IBM Clusters with QLogic Quad Date Rate InfiniBand Switches are designed for high availability and can also deliver the scalability required by distributed database processing

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At a glance

New quad data rate high-performance server switches enable you to form high-performance clusters and grids that deliver the performance required for you to realize the full potential of your applications and systems.

- IBM® 7874-036 is a QLogic 12200 36-port, 40 Gbps InfiniBand switch that cost-effectively links workgroup resources into a cluster.
- IBM 7874-072 is a QLogic 12800-040 72-port, 40 Gbps InfiniBand switch that links resources using a scalable, low-latency fabric, supporting up to four 18-port QDR Leaf Modules.
- IBM 7874-324 is a QLogic 12800-180 324-port 40 Gbps InfiniBand switch designed to maintain larger clusters, supporting up to eighteen 18-port QDR Leaf Modules.

Overview

InfiniBand is an industry-standard high-performance interconnect for clusters and enterprise grids. This industry-standard fabric creates clusters that address many of the requirements such as those found in scientific, technical, and financial applications. InfiniBand solutions are designed for high availability and can also deliver the scalability required by distributed database processing.

The IBM Power Systems™ machine type 7874 enables the ordering and service of specific QLogic 4X Quad Data Rate InfiniBand switches that are available in three models of up to 36-port, 72-port, and 324-port capability.

The IBM 7874-036 is a QLogic 12200 36-port, 40 Gbps InfiniBand switch that cost-effectively links workgroup resources into a cluster. This compact 1U solution is used
for building small node count fabrics. Included in the 7874-036 are redundant power supplies, power cords, rack mount kit, and QLogic InfiniBand Fabric Suite.

The IBM 7874-072 is a QLogic 12800-040 72-port, 40 Gbps InfiniBand switch that links resources using a scalable, low-latency fabric. The 7874-072 supports up to four 18-port QDR Leaf Modules. Included in the 7874-072 is a QDR Managed Spine Module, redundant power supplies, redundant fans, power cords, rack mount kit, and QLogic InfiniBand Fabric Suite.

The IBM 7874-324 is a QLogic 12800-180 324-port 40 Gbps InfiniBand switch designed to maintain larger clusters, supporting up to eighteen 18-port QDR Leaf Modules. Included in the 7874-324 are redundant QDR Managed Spine Modules, a full complement of Spine Modules to provide a 100% nonblocking fabric for all ports, redundant power supplies, redundant fans, power cords, rack mount kit, and QLogic InfiniBand Fabric Suite.

Key prerequisites

IBM Power Systems servers (8202-E4B and 8205-E6B) are supported for attachment to the QLogic QDR InfiniBand switches.

Planned availability date

May 20, 2011

Description

The switches are to be field mounted in an IBM 19-inch rack with available rack space and PDU outlets. The switches have 1-meter power cords to connect to the rack PDUs. The power connections are on the rear of the switch assemblies, located on both the right side and on the left side. The power cords connect to the rack PDUs, which are required to be on both the left side and right side of the racks. The IBM 7874-036 and IBM 7874-072 can be mounted in any IBM 19-inch rack. To address the need for larger system cable management of the InfiniBand cables, the IBM 7874-324 is required to be installed in a 7014-T42 rack, with the rack extender feature number. The rack extender is 20-inches deep.

Larger configurations require the use of an external Host Subnet Manager (HSM). This will be running on an IBM System x3550 or IBM System x3650, with InfiniBand Host Channel Adapter and InfiniBand cable.
Commercial configurations can use the Embedded Subnet Manager (ESM), which is monitored from the network. Greater than 144 nodes will require the use of the HSM.

**Accessibility by people with disabilities**

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


**Product number**

The following are newly announced features on the specific models of the IBM Power Systems 7874 machine type:

<table>
<thead>
<tr>
<th>Description</th>
<th>MT</th>
<th>Model Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>QLogic 36 port QDR IB Switch</td>
<td>7874</td>
<td>036</td>
</tr>
<tr>
<td>QLogic 72 port QDR IB Switch</td>
<td>7874</td>
<td>072</td>
</tr>
<tr>
<td>QLogic 324 port QDR IB Switch</td>
<td>7874</td>
<td>324</td>
</tr>
<tr>
<td>18port 4x QDR IB Module</td>
<td>7874</td>
<td>072 3314</td>
</tr>
<tr>
<td>QDR Leaf Module Blank</td>
<td>7874</td>
<td>072 3315</td>
</tr>
</tbody>
</table>

The following are features already announced for the IBM Power Systems 7874 machine type:

<table>
<thead>
<tr>
<th>Description</th>
<th>MT</th>
<th>Model Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>US TAA Compliance Indicator</td>
<td>7874</td>
<td>036 0983</td>
</tr>
<tr>
<td>US TAA Compliance Indicator</td>
<td>7874</td>
<td>072 0983</td>
</tr>
<tr>
<td>US TAA Compliance Indicator</td>
<td>7874</td>
<td>324 0983</td>
</tr>
</tbody>
</table>

The following are newly announced features on the specific models of the IBM Power Systems 7014 machine type:

<table>
<thead>
<tr>
<th>Description</th>
<th>MT</th>
<th>Model Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rack Content Specify 7874-036</td>
<td>7014</td>
<td>T00 0379</td>
</tr>
<tr>
<td>Rack Content Specify 7874-072</td>
<td>7014</td>
<td>T00 0380</td>
</tr>
<tr>
<td>Rack Content Specify 7874-324</td>
<td>7014</td>
<td>T42 0381</td>
</tr>
</tbody>
</table>

**Model conversions**

Not applicable

**Feature conversions**

Not applicable

**Publications**

Visit the IBM Systems Information Center, which contains the documentation for the hardware.

http://publib.boulder.ibm.com/infocenter/systems
Additional specific information on IBM clusters with the InfiniBand switch is located at


Information about the QLogic InfiniBand Switches and management software for IBM Power Systems clusters is located at


Information about the QLogic supported software for IBM products is located at

http://support.qlogic.com/support/oem_ibm.asp

Additional documentation is available through the IBM Systems Information Center, which 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://publib.boulder.ibm.com/infocenter/systems

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

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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


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

Technical information

Specified operating environment

Physical specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>324</td>
<td>305 mm (24.5 in)</td>
<td>440 mm (17.3 in)</td>
<td>638 mm (26.0 in)</td>
</tr>
<tr>
<td>072</td>
<td>86 mm ( 8.7 in)</td>
<td>440 mm (17.3 in)</td>
<td>638 mm (26.0 in)</td>
</tr>
<tr>
<td>036</td>
<td>43 mm ( 1.7 in)</td>
<td>440 mm (17.3 in)</td>
<td>292 mm (14.5 in)</td>
</tr>
</tbody>
</table>
Model | Weight
---|---
324 | 99.5 kg (219 lbs)
072 | 35.0 kg (77 lbs)
036 | 6.8 kg (15 lbs)

**Operating environment**
- Temperature: Operating/(Nonoperating): 5 to 45C/(-35 to 65C)
- Humidity: Operating/(Nonoperating): 5 to 85%/5 to 90% noncondensing

**Power requirements**
- Power® cords delivered with the system plug into the IBM PDUs in the 19-inch racks.

**Agency approvals**
- Safety: UL/CSA/EN
- EMI: FCC/VCCI/EN
- Marking: UL/GS/VCCI/CE /RoHS

**Hardware requirements**
These switches are intended to cluster together IBM POWER7™ servers that are enabled with quad data rate capability in InfiniBand clusters.

**Planning information**

**Cable orders**
No additional cables required.

**Security, auditability, and control**
This product uses the security and auditability features of host software and application software.

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.

**Terms and conditions**

**Volume orders:** Contact your IBM representative.

**Warranty period**
One year.

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.

**Warranty service**

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM website. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. If applicable to your product, parts considered Customer Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

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-specific and location-specific information.

**CRU Service**

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 or a Tier 2 CRU.

**Tier 1 CRU**

Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

**Tier 2 CRU**

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs 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, 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 have been designated as Tier 1 CRUs:

- AC power cord
- Battery
- Covers, front and side
- Disk drive
- Display
- DVD drive cable
- DVD drive
- External cables
- Floppy drive
- Floppy drive cable
- Heat/Fan sink
- Keyboard
- Memory DIMM
- Modem (requires 100 V - 240 V)
- Mouse
- PCI adapters
• System bezel
• System labels
• Tape, diagnostics, and firmware media
• USB cable

**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.

Service level is:

• IBM On-site Repair Limited, 9 hours per day, Monday through Friday, excluding public or national holidays, next-business-day response, latest call registration 15:00

**Non-IBM parts service**

**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 their customers, and normal warranty service procedures for the IBM machine apply.

**Warranty service upgrades**

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. Refer to the Warranty service section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability.

**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. The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

• IBM On-site Repair, 9 hours per day, Monday through Friday, excluding public or national holidays same-business-day response time, latest call registration 12:00
• IBM On-site Repair, 24 hours per day, 7 days a week, 365 days a year, same business day, 6 hours average response time

CRUs may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified above. For additional information on the CRU Service, refer to the warranty information.

**Maintenance services**

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM website. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance 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-specific and location-specific information. The following service selections are available as maintenance options for your machine type.

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.

Service levels are:

- IBM On-site Repair Limited, 9 hours per day, Monday through Friday, excluding public or national holidays, next-business-day on-site response time, latest call registration 15:00
- IBM Onsite Repair, 9 hours per day, Monday through Friday, excluding public or national holidays, next-business-day on-site response time, latest call registration 15:00
- IBM On-site Repair, 9 hours per day, Monday through Friday, excluding public or national holidays, same-business-day on-site response time, latest call registration 12:00
- IBM On-site Repair, 24 hours per day, 7 days a week, 365 days a year, same business day, 6 hours average on-site response time

**CRU Service**

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, 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 upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU and 2) 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.

CRUs are designated as being either a Tier 1 or a Tier 2 CRU.

Tier 1 CRUs: Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with On-site Same-day Response Service, IBM will replace a Tier 1 CRU part at your request, at no additional charge.

Tier 2 CRUs: You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Models for which there is a maintenance charge: 7874-036/072/324

**Non-IBM parts service**

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

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines 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**

**Usage plan machine**
No

**IBM hourly service rate classification**
Three
When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

**Maintenance service offerings**
This machine is eligible under terms and conditions of the IBM ServiceSuite™, the IBM Enterprise Service Agreement (ESA), or the IBM Maintenance Agreement. Consult your IBM representative for details.

**Field-installable features**
Yes

**Model conversions**
No

**Machine installation**
Installation is performed by IBM. IBM will install the machine in accordance with the IBM installation procedures for the machine.

In other countries, contact the local IBM office.

The Machine Installation Guide specifies site preparation, physical requirements, installation (operating) environment, and any cabling included in the installation along with the approximate installation time in hours. Customer requests for installation of items not covered in the installation guide may be performed at IBM’s hourly service rate designated for the machine.

**Graduated program license charges apply**
No

**Licensed machine code**
Machine code, including the QLogic InfiniBand Fabric Suite, is licensed for use by a customer on a specific machine, designated by serial number, under the terms and conditions of the QLogic End User Software License Agreements.

**Europe Business Partner terms and conditions**
For more information, Business Partners should refer to the relevant product exhibits on


**Pricing**

For all local charges, contact your IBM representative.
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