

# HP InfiniBand Mezzanine HCA Cards and Mellanox InfiniBand PCI HCA Cards Read This First: Documentation Roadmap



This roadmap describes how to access the documentation providing information about the Mellanox and HP InfiniBand host channel adapters (HCAs) and mezzanine cards that are used in some HP InfiniBand fabrics.

This document provides links to the Mellanox data sheets describing various Mellanox InfiniBand host channel adapter cards (HCAs) and HP mezzanine cards. You can link directly to any of the documentation here to provide you with more information about your product.

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## Revision History

| Revision Date  | Changes       |
|----------------|---------------|
| September 2008 | First edition |

# Mellanox InfiniBand HCA Overview

One of the features of an InfiniBand fabric is that individual components can contain an InfiniBand host channel adapter (HCA) or a mezzanine HCA. The components that contain HCAs are visible and manageable parts of your InfiniBand fabric. The HCA may be an integrated circuit embedded on the circuit board of a component (such as a storage array controller) or it can be a PCI card that is installed in a server. In an HP Cluster Platform configuration, the HCA can be a single-port or dual-port InfiniBand PCI card.

These Mellanox HCAs were installed by HP, but it is assumed that you are familiar with the Mellanox HCAs and have the knowledge necessary to maintain and troubleshoot the HCA and mezzanine card technology. This document contains links to the documentation that describe the various Mellanox and HP HCAs.

All of the documentation referenced in this document is currently available on the [docs.hp.com](http://docs.hp.com) and [Mellanox](http://mellanox.com) websites. If you have any comments about this document, please send them to: <http://docs.hp.com/en/feedback.html>

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**NOTE:** For technical support and updates, contact your HP representative.

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## HP 4X DDR InfiniBand Mezzanine HCAs (448262-B21 and 410533-B21)

The HP 4X DDR InfiniBand mezzanine host channel adapters (HCAs) for HP BladeSystem c-Class is based on the ConnectX technology developed by Mellanox. These HCAs are only supported by HP in HP Cluster Platform configurations.

The features for the HP 4X DDR InfiniBand dual-port mezzanine HCA include:

- Low latency and high bandwidth
- PCI Express revision 2.0x8 support
- 20 Gb/sec InfiniBand port
- IBTA version 1.2 compatible
- Quality of Service (QoS) support
- RDMA support
- Supported protocols include MPI, SDP, IPoIB, and iSER

The features for the HP 4X DDR InfiniBand single-port mezzanine HCA include:

- Low latency and high bandwidth
- PCI Express revision 1.0a support
- 20 Gb/sec InfiniBand port
- IBTA version 1.2 compatible
- Quality of Service (QoS) support
- RDMA support
- Supported protocols include MPI, SDP, IPoIB, and iSER

The following table provides links to the documentation and firmware for these HCAs.

| HCA Documentation   | HP Part Number/<br>Firmware Downloads |
|---|---------------------------------------|
| <a href="#">HP 4X DDR InfiniBand Single-Port Mezzanine HCA for HP BladeSystem c-Class</a> | <a href="#">448262-B21</a>            |
| <a href="#">HP 4X DDR InfiniBand Dual-Port Mezzanine HCA for HP BladeSystem c-Class</a>   | <a href="#">410533-B21</a>            |

**NOTE:** For technical support and updates, contact your HP representative.

## Mellanox ConnectX IB InfiniBand HCAs (448397-B21 and 483514-B21)

The Mellanox ConnectX IB InfiniBand host channel adapters (HCAs) provide low-latency and high-bandwidth for server and storage clustering applications.

The ConnectX IB InfiniBand HCA features include:

- 1.2 us MPI ping latency
- 10 Gb/sec, 20 Gb/sec, or 40 Gb/sec InfiniBand ports
- CPU offload of transport operations
- End-to-end QoS and congestion control
- Hardware-based I/O virtualization
- TCP/UDP/IP stateless offload

The following table provides links to the documentation and firmware for these HCAs.

| HCA Documentation  | HP Part Number/<br>Firmware Downloads |
|--|---------------------------------------|
| <a href="#">HP InfiniBand 4X DDR ConnectX PCI-E Dual-Port HCA</a>      | <a href="#">448397-B21</a>            |
| <a href="#">HP InfiniBand 4X DDR ConnectX PCI-E Gen2 Dual-Port HCA</a> | <a href="#">483514-B21</a>            |

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# Mellanox InfiniHost III Ex Dual-Port InfiniBand HCAs with PCI Express x8 (483513-B21, 409376-B21, 380298-B21)

The Mellanox InfiniHost III Ex Dual-Port 4X InfiniBand host channel adapters (HCAs) connect to the host system through a PCI Express x8 interface. Single-data rate (SDR) InfiniHost III Ex cards support dual 10Gb/sec InfiniBand connections. Double-data rate (DDR) versions support dual 20 Gb/sec InfiniBand connections.

The InfiniHost III Ex Dual-Port InfiniBand HCAs with PCI Express x8 features include:

- Dual 10 Gb/sec or 20 Gb/sec 4X InfiniBand ports
- IBTA version 1.2 compatible
- Copper InfiniBand connectors (MicroGigaCN) with media detect circuit for optional fiber media adapter
- Linux and Windows drivers
- InfiniBand Compatible Verbs API
- Linux management and applications package available
- Various upper layer protocols
- ROHS-R5 compliant

The following table provides links to the documentation and firmware for these HCAs.

| <b>HCA Documentation</b>  | <b>HP Part Number/<br/>Firmware Downloads</b> |
|---|---|
| <a href="#">HP InfiniBand 4X DDR PCI-E 0 Memory Dual Port HCA</a> | <a href="#">483513-B21</a>                    |
| <a href="#">HP InfiniBand 4X DDR PCI-E Dual-Port HCA</a>          | <a href="#">409376-B21</a>                    |
| <a href="#">HP InfiniBand 4X PCI-E Dual-Port HCA</a>              | <a href="#">380298-B21</a>                    |

**NOTE:** For technical support and updates, contact your HP representative.

## Mellanox InfiniHost Dual-Port 10 Gb/sec InfiniBand HCAs with PCI-X (380299-B21)

The Mellanox InfiniHost Dual-Port 10 Gb/sec InfiniBand HCAs with PCI-X are dual-port 10 Gb/sec PCI-X HCAs designed for full performance on high-speed InfiniBand fabrics. Their design allows for 10 Gb/sec database or HPC clustering, and provide the high throughput and low CPU utilization required by those applications.

The Mellanox InfiniHost Dual-Port 10 Gb/sec InfiniBand HCAs with PCI-X features include:

- Dual 10 Gb/sec 4X InfiniBand ports
- Support for millions of queue pairs
- Memory options of 128 or 256 MB of DDR memory
- Support for 8 data VLs plus the VL15 Management Lane
- Sophisticated Quality of Service (QoS) features
- Multicast, atomic, and large message support
- Hardware support for UC, UD, RC, and RAW mechanisms

The following table provides links to the documentation and firmware for this HCA.

| HCA Documentation                                 | HP Part Number/<br>Firmware Download |
|---|--------------------------------------|
| <a href="#">InfiniBand 4X PCI-X Dual-Port HCA</a> | <a href="#">380299-B21</a>           |

**NOTE:** For technical support and updates, contact your HP representative.

# Mellanox InfiniHost III Lx Single-Port InfiniBand HCAs with PCI Express (431038-B21 and 431039-B21)

The Mellanox InfiniHost III Lx single-port InfiniBand host channel adapters (HCAs) with PCI Express connect to the host system through a PCI Express interface. The single-data rate (SDR) cards support 10 Gb/sec InfiniBand connections. The double-data rate (DDR) cards support 20 Gb/sec connections. These cards also feature remote direct memory access (RDMA), hardware transport, and advanced per queue pair (QP) QoS services.

Additional Mellanox InfiniHost III Lx single-port InfiniBand HCA with PCI Express features include:

- 10 Gb/sec or 20 Gb/sec 4X InfiniBand port
- Integrated Serializer/Deserializer (SerDes)
- InfiniRISC embedded RISC processors
- PCI Express revision 1.0a compatible card
- PCI Express x4 (10 + 10 Gb/sec full duplex) interface (431038-B21)
- PCI Express x8 (20 + 20 Gb/sec full duplex) interface (431039-B21)
- IBTA version 1.2 compatible
- Copper InfiniBand connectors (MicroGigaCN) with media detect circuit for optional fiber media adapter
- Linux and Windows drivers
- InfiniBand Compatible Verbs API
- Linux management and applications package available
- Various upper layer protocols
- ROHS-R5 compliant

The following table provides links to the documentation and firmware for these HCAs.

| HCA Documentation  | HP Part Number/<br>Firmware Downloads |
|--|---------------------------------------|
| <a href="#">HP InfiniBand 4X SDR PCI-E Single-Port HCA</a> | <a href="#">431038-B21</a>            |
| <a href="#">HP InfiniBand 4X DDR PCI-E Single-Port HCA</a> | <a href="#">431039-B21</a>            |

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## HP InfiniBand Information

The following websites provide more information on HP InfiniBand products:

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**Link/Description**

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[Mellanox website](#)

Check the Mellanox website for potential updates between releases of this document.

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[HP BladeSystem Adapters and Mezzanines](#)

This site provides information on the full range of BladeSystem adapters and mezzanines available from HP for BladeSystem configurations.

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[High Performance Computing - Cluster Platform website](#)

HP website providing the latest documentation for High Performance Computing hardware and software products (Cluster Platform products, cabling tables, interconnect and firmware information, cable management guides, and SVA).

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[Cisco website](#)

See the Cisco website for more information Cisco InfiniBand products.

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[Voltaire website](#)

See the Voltaire website for information about Voltaire InfiniBand products.

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## Cluster Platform InfiniBand Information

The following websites provide more information about HP Cluster Platform InfiniBand products:

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**Link/Description**

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[InfiniBand Support for HP ProLiant and HP Integrity Servers](#)

Provides information on the complete line of InfiniBand products supported by HP.

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[HP Cluster Platform products](#)

Provides the latest information on the HP clustering technology and available configurations.

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[HP BladeSystem Adapters and Mezzanines](#)

Provides information on the full range of BladeSystem adapters and mezzanines available from HP for BladeSystem configurations.

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[High Performance Computing - Cluster Platform Documentation](#)

Provides links to the Cluster Platform documentation set.

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Contact your local HP sales or support representative if you need additional information.

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