

# ConnectX-6 Limitations on SFA with Mixed-Protocol Fabrics



**ALERT!** File systems residing on embedded VMs in the SFA storage are not accessible over InfiniBand if certain mixed-protocol ConnectX-6 HCA configurations are used.

## Issue Summary

In certain mixed-protocol configurations, ConnectX-6 host channel adapters (HCAs) from Nvidia (formerly Mellanox) lose InfiniBand connectivity to a file system residing on embedded virtual machines in the SFA storage. This occurs when the Virtual Protocol Interconnect (VPI) software on the HCA is configured for InfiniBand on one host port and Ethernet on the other, and the combination of settings chosen affects HCA communication with a VM environment. For example, the InfiniBand FDR data rate (200 Gb/s) on either port of the ConnectX-6 HCA, when combined with any Ethernet data rate on the other port, is not compatible with a VM environment.

These limitations are frequently encountered in switched fabrics using the MLNX SX6036 InfiniBand switch. ConnectX-6 HCA settings compatible with the switch are typically unsupported configurations if Ethernet is enabled concurrently with InfiniBand.

SFA block storage models connected to externally hosted file systems are not affected by these HCA limitations. Any ConnectX-6 settings offered by the adapter may be used.

## Affected Products

Only SFA storage platforms with embedded VMs and ConnectX-6 HCAs are affected by this issue. These include platforms in the ES200NV(X)/GS200NV(X), ES400NV(X)/GS400NV(X), ES7990(X)/GS7990(X), and ES18K(X)/GS18K(X) product families.

Block storage SFA models are not affected.

## Resolution

The root cause of this issue is a limitation of the ConnectX-6 HCA. No resolution is expected.

## Workaround

The workaround for this issue is to choose a supported ConnectX-6 HCA configuration. On SFA embedded platforms, only the ConnectX-6 configurations described as “valid” in the table below are supported.

Port assignment for each protocol matters, as do speed settings. The listed Ethernet data rates must be set manually.

Supported ConnectX-6 HCA Configurations for GS200NVX/ES400NVX, GS400NVX/ES400NVX, GS7990X/ES7990X, GS18KX/ES18KX		
CX6 Port 1	CX6 Port 2	Note
IB HDR100	100 GbE	Valid. Manually set Ethernet rate.
IB HDR100	40/10 GbE	Invalid
IB EDR	100 GbE	Valid. Manually set Ethernet rate.
IB EDR	40/10 GbE	Invalid
IB FDC	Any GbE	Invalid
100 GbE	IB HDR100	Valid. Manually set Ethernet rate.
100 GbE	IB EDR	Invalid
40/10 GbE	IB HDR100	Valid. Manually set Ethernet rate.
40/10 GbE	IB EDR	Invalid
Any GbE	IB FDR	Invalid

## Contacting DDN Technical Support

Please contact DDN Technical Support at any time if you have questions or need assistance. Support can be reached online, by email, or by phone as listed below.

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DDN Community Support Portal <https://community.ddn.com/login>  
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DDN Support Worldwide Directory <https://www.ddn.com/support/global-services-overview/>

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