



IBM 128 GB and 256 GB 1.8-inch solid-state drives offer an affordable, reliable, performance-driven solution for read-intensive applications using a 6 GBps SATA interface and MLC NAND technology

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At a glance

The 128 GB and 256 GB solid-state drives (SSDs) provide affordable, reliable, and performance-driven solid-state storage solutions for read-intensive applications. These drives present an opportunity for you to simplify your local storage infrastructure to help maintain overall maintenance and cooling cost, while considering remote storage solutions for end-to-end data availability.

Benefits include:

- 1.8-inch standard form factor that allows the SSD to fit into a conventional disk-drive bay or a unique eXFlash backplane
- 128 and 256 GB capacities to accommodate loading applications along with OS booting
- Cost-effective multi-level cell (MLC) NAND technology with high read performance
- Energy saving with as little as 2.5-3.5 watt power consumption per drive
- Enterprise data protection to ensure NAND integrity
- Rigorous testing through the ServerProven® program, which instills confidence that your storage subsystem is compatible and will function reliably
- One-year limited warranty, or system warranty

Overview

The new IBM® 128 GB and 256 GB solid-state drives employ cost-effective MLC NAND technology to bring an affordable, but performance-driven solution for read-intensive applications. The new SSDs will be available as 1.8-inch options.

These SSDs use a single-chip controller with a SATA interface on the system side and n-channels of Micron NAND flash internally. Packaged in an HDD replacement enclosure, these SSDs integrate easily in existing storage infrastructures. They are targeted at applications that require high I/O performance in random read operations in applications such as web or video serving or content delivery.

Providing that additional peace of mind, your 128 and 256 GB MLC SSDs are covered under IBM warranty. These drives carry a one-year limited warranty, or when installed in a System x® server these drives assume your system's base

warranty. Solid-state devices do have finite write or P/E cycles which are listed as Total Bytes Written (TBW). See [Limitations](#) and the device specifications for details.

Features and functions:

128 GB and 256 GB SATA MLC SSDs for IBM System x

- 1.8-inch industry-standard form factor that fits into a conventional disk-drive bay in the server
- Fits into unique eXFlash backplane on several systems to provide higher performance, capacity, and easy serviceability
- Utilizes industry-leading 25nm MLC
- Cost-effective MLC NAND technology with high read performance
- MLC SATA drive specifically designed to fulfill client needs in the enterprise value space
- Leverages enterprise data path protection
- Energy saving with as little as 2.5-3.5 watt power consumption per drive
- Absence of moving parts, which reduces potential failure points in the server

Warranty

128 GB and 256 GB SATA 1.8-inch MLC SSDs offer a one-year limited warranty¹.

¹ For information on IBM's Statement of Limited Warranty, contact your local IBM representative. Copies are available upon request.

Key prerequisites

IBM System x or BladeCenter® system with SATA capability

Planned availability date

January 22, 2013

Description

IBM 128 GB and 256 GB SATA 1.8-inch MLC Enterprise Value SSDs

These new drives bring solid-state reliability and low-power capabilities to on-blade storage. These new options will be available as single 1.8-inch MLC 2.5-watt drives.

Configurator support

- IBM Web Configurator (R2)
- Configuration and Options Guide (COG)
- Standalone Solutions Configuration Tool (SSCT)
- IBM Advanced Solutions Integration Tool (ASIT)

Product positioning

These SATA MLC SSD options are positioned as optimal choices for read-intensive applications.

These SSDs support enterprise-level server and workstation applications such as:

- Web and video serving

- Streaming media
- Content delivery

Product number

Description	Part number
IBM 128 GB SATA 1.8-inch MLC Enterprise Value SSD	00W1222
IBM 256 GB SATA 1.8-inch MLC Enterprise value SSD	00W1227

Publications

Publications are shipped with the announced products.

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.

Installation publications ship with the SSD.

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.

Technical information

Specified operating environment

Physical specifications

IBM 128 GB and 256 GB SATA 1.8-inch MLC Enterprise Value SSDs

- Approximate height: 5.0 mm (0.197 in)
- Approximate width: 54.0 mm (2.13 in)
- Approximate depth: 78.5 mm (3.09 in)
- Approximate weight: 45 gm (0.10 lb)

Shipping dimensions

IBM 128 GB and 256 GB SATA 1.8-inch MLC Enterprise Value SSDs

- Height: 32.0 mm (1.26 in)
- Width: 226.0 mm (8.90 in)
- Depth: 150.0 mm (5.90 in)
- Weight: 150 gm (0.33 lb)

Standards

None

Operating environment

Temperature: 0° to 70°C (32° to 158°F)

Relative humidity: 8% to 85% (noncondensing)

Maximum altitude: 3,050 m (10,000 ft)

Hardware requirements

These SSDs must be installed in selected System x or BladeCenter servers.

Software requirements

The new IBM SATA SSDs work with most operating systems.

For further information, contact your IBM representative.

Compatibility

For latest compatibility information, visit

<http://www-03.ibm.com/systems/info/x86servers/serverproven/compat/us/>

Note: Some configurations may not be compatible.

Limitations

Solid-state memory cells have an intrinsic, finite number of write cycles that each cell can incur. As a result each solid-state device has a maximum amount of write cycles it can be subjected to documented as TBW (Total Bytes Written). IBM is not responsible for replacement of hardware that has reached the maximum guaranteed number of write cycles. This limit may be revealed as the SSD failing to respond to system-generated commands or becoming incapable of being written to. It is important to distinguish these enterprise value drives from other enterprise-level drives. Enterprise-level drives have much higher write endurance and as a result can withstand a greater number of writes over the lifetime of the device compared to enterprise value drives. SSD write endurance is an important factor to consider because unlike spinning disk media, NAND flash has a finite number of writes it will accept. SSD write endurance is typically measured by the number of program/erase, or P/E, cycles the drive incurs over its lifetime, which per device is listed as Total Bytes Written (TBW) in the device specification. This statistic can be used to give an estimate of the drive's remaining life left based on the workload the drive will be subjected to. The TBW value assigned to a solid-state device is the total bytes of written data (based on number of P/E cycles) a drive can be guaranteed to complete. Reaching this limit does not cause the drive to immediately fail; it simply denotes the maximum number of writes that can be guaranteed. A solid-state device will not fail upon reaching the specified TBW. At some point based on manufacturing variance margin, after surpassing the TBW value, the drive will reach the end of life point, at which the drive will go into a "read only" mode.

As a result of the technology limitations of enterprise value solid-state devices, care must be taken to use them in write environments that will not exceed the TBW of the drive prior to the required life expectancy of the application.

As an example, let's assume an access pattern of 50% random data and 50% sequential data with block size mixes: 5% of the data is 4k block size, 5% of the data is 8k block size, 10% of the data is 16k block size, 35% of the data is 64k block size, and 35% of the data is 128k block size. For enterprise value drives capable of 72 TB of lifetime writes, assuming an approximation of the workload stated above as being worse case, the drive workload must be limited to no more than 40 GB of writes per day to last 5 years and stay inside the 72 TBW limit. For the device to last 3 years, the drive write workload must be limited to no more than 65 GB of writes per day.

Additional information is available at

<http://www-03.ibm.com/systems/x/options/storage/solidstate/index.html>

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

The new IBM SATA 1.8-inch MLC Enterprise Value SSD products are designed as customer setup. Customer installation instructions are shipped with each option part.

Cable orders

None

Installability

The IBM SATA SSDs require about 20 minutes for installation.

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

Packaging

IBM 128 GB and 256 GB SATA 1.8-inch MLC SSDs

Product	Package description	Boxes
IBM 128 GB and 256 GB SATA 1.8-inch MLC Enterprise Value SSDs	Option Unit Box	1

Contents:

SSD
Important Notices and IBM Warranty Publication
SSD Information Flyer

The SSDs are shipped as a single package. Other items are in zipped bags.

Retail only

Packaging dimensions/weight - 1.8-inch SSDs

- Single box (HxWxD): 32.0 mm (1.26 in) x 226.0 mm (8.90 in) x 150.0 mm (5.90 in)
- Package weight: 150 gm (0.33 lb)

Note: All measurements are approximate.

Supplies

For end users: IBM SATA 1.8-inch SSDs can be purchased through dealers around the world.

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.

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

Field-installable feature

Yes

Warranty period

One-year limited warranty¹, or system warranty.

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 that 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 are the same as those for the machine in which it is installed.

- Warranty period: One year
- Service type (IOR/IOE/CCE/CCR): CRU
- Maintenance agreement: No
- Optional upgrade: No

Customer setup

Yes

Machine code

No license terms apply.

Optional features warranty period

- Optional features: One-year limited warranty¹.

Solid-state memory cells have an intrinsic, finite number of program/erase cycles that each cell can incur. As a result, solid-state storage has a maximum amount of program/erase cycles to which it can be subjected. IBM's warranty for the solid-state storage is limited to devices that have not reached the maximum guaranteed number of program/erase cycles, as documented in the *Official Published Specifications* for the product. Solid-state storage that reaches this limit may fail to operate according to its specifications.

Maximum warranted writes per drive:

- 72 TB TBW on the 128 GB SSD
- 72 TB TBW on the 256 GB SSD

Pricing

For all local charges, contact your IBM representative.

Announcement countries

All European, Middle Eastern, and African countries.

Trademarks

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