QLogic 8200 Virtual Fabric Adapter Family
Product Guide (withdrawn product)

The QLogic 8200 Virtual Fabric Adapter Family for System x consists of 10 Gigabit Ethernet adapters available in either a standard PCIe adapter form factor or a mezzanine form factor. Both adapters are high-performance Converged Network Adapters (CNAs) based on the QLogic 8200 design. The adapters offer upgrades to full hardware offload for Fibre Channel over Ethernet (FCoE) and iSCSI processing. The adapters connect to SFP+ Multimode Fiber SR optical modules and direct-attach copper (DAC) cables.

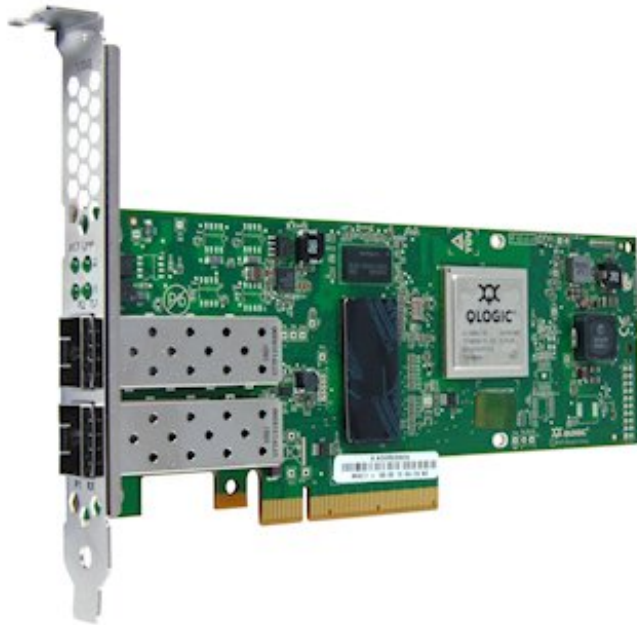The QLogic 8200 Dual Port 10GbE SFP+ VFA is shown in the following figure.

Figure 1. QLogic 8200 Dual Port 10GbE SFP+ VFA for System x

Did you know?

With the Features on Demand (FoD) entitlement upgrade, the QLogic 8200 adapters support full hardware offload for FCoE and iSCSI protocol processing. This feature frees up the server's CPU to perform other tasks. Consequently, the server's applications can run faster and virtualized servers can support more virtual machines.

The QLogic Dual Port 10GbE SFP+ Embedded Virtual Fabric Adapter (VFA) is designed specifically to fit in to a dedicated slot in servers such as the System x3650 M4 and x3550 M4. This card design allows you to use the server's standard PCIe slots for other technologies.

Part number information

The following table shows the ordering part numbers and feature codes for these adapters.

Withdrawn: These adapters and upgrades are now all withdrawn from marketing.

Table 1. Ordering part numbers and feature codes

Description	Part number	Feature code
Standard PCIe adapter		
QLogic 8200 Dual Port 10GbE SFP+ VFA	90Y4600	A3MR
QLogic 8200 VFA FCoE/iSCSI License (Features on Demand)	00Y5624	A3MT
Embedded PCIe adapter		
QLogic Dual Port 10GbE SFP+ Embedded VFA	90Y6454	A22H
QLogic Embedded VFA FCoE/iSCSI License (Features on Demand)	90Y5179	A2TF

The part numbers for the adapters (90Y4600 and 90Y6454) includes the following items:

- One QLogic adapter
- Full height (3U) bracket attached with low-profile (2U) bracket included in the box (90Y4600 only)
- Support CD
- Safety flyer

The QLogic Dual Port 10GbE SFP+ Embedded VFA is shown in the following figure.

Figure 2. QLogic Dual Port 10GbE SFP+ Embedded Virtual Fabric Adapter

Transceivers are not included with the adapter.

The following table lists the supported 10Gb Ethernet SFP+ optical transceivers and DAC cables.

Table 2. Supported optical transceivers and DAC cables - 10 Gb Ethernet

Part number	Feature code	Description	Maximum supported
10 GbE SFP+ transceivers (for 10 GbE SFP+ adapters)			
49Y4218	0064	QLogic 10Gb SFP+ SR Optical Transceiver	Per adapter port*
10 GbE SFP+ DAC cables (for 10 GbE SFP+ adapters)			
00D6288	A3RG	Lenovo 0.5m Passive SFP+ DAC Cable	Per adapter port*
90Y9427	A1PH	Lenovo 1m Passive SFP+ DAC Cable	Per adapter port*
00AY764	A51N	Lenovo 1.5m Passive SFP+ DAC Cable	Per adapter port*
00AY765	A51P	Lenovo 2m Passive SFP+ DAC Cable	Per adapter port*
90Y9430	A1PJ	Lenovo 3m Passive SFP+ DAC Cable	Per adapter port*
90Y9433	A1PK	Lenovo 5m Passive SFP+ DAC Cable	Per adapter port*
00D6151	A3RH	Lenovo 7m Passive SFP+ DAC Cable	Per adapter port*

* One transceiver or cable is supported per adapter port. All adapter ports must have the same type of transceiver or DAC cable selected.

The following figure shows the component side of the QLogic Dual Port 10GbE SFP+ Embedded VFA.
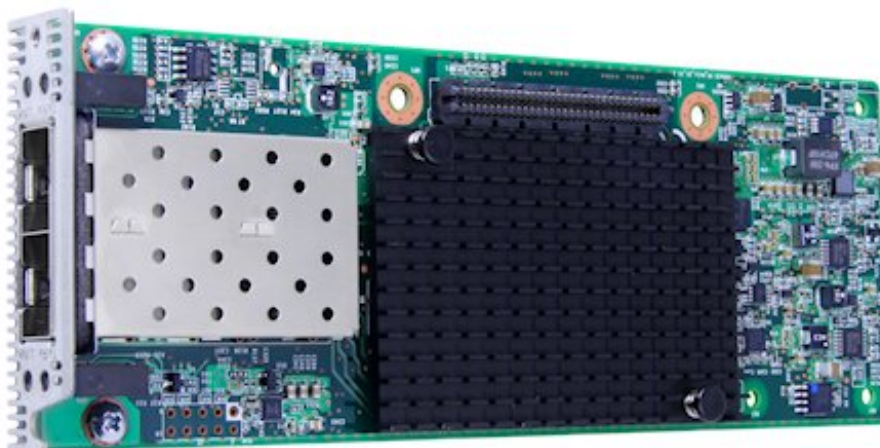

Figure 3. QLogic Dual Port 10GbE SFP+ Embedded VFA

Features

The QLogic 8200 VFA family is based on the QLogic second generation of Converged Network Controllers, supporting simultaneous LAN (TCP/IP) and SAN (FCoE and iSCSI) traffic at line-rate, 10 Gbps Ethernet speed. This convergence of networking traffic lowers data center costs by eliminating the need for separate LAN and SAN infrastructure. Data centers now need fewer adapters, cables, and switches, which also means reduced power and cooling costs. In addition, these controllers are fully compatible with existing Fibre Channel and iSCSI storage, providing investment protection for existing infrastructure.

The QLogic 8200 VFA family adapters have the following features:

- 10 Gbps per-port maximum throughput for high bandwidth storage (SAN) and networking (LAN) traffic.
- Based on the QLogic 8200 ASIC.
- PCI Express 2.0 x8 host interface.
- Operate at full 10 Gbps line rate on both ports.
- Support for SFP+ transceivers and DAC cables.
- Two form factors:
    - Standard PCIe low-profile form factor adapter fits most M4 systems.
    - Mezzanine form-factor card installed in a dedicated slot on the system board of supported servers.
- Support for Switch Independent vNIC mode, also known as NIC Partitioning or NPAR, where each physical port appears to the server as four virtual NICs. Bandwidth for each vNIC can be configured from 100 Mbps to 10 Gbps. This vNIC mode extends the existing VLANs to the virtual NIC interfaces. It uses IEEE 802.1Q VLAN tags to separate data traffic; the VLAN tags are added to the packet by the applications or drivers rather than by the switch.
- Support for full FCoE and iSCSI hardware offload through the Features on Demand (FoD) license upgrade. This support enables flexibility and investment protection by letting you buy the FCoE or iSCSI license when you need it. FCoE and iSCSI can also be enabled with 4 of the vNIC ports (2 FCoE, 2 iSCSI) if vNIC is also enabled.
  Note: the FoD upgrades are now withdrawn from marketing
- Full support for TCP/IP and Ethernet performance enhancements, such as Priority-Based Flow Control (802.1Qbb), jumbo frames, checksum offloads, and segmentation offloads.
- Support for IPv4 and IPv6.
- Support for Wake on LAN.
- Port 1 can be configured to be a shared management port to remotely connect to the IMM2 management controller.

Note: The adapter only supports connectivity to a 10 Gb Ethernet switch. 1 Gb Ethernet connectivity is not supported.

Check the IBM System Storage Interoperation Center (SSIC) for full listing of supported FCoE & iSCSI configurations:
http://ibm.com/systems/support/storage/ssic/interoperability.wss

Specifications

The QLogic 8200 VFA family adapters have the following specifications:

Ethernet specifications

- Throughput: 10 Gbps full-duplex line rate per-port
- Ethernet frame: 1500 byte or 9600 byte (jumbo frame)
- Stateless offload:
    - IP, TCP, and UDP checksum offloads
    - Large and giant send offload (LSO and GSO)
    - Large receive offload (LRO)
    - Receive side scaling (RSS)
    - Header-data split
    - Interrupt coalescing
    - VMware NetQueue and Microsoft VMQ
- Wake on LAN
- Enhanced Ethernet
    - Priority-Based Flow Control (802.1Qbb)
    - Enhanced Transmission Selection (802.1Qaz)
    - DCBX Protocol (802.1Qaz)
- Compliance
    - IEEE: 802.3ae (10 Gb Ethernet)
    - 802.3ap (10GBASE-KR)
    - 802.1q (VLAN)
    - 802.3ad (Link Aggregation)
    - 802.1p (Priority Encoding)
    - 802.3x (Flow Control)
    - IPv4 (RFQ 791)
    - IPv6 (RFC 2460)

FCoE specifications

- Logins: Support for 2,048 concurrent logins and 2,048 active exchanges
- Port virtualization: N_Port ID virtualization (NPIV)
- Compliance:
    - SCSI-3 Fibre Channel Protocol (SCSI-FCP)
    - Fibre Channel Tape (FC-TAPE) Profile
    - SCSI Fibre Channel Protocol-2 (FCP-2)
    - Second Generation FC Generic Services (FC-GS-2)
    - Third Generation FC Generic Services (FC-GS-3)
    - FCoE and FIP (FC-BB-5)

iSCSI Specifications

- Compliance
    - RFC 3347 (iSCSI Requirements and Design Considerations)
    - CHAP
    - iSNS
    - SLP

Server support

The adapter is supported in the System x servers listed in the following tables.

Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Table 3. Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Part number	Description	x3250 M6 (3943)	x3250 M6 (3633)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)	sd350 (5493)
90Y4600	Qlogic 8200 Dual Port 10GbE SFP+ VFA	N	N	N	N	Y	N	N
00Y5624	Qlogic 8200 VFA FCoE/iSCSI License (FoD)	N	N	N	N	Y	N	N
90Y6454	Qlogic Dual Port 10GbE SFP+ Embedded VFA	N	N	N	N	N	N	N
90Y5179	Qlogic Embedded VFA FCoE/iSCSI License (FoD)	N	N	N	N	N	N	N

Support for servers with Intel Xeon v3 processors

Table 4. Support for servers with Intel Xeon v3 processors

Part number	Description	x3100 M5 (5457)	x3250 M5 (5458)	x3500 M5 (5464)	x3550 M5 (5463)	x3650 M5 (5462)	x3850 X6/x3950 X6 (6241, E7 v3)	nx360 M5 (5465)
90Y4600	QLogic 8200 Dual Port 10GbE SFP+ VFA	Y	Y	Y	Y	Y	Y	N
00Y5624	QLogic 8200 VFA FCoE/iSCSI License (FoD)	Y	Y	Y	Y	Y	Y	N
90Y6454	QLogic Dual Port 10GbE SFP+ Embedded VFA	N	N	N	N	N	N	N
90Y5179	QLogic Embedded VFA FCoE/iSCSI License (FoD)	N	N	N	N	N	N	N

Support for servers with Intel Xeon v2 processors

Table 5. Support for servers with Intel Xeon v2 processors

Part number	Description	x3500 M4 (7383, E5-2600 v2)	x3530 M4 (7160, E5-2400 v2)	x3550 M4 (7914, E5-2600 v2)	x3630 M4 (7158, E5-2400 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3650 M4 HD (5460)	x3750 M4 (8752)	x3750 M4 (8753)	x3850 X6/x3950 X6 (3837)	x3850 X6/x3950 X6 (6241, E7 v2)	dx360 M4 (E5-2600 v2)	nx360 M4 (5455)
90Y4600	QLogic 8200 Dual Port 10GbE SFP+ VFA	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
00Y5624	QLogic 8200 VFA FCoE/iSCSI License (FoD)	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
90Y6454	QLogic Dual Port 10GbE SFP+ Embedded VFA	N	N	Y*	N	Y†	N	Y	N	N	N	N	Y	Y
90Y5179	QLogic Embedded VFA FCoE/iSCSI License (FoD)	N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y

* When installed in the x3550 M4 with only one processor, the Embedded VFA, 90Y6454, requires additional system fan, feature code A40L, option part number 00Y7117
† When installed in the x3650 M4 with only one processor, the Embedded VFA, 90Y6454, requires additional system fan, feature code A3ZE option part number 46W8422

For the latest information about the System x servers that support this adapter, see the ServerProven® website at http://www.lenovo.com/us/en/serverproven/xseries/lan/matrix.shtml

Operating system support

The QLogic 8200 Dual Port 10GbE SFP+ VFA supports the following operating systems:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Small Business Server 2008 Premium Edition
- Microsoft Windows Small Business Server 2008 Standard Edition
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7

- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware ESX 4.1
- VMware ESXi 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)
- VMware vSphere 6.0 (ESXi)

The QLogic Dual Port 10GbE SFP+ Embedded VFA supports the following operating systems:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Server 2012
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware ESX 4.1
- VMware ESXi 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)
- VMware vSphere 6.0 (ESXi)

For the latest information about the specific versions and service packs supported, see the ServerProven web page for System x operating system support:

http://www.lenovo.com/us/en/serverproven/nos/matrix.shtml

Warranty

The adapters carry a 1-year, customer-replaceable unit (CRU) limited warranty. When installed in a supported Lenovo server, these adapters assume your system's base warranty and any warranty upgrade.

Physical specifications

The QLogic 8200 Dual Port 10GbE SFP+ VFA has the following physical specifications:

Dimensions and weight (approximate):

- Height: 167 mm (6.60 in)
- Width: 69 mm (2.71 in)
- Depth: 17 mm (0.69 in)
- Weight: 95 g (0.21 lb)

Shipping dimensions and weight (approximate):

- Height: 189 mm (7.51 in)
- Width: 90 mm (3.54 in
- Depth: 38 mm (1.50 in)
- Weight: 450 g (0.99 lb)

The QLogic Dual Port 10GbE SFP+ Embedded VFA has the following physical specifications:

Dimensions (approximate):

- Height: 60 mm (2.4 in)
- Width: 160 mm (6.3 in)
- Depth: 17 mm (0.7 in)

Operating environment

The adapter is supported in this environment:

- Temperature:
  - Operating: 0° - 55°C (32° - 113°F) at 0 - 914 m (0 - 3000 ft)
  - Storage: -43° - 73°C (-40° - 163°F) at 0 - 914 m (0 - 3000 ft)
- Relative humidity: 5% - 93% (non-condensing)

Agency approvals

The adapters have the following agency approvals:

- Safety: US, Canada, Europe
- EMI
- EMC
- EN55022
- EN55024
- EN60950 / CE
- EN 61000-3-2
- EN 61000-3-3
- IEC 950 CB Scheme
- FCC Part 15 Class A
- UL 1950
- CSA C22.2 950-95
- VCCI
- NZ AS3548 / C-tick
- RRL for MIC (KCC)
- BSMI
- UL 94-/V

Top-of-rack Ethernet switches

The following 10 Gb Ethernet top-of-rack switches are supported.

Table 6. 10Gb Ethernet Top-of-rack switches

Part number	Description
Switches mounted at the rear of the rack (rear-to-front airflow)	
7159A1X	Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)
7159B1X	Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)
7Z330O11WW	Lenovo ThinkSystem NE1064TO RackSwitch (Rear to Front, ONIE)
7159C1X	Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)
7159BR6	Lenovo RackSwitch G8124E (Rear to Front)
7159G64	Lenovo RackSwitch G8264 (Rear to Front)
7159DRX	Lenovo RackSwitch G8264CS (Rear to Front)
7159CRW	Lenovo RackSwitch G8272 (Rear to Front)
7159GR6	Lenovo RackSwitch G8296 (Rear to Front)
Switches mounted at the front of the rack (front-to-rear airflow)	
7159BF7	Lenovo RackSwitch G8124E (Front to Rear)
715964F	Lenovo RackSwitch G8264 (Front to Rear)
7159DFX	Lenovo RackSwitch G8264CS (Front to Rear)
7159CFV	Lenovo RackSwitch G8272 (Front to Rear)
7159GR5	Lenovo RackSwitch G8296 (Front to Rear)

For more information, see the Lenovo Press Product Guides in the 10Gb top-of-rack switch category:
https://lenovopress.com/networking/tor/10gb

Related publications

For more information, refer to these documents:

- Product web page
  http://shop.lenovo.com/us/en/systems/servers/options/systemx/networking/

- Announcement letter for the QLogic 8200 Dual Port 10GbE SFP+ VFA
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS112-219

- Announcement letter for the QLogic Dual Port 10GbE SFP+ Embedded VFA
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS112-144

- Lenovo ServerProven compatibility information for network adapters:
  http://www.lenovo.com/us/en/serverproven/xseries/lan/matrix.shtml

- IBM System Storage Interoperation Center (SSIC)
  http://ibm.com/systems/support/storage/ssic/interoperability.wss

- *Lenovo Networking Catalog*
  http://www.lenovo.com/images/products/system-x/pdfs/datasheets/
  lenovo_networking_catalog_ds.pdf

Related product families

Product families related to this document are the following:

- 10 Gb Ethernet Connectivity
- Ethernet Adapters

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

This document, TIPS0874, was created or updated on February 9, 2018.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
  https://lenovopress.lenovo.com/TIPS0874
- Send your comments in an e-mail to:
  comments@lenovopress.com

This document is available online at https://lenovopress.lenovo.com/TIPS0874.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at https://www.lenovo.com/us/en/legal/copytrade/.

The following terms are trademarks of Lenovo in the United States, other countries, or both:
Lenovo®
RackSwitch
ServerProven®
System x®
ThinkSystem®

The following terms are trademarks of other companies:

Intel® and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.