



# The Mellanox ConnectX-3 FDR VPI IB/E Adapter and Mellanox ConnectX-3 Dual Port 10 GbE InfiniBand Adapter for IBM System x deliver industry-leading performance and low-latency data transfer

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## At a glance

The Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM® System x® (00D9550) and Mellanox ConnectX-3 10 GbE Adapter (00D9690) provide an ideal solution for all servers requiring high-performance, low-latency data transfer in LAN connectivity for mission-critical applications. These network adapters provide support for InfiniBand networking with optical or copper connectivity.

High-performance computing (HPC) solutions require high-bandwidth, low-latency components with CPU offloads to get the highest server efficiency and application productivity. The Mellanox ConnectX-3 FDR VPI IB/E and Dual Port 10 GbE InfiniBand adapters for IBM system x deliver the I/O performance that meets these requirements.

Key benefits:

- Low-profile adapter form factor
- Ports: Two 4-lane VPI (56 Gbps InfiniBand) interfaces (auto-negotiation DDR and SDR)
- Two external QSFP connectors
- ASIC: Mellanox ConnectX-3
- Host interface: x8 PCI Express® 3.0 (up to 5 GT/s)

## Overview

### **Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x (00D9550)**

### **Mellanox ConnectX-3 10 GbE Adapter for IBM System x (00D9690)**

High-performance computing (HPC) solutions require high-bandwidth, low-latency components with CPU offloads to get the highest server efficiency and application productivity. The Mellanox ConnectX-3 FDR VPI IB/E and Dual Port 10 GbE InfiniBand adapters for IBM system x deliver the I/O performance that meets these requirements.

InfiniBand ConnectX-3 delivers low latency, high bandwidth, and computing efficiency for performance-driven server and storage clustering applications. Efficient computing is achieved by offloading from the CPU routine activities, which makes more processor power available for the application. Network protocol processing and

data movement impacts, such as InfiniBand RDMA and Send/Receive semantics, are completed in the adapter without CPU intervention. The ConnectX-3 advanced acceleration technology enables higher cluster efficiency and scalability of up to tens of thousands of nodes.

ConnectX-3 with Virtual Intelligent Queuing (Virtual-IQ) technology provides dedicated adapter resources and guaranteed isolation and protection for virtual machines within the server. I/O virtualization with ConnectX-3 gives data center managers better server utilization and LAN and SAN unification while reducing cost, power, and cable complexity.

Mellanox delivers some of the industry's most robust end-to-end InfiniBand and Ethernet portfolios. Their mature, field-proven product offerings include solutions for I/O, switching, and advanced management software, making them a partner that can satisfy many of your high-performance computing and data center connectivity needs.

### **Features of the 56 Gbps InfiniBand and 10 GbE adapters**

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- High performance and low latency
  - Proven scalability for tens-of-thousands of nodes
  - Maximum return-on-investment
- High efficiency, maintaining balanced system to ensure high productivity
  - No artificial bottlenecks, performance match for PCIe 2.0
  - Proven to fulfill multiprocess networking requirements
  - Designed for minimal performance degradation
- Performance-driven architecture
  - MPI latency 1us, 6.6 Gbps with 56 Gbps InfiniBand (bidirectional)
  - MPI message rate of greater than 56 million per second
- Superior application performance
  - Can increase HPC applications performance from 30% to over 100%
  - Doubles the storage throughput, reducing backup time in half

**Warranty:** One year limited warranty<sup>1</sup>. When installed in an IBM System x server, these cards assume your system's base warranty and any IBM ServicePac® upgrade.

<sup>1</sup> For information on the IBM Statement of Limited Warranty, visit <http://www.ibm.com/systems/support>

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

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## **Key prerequisites**

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A selected System x server with an available PCI Express expansion slot.

**Note:** Each FDR VPI IB/E adapter (00D9550) requires one 3U bracket (00D9684) to be ordered, and each 10 GbE adapter (00D9690) requires one 3U bracket (00D9687) to be ordered. This allows you to select the proper bracket, based on your particular configuration.

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## Planned availability date

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- February 15, 2013: Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x (00D9550)
- February 26, 2013: Mellanox ConnectX-3 10 GbE Adapter for IBM System x (00D9690)

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## Description

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### **Mellanox ConnectX-3 FDR VPI IB/E Adapter (00D9550) and Mellanox ConnectX-3 10 GbE Adapter (00D9690)**

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These high-performance, dual-port network adapters for 40 Gbps networks with protocol offloads enable maximum bandwidth with minimum use of CPU resources to realize a higher level of performance.

#### ***Specifications***

- Low-profile adapter form factor
- Ports: Two 4-lane QDR (40 Gbps InfiniBand) interfaces (auto-negotiation to DDR and SDR)
- Two external QSFP connectors
- ASIC: Mellanox ConnectX-3
- Host interface: x8 PCI Express 2.1 (up to 5 GT/s)

#### ***InfiniBand specifications***

- IBTA Specification 1.2.1 compliant
- RDMA, Send/Receive semantics
- Hardware-based congestion control
- 16 million I/O channels
- 256 to 4 KB MTU, 1 GB messages

#### ***Enhanced InfiniBand specifications***

- Hardware-based reliable transport
- Hardware-based reliable multicast
- Extended Reliable Connected transport
- Enhanced Atomic operations
- Fine grained end-to-end quality of server (QoS)

#### ***Hardware-based I/O virtualization***

- Address translation and protection
- Multiple queues per virtual machine

#### ***Additional CPU offloads***

- Intelligent interrupt coalescence
- Compliant with Microsoft™ RSS and NetDMA

Features:

- Investment protection, ease-of-use, and compatibility

## Compatibility

- Support for popular network operating systems
- ServerProven® testing, which verifies that the servers and the Ethernet adapters will function properly

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## Product positioning

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None

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## Product number

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### Single Entity Offerings (SEOs)

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

Description	Type	Model	Feature	SEO	Part Number
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	3331	HC1	A3PN	00D9550	00D9550
Mellanox ConnectX-3 10GbE Adapter for IBM System x	3331	HC1	A3PM	00D9690	00D9690

The following are features already announced for the 3331, 7143, 7147, 7158, 7160, 7382, 7383, 7912, 7914, 7915, 7944, 7945, 8722 machine type:

Description	MT	Model	Feature
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	3331	HC1	A3PM
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7143	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7147	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7158	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7160	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7382	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7383	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7912	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7914	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7915	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7944	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	7945	AC1 MC1	
Mellanox ConnectX-3 10 GbE Adapter for IBM System			

x	8722	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	3331	HC1	A3PN
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7143	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7147	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7158	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7160	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7382	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7383	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7912	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7914	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7915	MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7944	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	7945	AC1 MC1	
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	8722	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7143	AC1 MC1	A3WF
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7147	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7158	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7160	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7382	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7383	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7912	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7914	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7915	MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7944	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	7945	AC1 MC1	
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	8722	AC1 MC1	

3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7143	AC1	A3WG
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7147	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7158	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7160	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7382	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7383	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7912	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7914	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7915	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7944	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	7945	AC1	
		MC1	
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	8722	AC1	
		MC1	

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### 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=113-008>

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### 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>

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### 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

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### Services

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#### 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

<http://www.ibm.com/services/>

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

<http://www.ibm.com/services/learning/index.html>

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

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## **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 is 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 will 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

<http://www.ibm.com/servers/eserver/xseries/services.html>

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## **Technical information**

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### **Specified operating environment**

#### ***Physical specifications***

#### **Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x (00D9550)**

- Approximate height: 168 mm (6.60 in)
- Approximate width: 69 mm (2.71 in)
- Approximate depth: 17.3 mm (0.6875 in)
- Approximate weight: 208 g (0.46 lb)

### **Shipping dimensions**

- Approximate height: 189 mm (7.51 in)
- Approximate width: 90 mm (3.54 in)
- Approximate depth: 38 mm (1.50 in)
- Approximate weight: 450 g (0.99 lb)

### **Mellanox ConnectX-3 10 GbE Adapter for IBM System x (00D9690)**

- Approximate height: 168 mm (6.60 in)
- Approximate width: 69 mm (2.71 in)
- Approximate depth: 17.3 mm (0.6875 in)
- Approximate weight: 208 g (0.46 lb)

### **Shipping dimensions**

- Approximate height: 189 mm (7.51 in)
- Approximate width: 90 mm (3.54 in)
- Approximate depth: 38 mm (1.50 in)
- Approximate weight: 450 g (0.99 lb)

### **Agency approvals**

- EN55022
- EN55024
- EN60950-1
- EN 61000-3-2
- EN 61000-3-3
- IEC 60950-1
- FCC Part 15 Class A
- UL 60950-1
- CSA C22.2 60950-1-07
- VCCI
- NZ AS3548 / C-tick
- RRL for MIC (KCC)
- BSMI (EMC)
- IECS-003:2004 Issue 4

### **Standards**

None

### **Operating environment**

- Operating temperature:
  - 0°C to 55°C (-32°F to 131°F) at 0 to 914 m (0 to 3,000 ft)
  - 10°C to 32°C (50°F to 90°F) at 914 to 2133 m (3,000 to 7,000 ft)
- Relative humidity: 20% to 80% (noncondensing)
- Maximum altitude: 2,133 m (7,000 ft)
- Air flow: 200 LFM at 55°C

Operating power:

- Power consumption (typical): 8.8 W typical (both ports active)



- Power consumption (maximum): 9.4 W maximum for passive cables only, 13.4 W maximum for active optical modules

## **Management and tools**

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- Interoperable with third-party subnet managers
- Firmware and debug tools (MFT and IBDIAG)

## **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 adapters must be installed in a selected System x server system:

- 7944 x3550 M3 Ref2
- 7945, 7949, 5454 x3650 M3 Ref2
- 7382 x3300 M4
- 7383 x3500 M4
- 7160 x3530 M4
- 7914 x3550 M4
- 7158 x3630 M4
- 7915 x3650 M4
- 8722, 8733 x3750 M4
- 7147 x3690 X5 Refresh
- 7143 x3850 X5 Refresh
- 7912 dx360 M4 (Air Cooled)

## **Software requirements**

The Mellanox ConnectX-3 FDR VPI IB/E Adapter and Mellanox ConnectX-3 10 GbE Adapter support the following major operating systems:

- Windows™ 2008 R2
- Red Hat Enterprise Linux™ 5.8 x86\_64
- Red Hat Enterprise Linux 6.3 x86\_64
- SUSE Linux Enterprise Server 10 (SP4) x86\_64
- SUSE Linux Enterprise Server 11 (SP2) x86\_64
- VMware 4.1 ESX U2
- VMware 4.1 ESXi U2
- VMware 5.0 ESXi U2
- VMware 5.1 64-Bit
- VSphere 5.0

**Note on VMware Support:** VMware is supported on Mellanox Connect X-3 10 GbE Adapter for IBM System x (00D9690), and on Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x (00D9550) only in the Ethernet mode.

## **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***

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#### ***Customer responsibilities***

The Mellanox ConnectX-3 FDR VPI IB/E Adapter and the Mellanox Connect X-3 10 GbE Adapter products are designated as customer setup. Customer installation instructions are shipped with each option part.

#### ***Cable orders***

None

#### ***Installability***

The Mellanox ConnectX-3 FDR VPI IB/E Adapter or Mellanox ConnectX-3 10 GbE Adapter requires about 20 minutes for installation.

Installation includes unpacking, setting up, and powering on.

### ***Packaging***

#### **Mellanox ConnectX-3 FDR VPI IB/E and 10 GbE Adapters**

Product	Package description	Boxes
Mellanox ConnectX-3 FDR VPI IB/E Adapter or Mellanox ConnectX-3 10GbE Adapter	Option Unit Box	1

#### Contents:

Mellanox adapter  
Quick install guide  
CD with pub  
Important Notices Flyer

The Mellanox adapters are shipped as a single package. Other items are in zipped bags.

#### **Retail only**

#### *Packaging dimensions/weight*

- Single box (HxDxW): 189 mm (7.51 in) x 90 mm (3.54 in) x 38 mm (1.50 in)
- Package weight: 450 g (0.99 lb)

**Note:** All measurements are approximate.

## **Supplies**

**For end users:** Mellanox ConnectX-3 FDR VPI IB/E Adapter or Mellanox ConnectX-3 10 GbE Adapter can be purchased through dealers.

## **Security, auditability, and control**

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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.

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## **IBM Electronic Services**

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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**

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**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>

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## Terms and conditions

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### **Field installable features**

Yes

### **Warranty period**

One year.

- Warranty period: 1 yr.
- 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 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.

### **FRU replacement**

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- Mellanox ConnectX-3 FDR VPI IB/E Adapter - 00D9552
- Mellanox ConnectX-3 10 GbE Adapter - 00D9692

### **Customer setup**

Yes

## Machine code

No license terms apply.

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## Prices

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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.

Description	Part number
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	00D9550
Mellanox ConnectX-3 10GbE Adapter for IBM System x	00D9690

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

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	HC1	A3PM	MES
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	HC1	A3PN	MES

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1 MC1	A3PM	Initial Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1 MC1	A3PN	Initial Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1 MC1	A3WF	Initial Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1 MC1	A3WG	Initial Initial

The following are features already announced for the 7147 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

The following are features already announced for the 7160 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

The following are features already announced for the 7382 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

The following are features already announced for the 7383 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

The following are features already announced for the 7912 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	MC1	A3PN	Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	MC1	A3WF	Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

The following are features already announced for the 7944 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial



The following are features already announced for the 7945 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

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

Description	Model Number	Feature Number	Initial/MES/Both/Support
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	AC1	A3PM	Initial
	MC1		Initial
Mellanox ConnectX-3 FDR VPI IB/E Adapter for IBM System x	AC1	A3PN	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	AC1	A3WF	Initial
	MC1		Initial
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	AC1	A3WG	Initial
	MC1		Initial

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