

## Application Note

# VMware Definitions for Software Versus Hardware FCoE for QLogic Adapters in ESXi Environments

### *Products Affected*

QLogic Adapters by Cavium
8400 Series
578xx-ASIC based
8200 Series
45000 Series

This application note explains how VMware® systems classify QLogic Fibre Channel over Ethernet (FCoE) adapters.

For customers deploying FCoE in VMware ESXi environments, the FCoE adapters that VMware supports are typically classified by VMware as either *hardware* or *software*.

According to VMware ESXi architecture, VMware's classification of the different types of FCoE adapters is as described here:

[https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.storage.doc\\_50%2FGUID-A9503ED6-2622-4278-890E-B869C3971A9F.html](https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.storage.doc_50%2FGUID-A9503ED6-2622-4278-890E-B869C3971A9F.html)

The adapters have the following characteristics:

- **Hardware FCoE Adapters.** Hardware FCoE adapters include completely offloaded specialized Converged Network Adapters (CNAs) that contain network and Fibre Channel functionalities on the same card. When this type of adapter is installed, the host detects and can use both CNA components. In the vSphere® client, the networking component appears as a standard network adapter (vmnic), and the Fibre Channel component appears as an FCoE adapter (vmhba). You do not have to configure a hardware FCoE adapter to be able to use it.
- **Software FCoE Adapters.** A software FCoE adapter uses software library code that performs some of the FCoE processing. The adapter can be used with a number of NICs that support partial FCoE offload. Unlike the hardware FCoE adapter, the software adapter must be activated.

Although VMware classifies the QLogic 8400 Series and 578xx-ASIC based Adapters as software FCoE adapters, these adapters fully offload the I/O path to hardware while utilizing the software-based libfcOE module in VMware only for non-I/O related traffic. Other competitive adapters classified

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as software FCoE adapters do *not* offload the I/O traffic to the NIC; instead, they utilize only the VMware-provided interfaces.

QLogic adapters from Cavium are the field-proven leader in Fibre Channel adapters and FCoE adapters. The Cavium portfolio of FCoE adapters is shown in the following table.

Cavium QLogic Converged Network Adapters	VMware Architecture Classification Nomenclature
8400 Series	Software FCoE Adapter
578xx-ASIC based	Software FCoE Adapter
8200 Series	Hardware FCoE Adapter
45000 Series	Hardware FCoE Adapter

Even though the classification by VMware might indicate that the QLogic 578xx-ASIC based FCoE adapters are software FCoE adapters, these adapters perform hardware FCoE offload and offer best-in-class performance for FCoE. See the industry analyst performance report comparing the 578xx-ASIC based adapters against both “hardware and software FCoE” competitive adapters here:

[http://www.demartek.com/Reports\\_Free/Demartek\\_QLogic\\_57810S\\_FCoE\\_iSCSI\\_Adapter\\_Evaluation\\_2014-05.pdf](http://www.demartek.com/Reports_Free/Demartek_QLogic_57810S_FCoE_iSCSI_Adapter_Evaluation_2014-05.pdf)

As is evident from this report, QLogic 578xx-ASIC based adapters from Cavium offer the **industry’s best FCoE performance**.

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<b>Document Revision History</b>	
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	<b>Changes</b>
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