IBM Flex System FC5052 2-Port 16 Gb FC Adapter

User's Guide

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User's Guide

Note: Before using this information and the product it supports, read the general information in Appendix B, "Notices," on page 17, the *Safety Information* and *Environmental Notices and User Guide* documents on the IBM *Notices for Network Devices* CD, and the *Warranty Information* document that comes with the product.

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information (安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

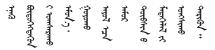Läs säkerhetsinformationen innan du installerar den här produkten.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen
canjbinj soengq cungj vahgangj ancien siusik.

مەزكۇر مەھسۇلاتنى ئورنىتىشتىن بۇرۇن بىخەتەرلىك ئۇچۇرلىرىنى ئوقۇپ چىقىڭ.

ཐོན་ཆས་འདི་བདེ་སྐྱིད་མ་བྱས་གོང་། སྐྱོར་གྱི་ཡིད་གཟབ་ བྱ་འདུ་མིན་ཡོད་པའི་འོད་སྐེར་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

ᡝᠯᡳ ᠵᠠᠰᡳᡤᠠᠨ ᠵᠠᡴᠠ ᠪᡝ ᠪᠠᠨᠵᡳᡥᠠ ᠴᡳ

Important:

Each caution and danger statement in this document is labeled with a number. This number is used to cross reference an English-language caution or danger statement with translated versions of the caution or danger statement in the *Safety Information* document.

For example, if a caution statement is labeled "Statement 1," translations for that caution statement are in the *Safety Information* document under "Statement 1."

Be sure to read all caution and danger statements in this document before you perform the procedures. Read any additional safety information that comes with the server or optional device before you install the device.

This device is intended for use with UL Listed IBM devices.

Statement 1:

DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:
- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Chapter 1. IBM Flex System FC5052 2-Port 16 Gb FC Adapter

The IBM Flex System FC5052 2-Port 16 Gb FC Adapter enables the installation of two 16 Gb ports of high-speed Fibre Channel in IBM Power Systems™ and IBM X-Architecture® compute nodes.

These ports interface to chassis switches or pass thru modules, enabling connections within and/or external to the chassis. IBM Flex System switches with 42 internal ports support up to 6 ports on this adapter. The firmware and drivers for Linux, Windows, and VMware for this two–port adapter are provided by Emulex, while the AIX driver and AIX tool support (for IBM Power Systems) are provided by IBM.

This *User's Guide* contains information and instructions for functionally installing the adapter, updating the firmware, and solving problems. See the documentation that came with the IBM Flex System compute node for information on how to physically install the adapter; then return to this *User's Guide* for information and instructions needed to complete the functional installation.

For information about the types of compatible devices available for IBM products, contact your IBM marketing representative or authorized reseller. For a list of supported optional devices, see http://www.ibm.com/servers/eserver/serverproven/compat/us/.

Related documentation

This *User's Guide* contains setup and installation instructions for the adapter and general information about the adapter, including how to configure, update, and troubleshoot the adapter, and how to get help.

In addition to this document, the following documentation is available:

- IBM Flex System compute node *User's Guides*

  These documents contain the hardware installation instructions for the adapter.

- *IBM Flex System Enterprise Chassis Installation and Service Guide*

  This document contains information about setting up, configuring, and troubleshooting the IBM Flex System Enterprise Chassis and its components.

- *IBM Flex System Chassis Management Module Command-Line Interface Reference Guide*

  This document explains how to use the Chassis Management Module command-line interface (CLI) to directly access management functions. The command-line interface also provides access to the text-console command prompt on each compute node through a Serial over LAN (SOL) connection.

- *IBM Flex System Chassis Management Module User's Guide*

  This document explains how to use the Chassis Management Module user interface to manage chassis components.

- *IBM Flex System Manager System Management Guide*

  This document explains how to use the IBM Flex System Manager user interface to manage chassis components.
- *Environmental Notices and User Guide*

  This document is provided on the IBM Notices for Network Devices CD, and it contains translated environmental notices.
- *Safety Information*

  This document is provided on the IBM Notices for Network Devices CD, and it contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the Safety Information document.
- *Warranty Information*

  This document comes with the adapter and contains information about the terms of the warranty.

For the most up-to-date product documentation for all of your IBM Flex System products, go to the IBM Flex System Information Center at http://publib.boulder.ibm.com/infocenter/flexsys/information/index.jsp.

Notices and statements in this document

The caution and danger statements in this document are also in the multilingual *Safety Information* document, which is provided on the IBM *Notices for Network Device* CD. Each statement is numbered for reference to the corresponding statement in your language in the *Safety Information* document.

The following notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Features and specifications

The IBM Flex System FC5052 2-Port 16 Gb FC adapter has the following features and specifications:

- Two independent 16 Gb KR ports (IBM Flex System switches with 42 internal ports support up to 6 ports on this adapter)
- 4 Gb, 8 Gb or 16 Gb FC link speeds (auto-negotiated)
- x1 to x8 PCIe interface at 2.5 GT/s, 5 GT/s, or 8 GT/s (auto-negotiated with system)
- ECC protection of high-density RAM (single-bit correction, double-bit detection)
- KR protocol support at 16 Gb
- Voltage specifications are 3.3 VAux and 12 V from the adapter connector
- Standard IBM size adapter form factor (84.8 mm x 96.7 mm)
- Non-volatile memory consisting of 256 Mbit Program Flash, 512 Kbit VPD EEPROM, and 256 Kbit error log EEPROM
- Parts and construction compliant to the European Union Directive of Restriction of Hazardous Substances (RoHS), and similar regulatory requirements for other countries.

Chapter 2. Installing the adapter

This chapter provides information and instructions for installing and configuring the adapter. See the documentation that came with the IBM compute node to install the adapter in the compute node; then, return to this *User's Guide* for the information and instructions needed to complete the installation.

Installing device drivers

For device driver installation instructions, refer to the following operating system-specific instructions or documentation.

AIX device driver software

Note: This section applies only to IBM Power Systems compute nodes.

This adapter device driver is included in the following AIX releases or later. Refer to the installation instructions for the specific AIX release to install or update driver software.

- AIX V7.1.B with the 7100-07 Technology Level and Service Pack 6, or later
- AIX V7.1 with the 7100-01 Technology Level AP
- AIX 7.1 with the 7100-02 Technology Level
- AIX V6.1 with the 6100-08 Technology Level
- AIX 6.1.N with the 6100-07 Technology Level and Service Pack 6, or later
- AIX 5.3

Note: Assignment to the VIOS requires VIOS 2.2.1.6, 2.2.2.0 or later.

- IBM i 7.1 with i 7.1.0 machine code: RS710-10 OS and (RS710-F LIC or Technology Refresh 3 (TR PTF Group SF99707 Level 5)) and Cumulative Package for 7.1 C2279710, or later
- IBM i 6.1 with i 6.1.1 machine code - i 6.1.1: RS610-10 OS and RS611-J LIC and Cumulative Package: C2305610, or later

Linux device driver software

This adapter is supported in the following Linux distributions or later versions.

- Red Hat Enterprise Linux 6.1 (PPC-64)
- Red Hat Enterprise Linux 6 (x86-64) - both KVM support and no KVM
- Red Hat Enterprise Linux 6 (Server) 64-bit with KVM support
- Red Hat Enterprise Linux 5.6 (PPC-64)
- Red Hat Enterprise Linux 5 (x86-64)
- Red Hat Enterprise Linux 5 - Xen kernels (x86-64)
- Red Hat Enterprise Linux 5 (Server) 64-bit
- Red Hat Enterprise Linux 5 (Server) - Xen kernel (64-bit)

- SUSE Linux Enterprise Server 11 (x86-64) with Service Packs 1 and 2 only
- SUSE Linux Enterprise Server 11 - Xen kernels (x86-64) with Service Packs 1 and 2 only
- SUSE Linux Enterprise Server 11 (PPC-64)
- SUSE Linux Enterprise Point of Service 11 (SLEP OS)
- SUSE Linux Enterprise Server 10 (x86-64) with Service Packs 3 and 4 only
- SUSE Linux Enterprise Server 10 - Xen kernels (x86-64) with Service Packs 3 and 4 only
- SUSE Linux Enterprise Server 10 SP4 (PPC-64)

For IBM Power Systems compute nodes, refer to the installation instructions for your specific Linux distribution to install driver software.

For IBM X-Architecture compute nodes, refer to the installation instructions available at http://www.emulex.com/downloads/ibm.html.

VMware device driver software

Note: This section applies only to IBM X-Architecture compute nodes.

This adapter is supported in the following VMware versions.

- ESX 4.1 or later
- ESXi 4.1, 4.1.1, and 4.1.2
- ESXi 5.0
- ESXi 5.1

Refer to the installation instructions available at http://www.emulex.com/downloads/ibm.html.

Windows device driver software

Note: This section applies only to IBM X-Architecture compute nodes.

This adapter is supported in the following Window versions.

- Windows Server 2008 (Datacenter/Enterprise/Standard/Web) 64-bit only
- Windows Server 2008 R2 (x86-64 only)
- Windows Server 2008 HPC Edition 2008 (x86-64 only)
- Windows Server 2008 Small Business Premium/Standard Edition (x86-64 only)
- Windows Server 2012 (x86-64 only)

Refer to the installation instructions available at http://www.emulex.com/downloads/ibm.html.

Other device driver software

This adapter is supported with the IBM 4690 Operating System. Refer to the installation instructions for your specific operating system to install the driver software.

Managing the adapter

For IBM Power Systems compute nodes, refer to the documentation for your specific operating system regarding management of the adapter's features and functions.

For IBM X-Architecture compute nodes, the adapter management information is provided in the following application and utilities documentation:

- *OneCommand. Manager Application User Manual*
- *Offline and Online Adapter Management Utilities User Manual*

Boot from SAN information is available in the *Boot for the Fibre Channel Protocol User Manual* [this product is FC only].

The documentation is available at http://www.emulex.com/downloads/ibm.html.

Chapter 3. Updating the firmware

This chapter contains information and instructions for updating the adapter firmware.

Important: Installing the wrong firmware or device-driver update might cause the network adapter or switch to malfunction. Before you install a firmware or device-driver update, read any readme and change history files that are provided with the downloaded update. These files contain important information about the update and the procedure for installing the update, including any special procedure for updating from an early firmware or device-driver version to the latest version.

Determining the adapter firmware level and upgrading adapter firmware

AIX

Note: This section applies only to IBM Power Systems compute nodes.

Diagnostics are used to determine the adapter firmware level and to upgrade the adapter firmware. AIX systems can use either stand-alone diagnostics or AIX concurrent diagnostic utilities. Systems running other operating systems have the option to run the AIX stand-alone diagnostics or utilities provided for the specific operating system.

The AIX-based stand-alone diagnostics are available from the IBM website. Boot the diagnostics from a CD drive or from an AIX NIM server if the compute node cannot boot to an operating system, no matter which operating system is installed. Run AIX concurrent diagnostics if AIX is functioning instead of the stand-alone diagnostics. Refer to your system's documentation on running the diagnostic program.

Linux

For IBM Power Systems compute nodes, refer to the instructions on using the ethtool -f command in the operating system documentation for your specific Linux distribution for information on how to determine the adapter firmware level and upgrade the firmware.

For IBM X-Architecture compute nodes, refer to the following application and utilities documentation for information on determining the adapter firmware level and upgrading the adapter firmware.

- *OneCommand. Manager Application User Manual*
- *Offline and Online Adapter Management Utilities User Manual*

The documentation is available at http://www.emulex.com/downloads/ibm.html.

VMware

Note: This section applies only to IBM X-Architecture compute nodes.

Refer to the following application and utilities documentation for information on determining the adapter firmware level and upgrading the adapter firmware.

- *OneCommand. Manager Application User Manual*
- *Offline and Online Adapter Management Utilities User Manual*

The documentation is available at http://www.emulex.com/downloads/ibm.html.

Windows

Note: This section applies only to IBM X-Architecture compute nodes.

Refer to the following application and utilities documentation for information on determining the adapter firmware level and upgrading the adapter firmware.

- *OneCommand. Manager Application User Manual*
- *Offline and Online Adapter Management Utilities User Manual*

The documentation is available at http://www.emulex.com/downloads/ibm.html.

Obtaining the latest level of adapter firmware

For IBM Power Systems compute nodes, the latest level of IBM-supported adapter firmware can be downloaded from the IBM website. Go to Support and Downloads and follow the menu selections to locate the specific adapter firmware.

For IBM X-Architecture compute nodes, for information on upgrading the adapter firmware, refer to the following application and utilities documentation:

- *OneCommand Manager Application User Manual*
- *Offline and Online Adapter Management Utilities User Manual*

The documentation is available at http://www.emulex.com/downloads/ibm.html.

Chapter 4. Solving problems

If you cannot locate and correct a problem by using the information in this section, see Appendix A, "Getting help and technical assistance," on page 13.

Running POST

To ensure that it is fully operational, the adapter processes a series of tests during power-up or a restart (power-on self-test, or POST). These tests take approximately 1 minute to complete. The management module reads the test results and displays them for you. During normal operation, these tests are completed without error, and the green OK LED is lit. However, if the adapter fails POST, the amber adapter error LED and the system-error LED on the chassis are lit.

Parts listing

Replaceable components are of three types:

- **Tier 1 customer replaceable unit (CRU)**: Replacement 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 customer replaceable unit (CRU)**: You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **Field replaceable unit (FRU)**: FRUs must be installed only by trained service technicians.

For information about the terms of the warranty, see the *Warranty Information* document.

The replaceable components in the following table are Tier 1 CRUs. If other components require replacement, see the documentation that came with those devices for instructions.

Part	CRU number (Tier 1)
IBM Flex System FC5052 2-Port 16 Gb FC Adapter	95Y2389

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:
* Check all cables to make sure that they are connected.
* Check the power switches to make sure that the system and any optional devices are turned on.
* Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system.
* Go to the IBM support website at http://www.ibm.com/supportportal/ to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/supportportal/ and follow the instructions.

Getting help and information from the World Wide Web

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems. For information about which products are supported by Support Line in your country or region, see http://www.ibm.com/services/supline/products/.

For more information about Support Line and other IBM services, see http://www.ibm.com/services/, or see http://www.ibm.com/planetwide/ for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

You can receive hardware service through your IBM reseller or IBM Services. To locate a reseller authorized by IBM to provide warranty service, go to http://www.ibm.com/partnerworld/ and click **Find Business Partners** on the right side of the page. For IBM support telephone numbers, see http://www.ibm.com/planetwide/. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路 7 號 3 樓
電話：0800-016-888

IBM Taiwan product service contact information:
    IBM Taiwan Corporation
    3F, No 7, Song Ren Rd.
    Taipei, Taiwan
    Telephone: 0800-016-888

Appendix B. Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

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   IBM Corporation
   North Castle Drive
   Armonk, NY 10504-1785
   U.S.A.

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at http://www.ibm.com/legal/copytrade.shtml

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or registered trademarks of Intel Corporation or its subsidiaries
in the United States and other countries.

Java and all Java-based trademarks and logos are trademarks or registered
trademarks of Oracle and/or its affiliates.

Linux is a registered trademark of Linus
Torvalds in the United States, other countries, or both.

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

UNIX is a registered trademark of The Open Group in the United States and other countries.

Important notes

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

IBM makes no representation or warranties regarding non-IBM products and services that are ServerProven®, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

This product is not intended to be connected directly or indirectly by any means whatsoever to interfaces of public telecommunications networks, nor is it intended to be used in a public services network.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

Attention: This is an EN 55022 Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Responsible manufacturer:
 International Business Machines Corp.
 New Orchard Road
 Armonk, New York 10504
 914-499-1900

European Community contact:
 IBM Deutschland GmbH
 IBM Technical Regulations, Department M372
 IBM-Allee 1,71139 Ehningen, Germany
 Telephone: +49 7032 15 2941
 Email: lugi@de.ibm.com

Germany Class A statement

Deutschsprachiger EU Hinweis:

Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden: "Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

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Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

Japan VCCI Class A statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。   VCCI–A

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions.

Korea Communications Commission (KCC) statement

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서 판매자 또는 사용자는 이 점을 주의하시기
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적으로 합니다.

This is electromagnetic wave compatibility equipment
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Russia Electromagnetic Interference (EMI) Class A statement

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать радиопомехи, для
снижения которых необходимы дополнительные меры

People's Republic of China Class A electronic emission statement

中华人民共和国 "A类" 警告声明

声 明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，
可能需要用户对其干扰采取切实可行的措施。

Taiwan Class A compliance statement

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這是甲類的資訊產品，在
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種情況下，使用者會被要
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