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OCP
SUMMIT

Multi-mode OCP NIC 3.0 card Hardware management

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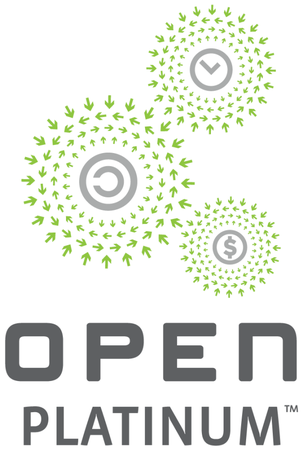


OCP NIC 3.0 card HW

SERVER

1. OCP NIC 3.0 introduces new Hardware management challenges
2. OCP NIC 3.0 standard allows NIC cards to be used in multiple platform types:
   a. Single Socket Single host
   b. Multi-socket Single host
   c. Multi-Host servers

Specifications

Self-adjusting configuration

1. OCP NIC 3.0 slots provide system type information to OCP NIC 3.0 over 3 signals called BIF[2:0]
2. OCP NIC 3.0 cards provide card's capabilities using 4 signals PRSTNT[3:0] on each connector
3. OCP NIC 3.0 card provides additional information via FRU EEPROM

The above combination yields a deterministic operating mode for the OCP NIC 3.0 compliant card.

OCP NIC 3.0 management challenges

1. OCP NIC 3.0 card that supports different platforms will adapt its operating mode
2. Exposing correct operating mode to hosting system mandates the card to adapt its functional-mode and management-model per the system into which it is installed

Managing NIC in a multi-Host server

Multi-Host server uses multiple PCIe connections to the same NIC, each used by a different host

- Each host server boots independently and uses its own OS

Managing NIC in a Multi-Socket server

1. Multi-socket server uses multiple PCIe connections to the same NIC
2. Multi-socket server is a single server and should be managed as such
   - Single-host server is managed by a single BMC
   - Single-host server runs a single OS

Enabling all modes on the same NIC

Multi-Host capable OCP NIC 3.0 cards based on ConnectX devices can:

1. Support Single socket single-host
2. Support Mellanox Multi-Host® management technology *
3. Support Mellanox Socket Direct® management technology for multi-socket servers **

* Multiple patents

** Patent pending

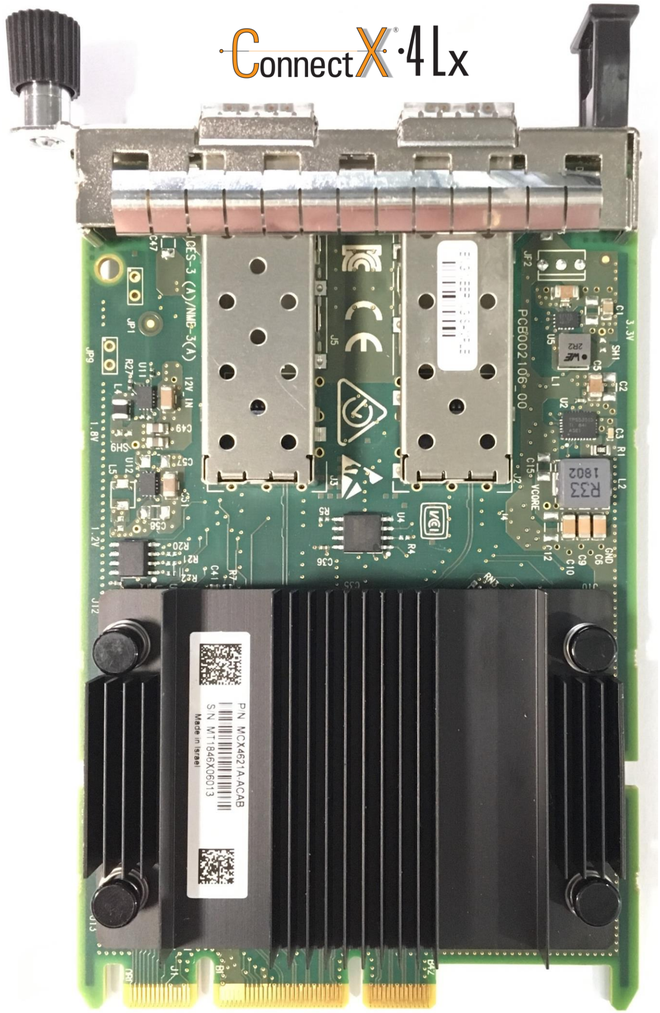
Minimizing Hardware inventory

Using an OCP NIC 3.0 compliant card allows to not require customization during installation by:

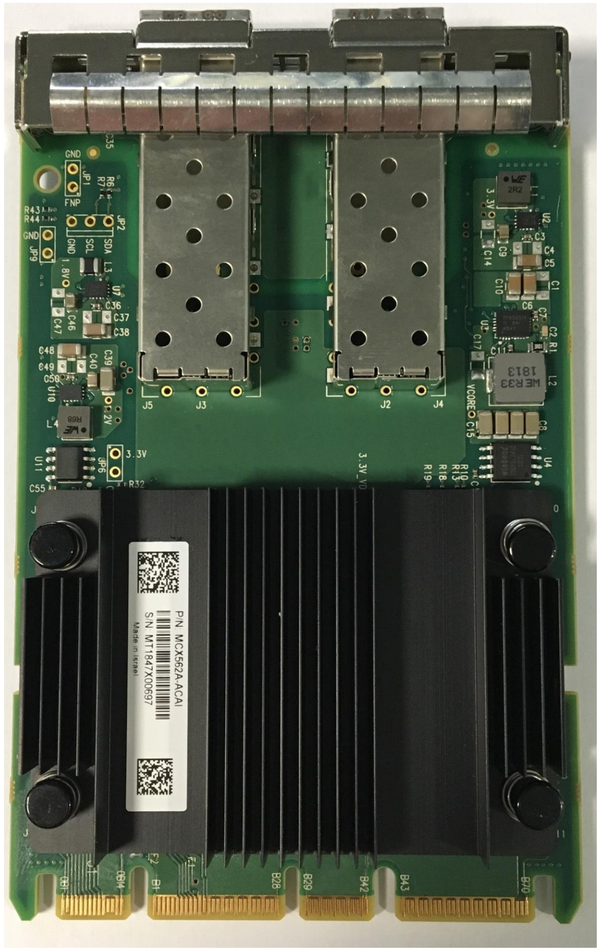
- Automatic HW/FW operating mode configuration
- Consistent management model for each system type
- Uncompromised control of system configuration options
- Lowering customer’s inventory cost by using same Hardware for all platforms

Mellanox OCP NIC 3.0 cards

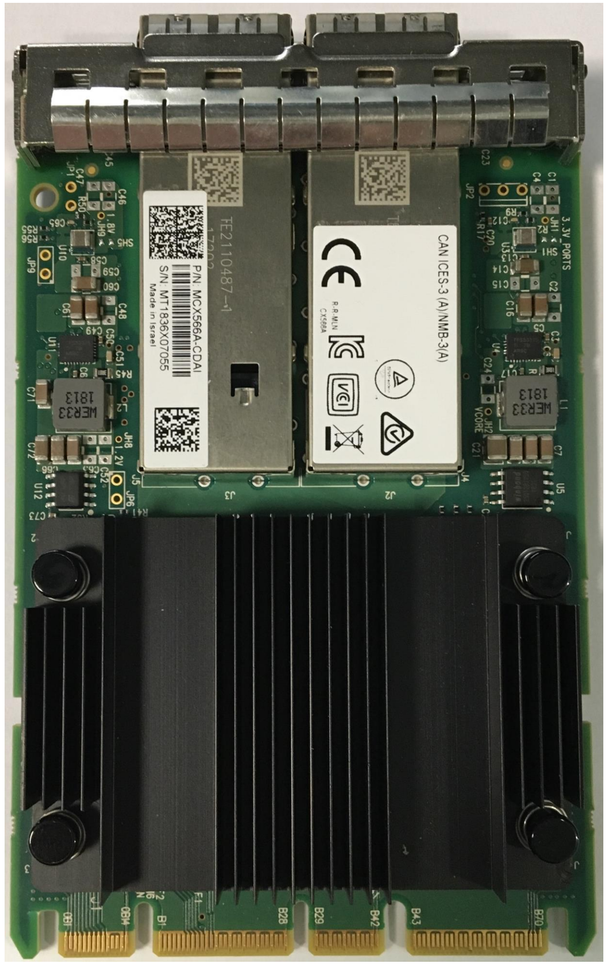
ConnectX®-4 Lx



ConnectX®-5



ConnectX®-5



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Additional information

OCP NIC 3.0 specifications documents:

- https://www.opencompute.org/wiki/Server/Mezz

For Mellanox products availability:

- http://www.mellanox.com/ocp/
- http://www.mellanox.com/related-docs/prod_adapter_cards/BR_OCP3.0_Adapter_Cards.pdf

Mellanox OCP-inspired products:

- https://www.opencompute.org/products?query=mellanox&page=1


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