IBM High IOPS SS and MS Class SSD PCIe Adapters provide a new generation of ultra-high-performance storage based on solid state device technology for System x and BladeCenter

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At a glance

These SSD-based high-performance server-class storage adapters can provide the performance required for extensive computations while utilizing a reduced storage footprint. They offer 160 GB and 320 GB of SSD storage in a standard PCIe adapter.

Features:

- Significantly lower power, cooling, and management overhead, smaller storage footprint in the data center, and a much greener storage solution
- IBM® Branded: Provides customers a single point of serviceability and enterprise-grade warranty, and enables interoperability with a variety of IBM and partner products
- Potentially lower operational expenditure (OPEX) and capital expenditure (CAPEX), so you can do more with less

Overview

IBM 160GB and 320GB High IOPS SS and MS Class SSD PCIe Adapters come with all the benefits of standard storage in addition to enterprise-class high performance of up to 100,000 sustained IOPS. These adapters are designed primarily for performance-hungry high-performance servers and computing appliances while providing the added benefits of lower power, cooling, and management overhead with a smaller storage footprint.

Based on standard PCIe architecture coupled with silicon-based NAND clustering storage technology, High IOPS SSD PCIe Adapters are optimized for System x® towers, racks, and blades.

These adapters use NAND Flash Memory as the basic building block of solid state storage, contain no moving parts, and do not have the issues associated with vibration, noise, and mechanical failure. The adapters are built as a block devices on a PCIe bus with advanced wear-leveling, 11-bit ECC, and N+1 chip-level redundancy, providing unparalleled reliability and efficiency.

Whether enabling high-performance computing or reducing the storage footprint, IBM offers High IOPS SSD PCIe Adapters to meet your computational requirements. These adapters are compatible with a wide variety of System x towers, racks, and blades.
Providing that additional peace of mind, your high IOPS PCIe Adapter purchase is covered under IBM warranty. These adapters carry a three-year limited warranty, and postwarranty service can be obtained via special bid.

Features and functions

IBM 160GB High IOPS SS Class SSD PCIe Adapter (46M0877) offers:

- PCI-E small form-factor design (MD-2)
- 4-lane PCI-Express
- Support for 64-bit operating systems: Microsoft® Windows®, RHEL, and SLES
- Support for IBM Systems x3850 M2, x3950 M2, x3650 M2, and HS22 and IBM BladeCenter® PCI Express I/O Expansion Unit (43W4391) (with delayed availability)

IBM 320GB High IOPS MS Class SSD PCIe Adapter (46M0898) offers:

- PCI-E full height, half length design
- 4-lane PCI-Express
- Support for 64-bit operating systems: Windows, RHEL, and SLES
- Support for IBM Systems x3850 M2, x3950 M2, x3650 M2, and HS22 (delayed availability)

The IBM 160GB High IOPS SS Class SSD PCIe Adapter (46M0877) and IBM 320GB High IOPS MS Class SSD PCIe Adapter (46M0898) include a three-year, limited warranty.

1 For information on the IBM Statement of Limited Warranty, contact your IBM representative or reseller. Copies are available upon request.

Key prerequisites

- System x servers
- BladeCenter chassis
- Supported IBM BladeCenter servers

Planned availability date

August 12, 2009:

- IBM 160GB High IOPS SS Class SSD PCIe Adapter
- IBM 320GB High IOPS MS Class SSD PCIe Adapter

Note: BladeCenter HS22 with BPE3: Delayed availability of September 29, 2009

Description

Ideal for businesses requiring high-performance storage without sacrificing capacity, these adapters provide an opportunity to lower power and cooling costs while simplifying management overhead and reducing the overall storage footprint.

- Only 57 kWh/yr at 100,000 IOPS sustained
- Highly reliable:
  - Advanced wear-leveling
  - 11-bit ECC used for maximum efficiency
  - N+1 chip level redundancy ("SAN on a card")
• Reduced power, cooling, and management costs through storage "in server" versus disk arrays and controllers
• Available in industry-standard PCIe adapters

Compatibility
• Support for popular network operating systems
• ServerProven® testing to verify servers and PCIe adapters function properly

Product number

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
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<tbody>
<tr>
<td>IBM 160GB High IOPS SS Class SSD PCIe Adapter</td>
<td>46M0877</td>
</tr>
<tr>
<td>IBM 320GB High IOPS MS Class SSD PCIe Adapter</td>
<td>46M0898</td>
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</tbody>
</table>

Terms and conditions

This product is available from IBM under the terms and conditions for purchase.

Warranty and service
• Warranty period: Three years.
• HelpWare®: Contact your IBM HelpWare number, your place of purchase, or your local IBM office.

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
Technical information

**Performance specifications**
- Functions as a PCIe storage and controller device
- PCI Express
- Memory storage either 160 GB or 320 GB

**Physical specifications**

**IBM 160GB High IOPS SS Class SSD PCIe Adapter, 46M0877 (without mounting bracket)**

- Height: 1.6 cm (0.625 in)
- Width: 7.0 cm (2.75 in)
- Depth: 16.8 cm (6.625 in)
- Weight: 0.138 kg (0.305 lb)

**IBM 320GB High IOPS MS Class SSD PCIe Adapter, 46M0898 (without mounting bracket)**

- Height: 1.6 mm (0.625 in)
- Width: 7.0 mm (2.75 in)
- Depth: 16.8 mm (6.625 in)
- Weight: 0.138 kg (0.305 lb)

**Note:** All measurements are approximate.

**Operating environment**
- Temperature:
  - 10 to 35 degrees C (50 to 95 F) at 0 to 914 m (0 to 3000 ft)
  - 10 to 32 degrees C (50 to 90 F) at 914 m to 2,133 (3,000 to 7,000 ft)
- Relative humidity: 8% to 80%, noncondensing

**Agency approvals**

Safety
- UL
- cUL
- IEC60950

EMC
- KCC
- FCC
- TUV
- VDE
- CE
- VCCI
- BSMI
- C-Tick
- MIC

**Energy Star compliance**

Is this product Energy Star Compliant? Not applicable
Note: The Energy Star emblem does not represent EPA endorsement of any product or service.

**Hardware requirements**
The PCIe adapters, P/N 46M0877 and 46M0878, are supported on the following IBM platforms.

<table>
<thead>
<tr>
<th>System name</th>
<th>Machine type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BladeCenter HS22</td>
<td>7870</td>
<td>All</td>
</tr>
<tr>
<td>System x 3650 M2</td>
<td>7947</td>
<td>All</td>
</tr>
<tr>
<td>System x 3850 M2</td>
<td>7233</td>
<td>All</td>
</tr>
<tr>
<td>System x 3950 M2</td>
<td>7141</td>
<td>All</td>
</tr>
</tbody>
</table>

**Software requirements**
Support for 64-bit versions of the following operating systems:

- Linux® Red Hat 4.7, 5.2, 5.3
- SUSE Linux 9 SP4, 10, SP2

**Compatibility**

Note: Some configurations may not be compatible.

**Limitations**
- Not a bootable device
- No hardware RAID on card

**Planning information**
Additional cable orders required: No
Approximate installation time: 20 minutes

**Packaging**
One box

**Shipment group (160GB or 320GB PCIe Adapter)**
- PCIe adapter
- Support USB key Documentation
- 2U bracket
- Quick install
- Safety flyer

**Packaging dimensions and weight**
IBM 160GB High IOPS SS Class SSD PCIe Adapter (46M0877):
- Height: 3.8 cm (1.5 in)
- Width: 15.2 cm (6.0 in)
- Depth: 22.9 cm (9.0 in)
• Weight: 0.390 kg (0.855 lb)

IBM 320GB High IOPS MS Class SSD PCIe Adapter (46M0898):

• Height: 3.8 cm (1.5 in)
• Width: 15.2 cm (6.0 in)
• Depth: 22.9 cm (9.0 in)
• Weight: 0.390 kg (0.855 lb)

Note: All measurements are approximate.

Security, auditability, and control

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

Terms and conditions

IBM Direct terms and conditions

Features and options only

Field installable
Customer setup
Warranty period
Service type (CCE/CCR/CUR)
Maintenance agreement
Optional upgrade
Licensed programs

Note: Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the feature or option. All other terms and conditions are the same as those applicable to the IBM machine type in which the feature is installed.

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http://www-304.ibm.com/systems/support/

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**Announcement countries**

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