IBM N2115 and N2125 8-port SAS/SATA host bus adapters for System x integrate latest enhancements in PCI Express and SAS technology to provide high-performance internal and external storage connectivity for servers

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At a glance

The N2115 SAS/SATA HBA for IBM® System x® (46C8988) and the N2125 SAS/SATA HBA for IBM System x (46C9010) provide ideal solutions for all servers requiring high-speed data transfer in storage connectivity for data backup and mission critical applications. These HBAs provide support for SAS and SATA HDDs and SSDs.

Features of the N2115 and N2125 HBAs:

- Provide high performance for storage connectivity for servers
- Integrate the latest enhancements in PCI Express® and SAS technology; eight-lane 6 Gbps SAS matched with eight lanes of PCIe 3.0 to help eliminate performance bottlenecks
- Provide SAS and SATA data transfer rates of 1.5 Gbps, 3 Gbps, and 6 Gbps per lane
- Maximum connectivity and performance in a low-profile form factor

Overview

The N2115 SAS/SATA HBA for IBM System x is an ideal solution for System x servers requiring high-speed internal storage connectivity. This 8-port host bus adapter supports direct attach to SAS and SATA internal hard disk drives and solid-state drives (SSDs).

The N2125 SAS/SATA HBA for IBM System x is a low-cost, high-performance 8-port host bus adapter perfect for high-performance connectivity between System x servers and external storage JBOD, Tape, and RAIDed units.

With low-profile form factor designs, the N2115 SAS/SATA HBA for IBM System x and the N2125 SAS/SATA HBA for IBM System x offer two (x4) internal mini-SAS connectors and two (x4) external mini-SAS connectors, respectively. They are based on LSI 2308 6 Gbps SAS IO controller; both provide eight lanes of 6 Gbps SAS and eight lanes of PCIe 3.0 to eliminate data bottlenecks and provide high data transfer rates for medium-to-large capacity server storage applications.

Features and functions

N2115 SAS/SATA HBA for IBM System x (46C8988)

- 6 Gbps per SAS
- uEFI support
- PCI Express 3.0
- PCIe small form-factor design
- Eight internal 6 Gbps SAS + SATA ports
- Two (x4) Internal mini-SAS connectors
- Eight-lane PCI Express 3.0
- LSI SAS2308 6 Gbps SAS+SATA Controller
- SAS and SATA data transfer rates of 1.5 Gbps, 3 Gbps, and 6 Gbps per lane
- Support for all major operating systems including open source drivers for Linux™ Non-RAID

N2125 SAS/SATA HBA for IBM System x (46C9010)

- 6 Gbps per SAS
- uEFI support
- PCI Express 3.0
- PCIe small form factor design
- Eight external 6 Gbps SAS + SATA ports
- Two (x4) external mini-SAS connectors
- Eight-lane PCI Express 3.0
- LSI SAS2308 6 Gbps SAS+SATA Controller
- SAS and SATA data transfer rates of 1.5 Gbps, 3 Gbps, and 6 Gbps per lane
- Support for all major operating systems including open source drivers for Linux Non-RAID
- Capability to connect to external storage JBOD and RAIDed enclosures

Warranty: The adapters come with a one year, customer replaceable unit (CRU), limited warranty[1] .

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

  http://www.ibm.com/servers/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.

Feature exchange

None

Key prerequisites

The N2115 and N2125 SAS/SATA HBA adapters can be used on supported System x servers with an available PCI Express expansion slot.

Planned availability date

- April 29, 2013: N2125 SAS/SATA HBA for IBM System x (46C9010)
- June 14, 2013: N2115 SAS/SATA HBA for IBM System x (46C8988)

Description

The N2115 and N2125 SAS/SATA HBAs for IBM System x offer an affordable and reliable SAN to small and medium businesses. The adapters are designed to be easy to use, with proven quality, and demonstrated robustness (highest mean-time between failures). These adapters are based on a design that requires minimum user effort while delivering maximum user satisfaction. Emphasis on ease of use at every step helps to provide a successful, enhanced experience.

You can easily monitor and perform any necessary maintenance, including updating firmware.

The N2115 and N2125 SAS/SATA HBAs are the latest PCIe adapter card options for System x servers.

Each server can be installed with one or more adapter cards to enable redundant connections within System x servers.

Product positioning

None

Product number

Option Offerings (SEOs)

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

Description	Type	Model	Feature	SEO	Part Number
N2115 SAS/SATA HBA for IBM System x	3331	HC1	A3MW	46C8988	46C8988
N2125 SAS/SATA HBA for IBM System x	3331	HC1	A3MV	46C9010	46C9010

The following are features already announced for the 3331, 7143, 7158, 7914, 7915, 8722 machine type:

Description	MT	Model	Feature
2U bracket for low profile-internal-storage adapters	8722	AC1 MC1	A1XM
N2125 SAS/SATA HBA for IBM System x	3331	HC1	A3MV
N2125 SAS/SATA HBA for IBM System x	7143	AC1 MC1	
N2125 SAS/SATA HBA for IBM System x	7158	AC1 MC1	
N2125 SAS/SATA HBA for IBM System x	7914	AC1 MC1	
N2125 SAS/SATA HBA for IBM System x	7915	AC1 MC1	
N2125 SAS/SATA HBA for IBM System x	8722	AC1 MC1	
N2115 SAS/SATA HBA for IBM System x	3331	HC1	A3MW
N2115 SAS/SATA HBA for IBM System x	7143	AC1 MC1	
N2115 SAS/SATA HBA for IBM System x	7158	AC1 MC1	
N2115 SAS/SATA HBA for IBM System x	7914	AC1 MC1	

```
N2115 SAS/SATA HBA for IBM System x            7915  AC1
                                                     MC1
N2115 SAS/SATA HBA for IBM System x            8722  AC1
                                                     MC1
```

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=113-052

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

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

For details on education offerings related to specific products, visit

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

Technical information

Specified operating environment

Physical specifications
N2115 SAS/SATA HBA

- Approximate height: 64.5 mm (2.54 in)
- Approximate width: 152.4 mm (6.0 in)
- Approximate depth: 17.5 mm (.69 in)
- Approximate weight: 180 g (0.41 lb)

N2125 SAS/SATA HBA

- Approximate height: 68.68 mm (2.7 in)
- Approximate width: 167.6 mm (6.6 in)
- Approximate depth: 17.27 mm (.68 in)
- Approximate weight: 220 g (0.49 lb)

N2115 and N2125 SAS/SATA HBAs

Shipping dimensions

- Approximate height: 238.3 mm (9.4 in)
- Approximate width: 143 mm (5.6 in)
- Approximate depth: 50.8 mm (2.0 in)
- Approximate weight: 275g (0.61lb)-N2115, 315g (0.69lb)-N2125

Agency approvals

N2115 and N2125 SAS/SATA HBAs

- UL
- cUL
- IEC60950
- EMC
- FCC
- TUV
- CE
- VCCI
- BSMI
- C-tick
- KC

Standards

None

Operating environment

N2115 and N2125 SAS/SATA HBAs

- Temperature:
  - Operational: 5°C to 40°C (41°F to 104°F) at 0 to 5,000 m (16,404 ft)
  - Nonoperational: 40°C to 60°C (-40°F to 140°F) at 10,700 m (35,105 ft)
- Relative humidity: 8% to 93% (noncondensing)
- Maximum altitude: 10,700 m (35,105 ft)

Homologation

This product is not certified for direct connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

Hardware requirements

These HBA adapters must be installed in a selected System x server.

Software requirements

The N2115 and N2125 SAS/SATA HBAs support the following major operating systems:

- Microsoft™ Windows™ 2008
- Microsoft Windows 2012
- Win PE 2.1 32 Bit

- Red Hat Enterprise Linux 5
- Red Hat Enterprise Linux 6
- SUSE Linux Enterprise Server 10
- SUSE Linux Enterprise Server 11
- VMware ESX 4.1
- VMware ESXi 4.1
- VMware vSphere 5.0
- VMware vSphere 5.1

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

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

The N2115 and N2125 SAS/SATA 8-port HBA products are designated as customer setup. Customer installation instructions are shipped with each option part.

Cable orders

None

Installability

The N2115 and N2125 SAS/SATA eight-port HBAs require about 20 minutes for installation.

Installation includes unpacking, setting up, and powering on.

Packaging

N2115 and N2125 SAS/SATA HBAs

```
Product                     Package description            Boxes

N2115 and N2125               Option Unit Box                 1
SAS/SATA Eight-port HBAs
for IBM System x


                   Contents:

                   HBA eight-port adapter
                   2U bracket kit
                   3U bracket kit (installed)
                   CD with pubs
                   Important Notices Flyer
                   Warranty Important Notice
```

The N2115 and N2125 SAS/SATA adapters are shipped as a single package. Other items are in zipped bags.

Retail only

Packaging dimensions/weight

- Single box (HxDxW): 238 mm (9.4 in) x 50 mm (2.0 in) x 143 mm (5.6 in)
- Package weight: 95 g (0.21 lb)

Note: All measurements are approximate.

Supplies

For end users: N2115 and N2125 SAS/SATA eight-port HBA adapters 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.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM , which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent , refer to

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

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support website at

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

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

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

Terms and conditions

MES discount applicable

No

Field installable feature

Yes

Warranty period

One year.

N2115 and N2125 SAS/SATA HBA Adapters

- Warranty period[1] : 1 year

- 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 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.

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

  http://www.ibm.com/servers/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

  http://www-03.ibm.com/systems/x/

To locate the web price, search on the feature number in the Search field.

```
                                          Part
Description                               number

N2115 SAS/SATA HBA for IBM System x       46C8988

N2125 SAS/SATA HBA for IBM System x       46C9010
```

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

 N        N        N              N
```

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

```
                                            Initial/
                                            MES/
Description               Model    Feature  Both/
                          Number   Number   Support

N2125 SAS/SATA HBA for IBM System x
                          HC1      A3MV     MES
N2115 SAS/SATA HBA for IBM System x
                          HC1      A3MW     MES
```

The following are features already announced for the 7143 machine type:

```
                                              Initial/
                                              MES/
Description                  Model   Feature  Both/
                             Number  Number   Support

N2125 SAS/SATA HBA for IBM System x
                             AC1     A3MV     Initial
                             MC1              Initial
N2115 SAS/SATA HBA for IBM System x
                             AC1     A3MW     Initial
                             MC1              Initial
```

The following are features already announced for the 7158 machine type:

```
                                              Initial/
                                              MES/
Description                  Model   Feature  Both/
                             Number  Number   Support

N2125 SAS/SATA HBA for IBM System x
                             AC1     A3MV     Initial
                             MC1              Initial
N2115 SAS/SATA HBA for IBM System x
                             AC1     A3MW     Initial
                             MC1              Initial
```

The following are features already announced for the 7914 machine type:

```
                                              Initial/
                                              MES/
Description                  Model   Feature  Both/
                             Number  Number   Support

N2125 SAS/SATA HBA for IBM System x
                             AC1     A3MV     Initial
                             MC1              Initial
N2115 SAS/SATA HBA for IBM System x
                             AC1     A3MW     Initial
                             MC1              Initial
```

The following are features already announced for the 7915 machine type:

```
                                              Initial/
                                              MES/
Description                  Model   Feature  Both/
                             Number  Number   Support

N2125 SAS/SATA HBA for IBM System x
                             AC1     A3MV     Initial
                             MC1              Initial
N2115 SAS/SATA HBA for IBM System x
                             AC1     A3MW     Initial
                             MC1              Initial
```

The following are features already announced for the 8722 machine type:

```
                                              Initial/
                                              MES/
Description                  Model   Feature  Both/
                             Number  Number   Support

2U bracket for low profile-internal-storage
adapters
                             AC1     A1XM     Initial
                             MC1              Initial
N2125 SAS/SATA HBA for IBM System x
                             AC1     A3MV     Initial
                             MC1              Initial
N2115 SAS/SATA HBA for IBM System x
```

```
AC1        A3MW              Initial
MC1                          Initial
```

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