
39Y7924     Line Cord (Australia/NZ)
39Y7917     Line Cord (Europe)
39Y7918     Line Cord (Denmark)
39Y7922     Line Cord (S Africa)
39Y7923     Line Cord (UK)
39Y7919     Line Cord (Swiss)
39Y7921     Line Cord (Italy)
39Y7920     Line Cord (Israel)
39Y7925     Line Cord (S Korea)
39Y7930     Line Cord (Argentina)
39Y7927     Line Cord (India)
69Y2909     Line Cord (US)
23R6982     Line Cord (Japan)
23R7158     Line Cord (Taiwan)
69Y1988     Line Cord (Brazil)
```

Description	Machine type	Model	Feature number	SEO/part number	Install type[3]
V3700 LFF Dual Control	2072	12C	ACAN	2072L2C	Plant
V3700 LFF Expansion	2072	12E	ACAS	2072LEU	Plant
V3700 SFF Dual Control	2072	24C	ACBN	2072S2C	Plant
V3700 SFF Expansion	2072	24E	ACBS	2072SEU	Plant
8Gb FC 4 Port Card	2072	12C,24C	ACHK	00Y2491	Both
1Gb iSCSI 4 Port Card	2072	12C,24C	ACHL	00L4584	Both
10Gb iSCSI-FCoE 2 Pt Card	2072	12C,24C	ACHM	00Y2493	Both
8GB Cache Upgrade	2072	12C,24C	ACHB	00Y2479	Both
8Gb FC SFP SW Transceivers	2072	12C,24C	ACHS	00Y2523	Both
Rack Shipment Bracket	2072	12C,12E, 24C,24E	3690	90Y8780	Both
2TB 7.2K 3.5" NL HDD	2072	12C,12E	ACKA	00Y2471	Both
3TB 7.2K 3.5" NL HDD	2072	12C,12E	ACKB	00Y2473	Both
146GB 15K 2.5" HDD	2072	24C,24E	ACLA	00Y2497	Both
300GB 15K 2.5" HDD	2072	24C,24E	ACLB	00Y2499	Both
300GB 10K 2.5" HDD	2072	24C,24E	ACLJ	00Y2501	Both
600GB 10K 2.5" HDD	2072	24C,24E	ACLK	00Y2503	Both

```
900GB 10K 2.5" HDD               2072   24C,24E   ACLL   00Y2505   Both
500GB 7.2K 2.5" NL HDD           2072   24C,24E   ACLS   00Y2509   Both
1TB 7.2K 2.5" NL HDD             2072   24C,24E   ACLT   00Y2511   Both
200GB 2.5" SAS SSD               2072   24C,24E   ACMA   00Y2518   Both
400GB 2.5" SAS SSD               2072   24C,24E   ACMB   00Y2520   Both
1m Fiber Cable (LC-LC)           2072   12C,24C   5601   39M5696   Both
5m Fiber Cable (LC-LC)           2072   12C,24C   5605   39M5697   Both
25m Fiber Cable (LC-LC)          2072   12C,24C   5625   39M5698   Both
10m OM3 Fiber Cable (LC)         2072   12C,24C   5810   68Y7501   Both
0.6m SAS Cable (mSAS HD)         2072   12E,24E   ACTA   00Y2465   Both
1.5m SAS Cable (mSAS HD)         2072   12E,24E   ACTB   00Y2467   Both
3m SAS Cable (mSAS HD)           2072   12E,24E   ACTC   00Y2469   Both
Line Cord (China)                2072   12C,12E,  6210   39Y7928   Both
                                        24C,24E
Line Cord (Australia/NZ)         2072   12C,12E,  6211   39Y7924   Both
                                        24C,24E
Line Cord (Europe)               2072   12C,12E,  6212   39Y7917   Both
                                        24C,24E
Line Cord (Denmark)              2072   12C,12E,  6213   39Y7918   Both
                                        24C,24E
Line Cord (S Africa)             2072   12C,12E,  6214   39Y7922   Both
                                        24C,24E
Line Cord (UK)                   2072   12C,12E,  6215   39Y7923   Both
                                        24C,24E
Line Cord (Swiss)                2072   12C,12E,  6216   39Y7919   Both
                                        24C,24E
Line Cord (Italy)                2072   12C,12E,  6217   39Y7921   Both
                                        24C,24E
Line Cord (Israel)               2072   12C,12E,  6218   39Y7920   Both
                                        24C,24E
Line Cord (S Korea)              2072   12C,12E,  6219   39Y7925   Both
                                        24C,24E
Line Cord (Argentina)            2072   12C,12E,  6222   39Y7930   Both
                                        24C,24E
Line Cord (India)                2072   12C,12E,  6269   39Y7927   Both
                                        24C,24E
Line Cord (US)                   2072   12C,12E,  6313   69Y2909   Both
                                        24C,24E
Line Cord (Japan)                2072   12C,12E,  6314   23R6982   Both
                                        24C,24E
Line Cord (Taiwan)               2072   12C,12E,  6386   23R7158   Both
                                        24C,24E
Line Cord (Brazil)               2072   12C,12E,  6532   69Y1988   Both
                                        24C,24E
Overpack Kit                     2072   12C,12E,  2030   --        Plant
                                        24C,24E
US DoD UID Label                 2072   12C,12E,  2320   --        Plant
                                        24C,24E
TAA Compliant Order              2072   12C,12E,  8067   --        Plant
```

[3] Install type:

- "Plant" denotes plant installation only.
- "Field" denotes field installation only.
- "Both" denotes both plant and field installation.

Pricing terms

Prices in the following PDF prices link are suggested list prices on day of announcement for the U.S. only. They are provided for your information only. Dealer prices may vary, and prices may also vary by country. IBM list price does not include tax or shipping and is subject to change without notice.

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