



New IBM System x 2.5-inch and 3.5-inch SATA and SAS drives offer highest performance options for optimizing storage and data management with effectiveness for IBM System x

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At a glance

IBM® 146 GB, 300 GB, 500 GB and 600 GB SAS 2.5-inch HDDs are available as either hot-swap or simple-swap as required. They are RoHS compliant and PI enabled.

IBM 500 GB, 1 TB, 2 TB, and 3 TB 7,200 rpm 6 Gbps 3.5-inch hot-swap and simple-swap NL SATA and 1 TB, 2 TB, and 3 TB hot-swap NL SAS HDDs can provide the performance required for extensive storage capacity while providing the flexibility of hot-swap or simple-swap versions.

- 7,200 rpm HDDs deliver SAS or SATA device reliability and largest capacity performance in the IBM HDD family.
- 3.5-inch, slim-line form factor optimizes storage capacity.
- Through use of software utilities, Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) can alert you of certain impending drive failures so that replacements can be made.
- Hot-swap and simple-swap versions of the HDD options are available as SAS and SATA.
- One-year warranty included.

Overview

As the newest additions to the IBM System x® family of 2.5-inch and 3.5-inch SATA and SAS drives, the 7,200 rpm, 10,000 rpm, and 15,000 rpm 6 Gbps 2.5-inch drives and the 7,200 rpm 6 Gbps 3.5-inch hot-swap and simple-swap NL SATA and hot-swap NL SAS HDDs offer the highest performance options and provide a wider selection of choices to satisfy a wide range of applications. These new drives are positioned at the top of the IBM SATA and SAS NL HDD line.

The new 7,200 rpm 500 GB, 1 TB, 2 TB, and 3 TB 6 Gbps NL SAS and SATA HDDs provide 3.5-inch form factor options. The SAS and SATA drives are available in hot-swap and simple-swap versions, while the 3 TB SAS is available in hot-swap only configuration.

Key features and benefits include:

- 7,200 rpm, 10,000 rpm, and 15,000 rpm 2.5-inch SAS drives are RoHS compliant and Protection Information (PI) enabled.

- 7,200 rpm 3.5-inch SAS and SATA NL drives meet client requirements for larger capacities and increased speeds in larger form factor.
- Up to 15,000 rpm speed to help optimize performance.
- Outstanding reliability that enables operation in RAID environments without compromising application performance or availability.

You can increase your storage and data management effectiveness when you install these new high-performance SATA and SAS HDDs in your IBM System x configurations.

Note: 3 TB options will only be supported on 6 Gbps SAS and SATA controllers.

Performance

3 TB performance characteristics include:

- Formatted capacity of 3,000,000 MB (3 TB).
- Drive-to-host interface that supports up to 6.0 Gbps burst rate.
- Drive media to buffer interface that supports sustained interface data transfers of up to 112 MB per second average.
- Spindle speed of 7,200 rpm.
- SATA hot-swap or simple-swap capability, SAS hot-swap only.
- SAS interface with 3 TB option.

Reliability

- SAS and SATA compliance enables these HDDs to connect directly to selected System x systems.
- S.M.A.R.T. technology allows software utilities to alert you of certain impending drive failures so replacements can be made before a problem occurs.
- Rigorous testing through the ServerProven® program instills confidence that your storage subsystem is compatible and will function reliably.
- These HDDs include a one-year, limited warranty.

Feature exchange

None

Key prerequisites

IBM System x system with SATA or SAS capability.

Planned availability date

March 16, 2012

Description

IBM 3 TB 7,200 rpm 6 Gbps NL SATA 3.5-inch hot-swap and simple-swap HDDs and 3.5-inch NL SAS hot-swap HDD

These new 7,200 rpm HDDs provide 3.5-inch form factor options that can be used as hot-swap and simple-swap SATA and hot-swap SAS drives. The new HDD offerings for the IBM System x family of 3.5-inch SATA and SAS HDDs are the highest performing SAS and SATA options and provide a wider selection of choices to satisfy a range of applications. These new drives are positioned at the top of the IBM SATA and SAS HDD line based on increased performance.

Note: 3 TB options will only be supported on 6 Gbps SAS and SATA controllers.

Some OS limitations have been found to exist when using drives with capacities greater than 2.2 TB in JBOD configurations on 6 Gbps controllers. With earlier release versions of some OSs, the boot drive must be 2 TB or smaller. However, those used as data drives may utilize the 3 TB capacity.

Key features and benefits include:

- 7,200 rpm speed to optimize performance
- Outstanding reliability that enables operation in RAID environments without compromising application performance or availability
- A 3.5-inch wide, NL form factor that allows maximum installations in supported System x systems

Configurator support

- Configuration and Options Guide (COG)
- IBM Advanced Solutions Integration Tool (ASIT)

Product positioning

These high-performance 7,200, 10,000, and 15,000 rpm 6 Gbps NL SATA and SAS HDD options are positioned at the top of the IBM SATA and SAS HDD line. The SATA are available in a hot-swap or simple-swap version and the SAS is available in hot-swap version.

These HDDs support entry-level server and workstation applications, such as:

- Transaction processing
- Data mining
- Data warehousing
- Professional video and graphics

Product number

Options (SEOs)

Description	SEO number
IBM 300GB 10K 6Gb SAS 2.5" G2HS	90Y8877
IBM 600GB 10K 6Gb SAS 2.5" G2HS	90Y8872
IBM 146GB 15K 6Gb SAS 2.5" G2HS	90Y8926
IBM 500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	90Y8953
IBM 300GB 10K 6Gb SAS 2.5" G2SS	90Y8895
IBM 600GB 10K 6Gb SAS 2.5" G2SS	90Y8890
IBM 146GB 15K 6Gb SAS 2.5" G2SS	90Y8935
IBM 1TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8567
IBM 2TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8572
IBM 3TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8577
IBM 500GB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9786
IBM 500GB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9802
IBM 1TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9790
IBM 1TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9806
IBM 2TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9794
IBM 2TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9810
IBM 3TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9798
IBM 3TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9814

The following are features already announced for the 3331 machine type.

Description	MT	Model	Feature
IBM 1TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	3331	HC1	A22P
IBM 3TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	3331	HC1	A22S
IBM 2TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	3331	HC1	A22T
IBM 500GB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	3331	HC1	A22U
IBM 3TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	3331	HC1	A22V
IBM 2TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	3331	HC1	A22W
IBM 1TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	3331	HC1	A22X
IBM 500GB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	3331	HC1	A22Y
IBM 1TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	3331	HC1	A26M
IBM 3TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	3331	HC1	A2R2
IBM 2TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	3331	HC1	A2U0
IBM 146GB 15K 6Gbps SAS 2.5" SFF G2HS HDD	3331	HC1	A2XB
IBM 300GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	3331	HC1	A2XC
IBM 600GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	3331	HC1	A2XD
IBM 500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	3331	HC1	A2XE
IBM 146GB 15K 6Gbps SAS 2.5" SFF G2SS HDD	3331	HC1	A2ZG
IBM 300GB 10K 6Gbps SAS 2.5" SFF G2SS HDD	3331	HC1	A2ZH
IBM 600GB 10K 6Gbps SAS 2.5" SFF G2SS HDD	3331	HC1	A2ZJ

Model conversions

None

Feature conversions

None

Business Partner information

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=112-042>

Publications

Publications are shipped with the announced product.

The IBM Systems Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Information Center is at

<http://publib14.boulder.ibm.com/infocenter/systems>

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.

Displayable softcopy publications: None

Source file publications: None

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

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

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

System x and BladeCenter support services

Recommended core technical support

When you buy IBM System x technology, include the support services you need -- to help keep both your hardware and software working for you, day after day, at peak performance. It's your first step toward helping to protect your investment and sustain high levels of system availability. We offer service-level and response-time options to fit your business needs. And we'll help you get started with a core support package that includes:

- **Continuous system monitoring**
Electronic monitoring that helps speed up problem-solving with automated, early detection of potential problems and system errors.
- **Hardware maintenance**
World-class remote and on-site hardware problem determination and repair services.
- **Software technical support**
Access to help line calls for fast, accurate answers to your questions during installation and throughout ongoing operations.

For more information, visit

<http://www.ibm.com/servers/eserver/xseries/services.html>

Technical information

Specified operating environment

Physical specifications

- 146 GB 15K 6 Gbps SAS 2.5-inch HS and SS HDDs.

- 300 GB 10K 6 Gbps SAS 2.5-inch HS and SS HDDs
- 500 GB 7.2K 6 Gbps SAS 2.5-inch HS HDD
- 600 GB 10K 6 Gbps SAS 2.5-inch HS and SS HDDs
- IBM 1 TB, 2 TB and 3 TB 7200 rpm 6 Gbps NL SATA 3.5-inch hot-swap and simple-swap HDD
- IBM 1 TB, 2 TB and 3 TB 7200 rpm 6 Gbps NL SAS 3.5-inch hot-swap HDDs
- Approximate height: 26.2 mm (1.0 in)
- Approximate width: 101.6 mm (4.0 in)
- Approximate depth: 147.0 mm (5.8 in)
- Approximate weight: 690 g (1.540 lb)

Shipping dimensions

- Approximate height: 146 mm (5.8 in)
- Approximate width: 203 mm (8.0 in)
- Approximate depth: 244 mm (9.6 in)
- Approximate weight: 1740 g (3.88 lb)

Hardware requirements

The HDDs must be installed in selected System x servers.

Note: 3 TB options will only be supported on 6 Gbps SAS and SATA controllers.

Some OS limitations have been found to exist when using drives with capacities greater than 2.2 TB in JBOD configurations on 6 Gbps controllers. With earlier release versions of some OSs, the boot drive must be 2 TB or smaller. However, those used as data drives may utilize the 3 TB capacity.

Agency approvals

- UL
- CSA
- TUV
- CE Mark
- C-Tick Mark
- IEC
- Taiwan (BSMI Certification)
- Korea EMI

Standards

None

Operating environment

- Temperature:
 - 5°C to 60°C (41°F to 140°F) at -60.96 m to 3,048 m (-200 ft to 10,000 ft)
- Relative humidity: 5% to 90% (noncondensing)
- Maximum altitude: 2,133 m (7,000 ft)

Hardware requirements

None

Software requirements

IBM 146 GB, 300 GB, 500 GB and 600 GB SAS 2.5-inch HDDs comes as either hot-swap or simple-swap as required. They are RoHS compliant and PI enabled and are supported with most system operating systems.

The new IBM 500 GB, 1 TB, 2 TB, and 3 TB 7,200 rpm NL SATA 3.5-inch HDDs and 1 TB, 2 TB, and 3 TB 7,200 rpm NL SAS 3.5-inch HDDs work with most system operating systems.

Note: 3 TB options will only be supported on 6 Gbps SAS and SATA controllers.

Some OS limitations have been found to exist when using drives with capacities greater than 2.2 TB in JBOD configurations on 6 Gbps controllers. With earlier release versions of some OSs, the boot drive must be 2 TB or smaller. However, those used as data drives may utilize the 3 TB capacity.

For further information, contact your IBM representative.

Compatibility

For latest compatibility information, visit

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

Note: Some configurations may not be compatible.

Limitations

None

User group requirements

This announcement satisfies or partially satisfies the requirements from one or more of the worldwide user group communities. Groups include COMMON, COMMON Europe, Guide Share Europe (GSE), InterAction (Australia/New Zealand), Japan Guide Share (JGS), and SHARE Inc.

Planning information

Customer responsibilities

IBM 146 GB, 300 GB, 500 GB and 600 GB SAS 2.5-inch HDDs are available as either hot-swap or simple-swap as required. They are RoHS compliant and PI enabled and are designated as customer setup products.

The new IBM 500 GB, 1 TB, 2 TB, and 3 TB 7,200 rpm NL SATA 3.5-inch hot-swap and simple-swap HDD and the 1 TB, 2 TB, and 3 TB 7,200 rpm NL SAS HDD products are designated as customer setup. Customer installation instructions are shipped with each option part.

Cable orders

None

Installability

IBM 146 GB, 300 GB, 500 GB, and 600 GB SAS 2.5-inch HDDs are available as either hot-swap or simple-swap and are customer installable.

IBM 500 GB, 1 TB, 2 TB, and 3 TB NL SATA HDDs and the 3 TB NL SAS HDDs are customer installable.

Installation take approximately 20 minutes.

Installation includes unpacking, attaching customer provided line cord, setting up, and powering on.

Packaging

IBM HDDS

Product	Package description	Boxes
IBM 146 GB, 300 GB, 500 GB and 600 GB SAS 2.5-inch HS and SS HDDs	Option Unit Box	1
IBM 3 TB 7,200 rpm NL SATA 3.5-inch HS and SS HDDs and the 3 TB 7,200 rpm NL SAS 3.5-inch HS HDD	Option Unit Box	1

Contents:

Harddrive
Installation pub and warranty
Safety flyer

All the SATA and SAS HDDs are shipped as a single package. Other items are in zipped bags.

Supplies

For end users:

- All the SAS and SATA HDDs can be purchased through dealers.
- IBM 146 GB, 300 GB, 500 GB and 600 GB SAS 2.5-inch HS and SS HDDs.
- IBM 1 TB, 2 TB, and 3 TB 7,200 rpm NL SATA 3.5-inch hot-swap and simple-swap HDDs and the 1 TB, 2 TB, and 3 TB 7,200 rpm NL SAS 3.5-inch HDDs.

Security, auditability, and control

It is a customer's responsibility to ensure that the server is secure to prevent sensitive data from being removed.

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

Field installable features

Yes

Warranty period

One year.

All SAS and SATA 7,200 rpm 6 Gbps NL 3.5-inch or 2.5-inch hot-swap and simple-swap HDDs offer a one year warranty¹.

- Warranty period: 1 yr.
- Service type (IOR/IOE/CCE/CCR): CRU
- Maintenance agreement: No
- Optional upgrade: No

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 in.

¹ For information on the IBM Statement of Limited Warranty, visit

http://www-947.ibm.com/systems/support/machine_warranties

Alternatively, this information is available through your IBM representative or reseller. Copies are available upon request. With respect to on-site service, IBM sends a technician after attempting to diagnose and resolve the problem remotely.

Customer setup

Yes

Machine code

No license terms apply.

Prices

For current prices, contact IBM at 888-Shop-IBM (746-7426) or visit

Description	Part number
SFF SAS 6Gb Gen2 HS Options	
IBM 300GB 10K 6Gb SAS 2.5" G2HS	90Y8877
IBM 600GB 10K 6Gb SAS 2.5" G2HS	90Y8872
IBM 146GB 15K 6Gb SAS 2.5" G2HS	90Y8926
IBM 500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	90Y8953
SFF SAS 6Gb Gen2 SS Options	
IBM 300GB 10K 6Gb SAS 2.5" G2SS	90Y8895
IBM 600GB 10K 6Gb SAS 2.5" G2SS	90Y8890
IBM 146GB 15K 6Gb SAS 2.5" G2SS	90Y8935
SFF SAS 6Gb Gen2 HS SED Options	
IBM 1TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8567
IBM 2TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8572
IBM 3TB 7.2K 6Gbps NL SAS 3.5" HDD G2HS	90Y8577
IBM 500GB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9786
IBM 500GB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9802
IBM 1TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9790
IBM 1TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9806
IBM 2TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9794
IBM 2TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9810
IBM 3TB 7.2K 6Gbps NL SATA 3.5" HDD G2HS	81Y9798
IBM 3TB 7.2K 6Gbps NL SATA 3.5" HDD G2SS	81Y9814

Field install only	Plant install only	MES removal	Cables required
N	N	N	N

The following are features already announced for the 3331 machine type.

Description	Model Number	Feature Number	Initial/ MES/ Both/ Support
IBM 1TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	HC1	A22P	MES
IBM 3TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	HC1	A22S	MES
IBM 2TB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	HC1	A22T	MES
IBM 500GB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	HC1	A22U	MES
IBM 3TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	HC1	A22V	MES
IBM 2TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	HC1	A22W	MES
IBM 1TB 7.2K 6Gbps NL SATA 3.5" G2SS HDD	HC1	A22X	MES
IBM 500GB 7.2K 6Gbps NL SATA 3.5" G2HS HDD	HC1	A22Y	MES
IBM 1TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	HC1	A26M	MES
IBM 3TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	HC1	A2R2	MES
IBM 2TB 7.2K 6Gbps NL SAS 3.5" G2HS HDD	HC1	A2U0	MES
IBM 146GB 15K 6Gbps SAS 2.5" SFF G2HS HDD			

						HC1	A2XB	MES
IBM	300GB	10K	6Gbps	SAS	2.5"	SFF	G2HS	HDD
						HC1	A2XC	MES
IBM	600GB	10K	6Gbps	SAS	2.5"	SFF	G2HS	HDD
						HC1	A2XD	MES
IBM	500GB	7.2K	6Gbps	NL SAS	2.5"	SFF	G2HS	HDD
						HC1	A2XE	MES
IBM	146GB	15K	6Gbps	SAS	2.5"	SFF	G2SS	HDD
						HC1	A2ZG	MES
IBM	300GB	10K	6Gbps	SAS	2.5"	SFF	G2SS	HDD
						HC1	A2ZH	MES
IBM	600GB	10K	6Gbps	SAS	2.5"	SFF	G2SS	HDD
						HC1	A2ZJ	MES

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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/us/>