Emulex 10GbE Virtual Fabric Adapter II and III family

Product Guide (withdrawn product)

As server virtualization technology becomes more prevalent within data centers, more dynamic performance is needed for network bandwidth to satisfy these demands. The Emulex 10GbE Virtual Fabric Adapters II and III for can help you break the I/O bottleneck by allowing you to allocate bandwidth where it's needed, delivering maximum application agility. Offering a full range of virtualization and convergence capabilities, the same network hardware offers Ethernet, iSCSI, or Fibre Channel over Ethernet with bandwidth that is allocated in increments from 100 Mb to 10 Gb.

The Emulex 10GbE Virtual Fabric Adapter II, Emulex Dual Port 10GbE SFP+ VFA III, and Emulex Dual Port 10 GbE SFP+Virtual Fabric Adapter IIIr look the same and are shown in Figure 1.

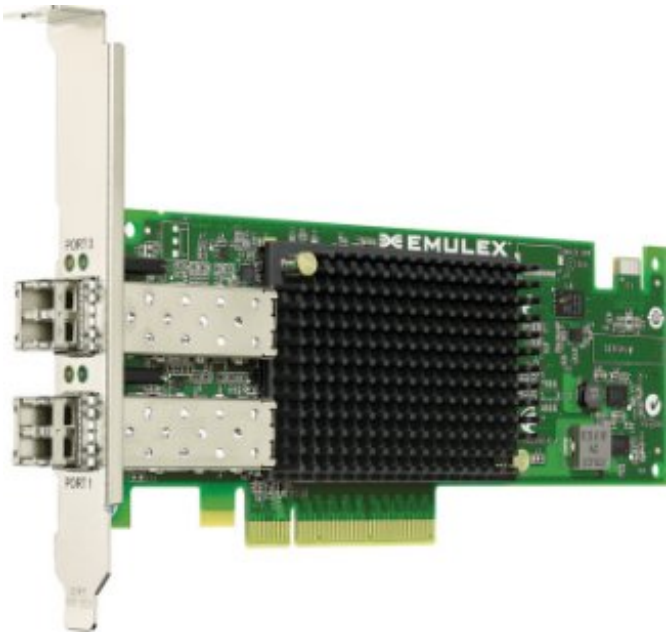

Figure 1. Emulex VFA II, VFA III and VFA IIIr adapter (shown with optional SFP+ transceivers installed)

Did you know?

With Virtual Fabric, up to eight virtual network ports (vNICs) can be created with a single two-port 10 GbE network adapter. Converged protocols such as iSCSI and FCoE are also supported on selected configurations. By using a common infrastructure for Ethernet and SAN, and by virtualizing your network adapter, you can reduce your infrastructure capital expense.

Part number information

All adapters in the Emulex 10GbE Virtual Fabric Adapter family listed in Table 1 offer the same features and functions. There is a difference in the manner that they are field-upgradeable from an Ethernet-only-mode-of-operation to an Ethernet, FCoE and iSCSI mode-of-operation:

- VFA II adapters are designed to use a paper-key license where Lenovo provides a license security to be used at the Emulex web site once registered. Emulex provides the user with a different license key that is subsequently administered to the server.
- VFA III and VFA IIIr adapters provide a much easier and efficient software license enablement process. Lenovo's Feature on Demand process reduces the complexity of activating the license to just a few clicks of the mouse.

Customers and system designers need to note that VFA II and VFA III adapters, as well as the subset of VFA III PCIe, Integrated, and Mezzanine form-factors have different FCoE license key part numbers.

Withdrawn: The adapters described in this product guide are now withdrawn from marketing

Table 1. Ordering part number and feature code

Description	Part number	Feature code
VFA III adapters for System x M4 and X6 servers		
Emulex Dual Port 10GbE SFP+ VFA III	95Y3762	A2U1
Emulex Dual Port 10GbE SFP+ Integrated VFA III*	SBB 95Y3768*	A2UN
Emulex Dual Port 10 GbE SFP+ Virtual Fabric Adapter IIIr	00D8540	A4XH
Emulex VFA III/IIIr FCoE/iSCSI License for (FOD) (Features on Demand upgrade for 95Y3762, SBB 95Y3768, and 00D8540)	95Y3760	A2U2
Embedded VFA III adapters for System x M4 servers (do not consume a regular PCIe slot)		
Emulex Dual Port 10GbE SFP+ Embedded Adapter	90Y6456	A22J
Emulex Dual Port 10 GbE SFP+ Embedded VFA IIIr	00Y7730	A4MC
Emulex Mezz VFA III/IIIr FCoE/iSCSI License for (FoD) (Features on Demand upgrade for 90Y6456 and 00Y7730)	90Y5178	A2TE
VFA II adapters for System x M3 and X5 servers		
Emulex 10GbE Virtual Fabric Adapter II	49Y7950	A18Z
Emulex 10GbE Integrated Virtual Fabric Adapter II	SBB 49Y7940#	A148
Emulex VFA II FCoE/iSCSI License (for 49Y7950 and SBB 49Y7940)	49Y4274	5715
Emulex Dual-port VFA II Adapter and FCoE/iSCSI License	95Y3751	A348

* This adapter can only be ordered via the configure-to-order (CTO) processor or via special bid.
# This adapter comes standard with the most models of the System x3850 X5, x3950 X5 and x3690 X5. It can also can be ordered via CTO or via special bid for those systems only.

The adapters, when shipped as stand-alone options, include the following items:

- One Emulex 10 GbE Virtual Fabric Adapter
- 3U bracket attached with 2U bracket included in the box (95Y3762, 49Y7950 and 00D8540 only)
- Quick Install Guide
- Warranty information and Important Notices flyer
- Documentation CD

The Emulex Embedded Adapters are designed to fit into a special slot in selected servers (see Table 4), allowing you to use the PCIe slots for other technologies. The adapters are shown in Figure 2.

Figure 2. Emulex VFA III and VFA IIIr Embedded Adapters

The Emulex 10GbE Integrated Virtual Fabric Adapter II (Figure 3) has the same functional characteristics as the Emulex 10GbE Virtual Fabric Adapter II (Figure 1). This adapter must be purchased at the same time as the server. It is factory installed into a standard PCIe slot, and is offered at a price savings compared to the Emulex 10GbE Virtual Fabric Adapter II . There is a limit of one Emulex 10GbE Integrated Virtual Fabric Adapter II per system. The Emulex 10GbE Integrated Virtual Fabric Adapter II is shown in Figure 3.

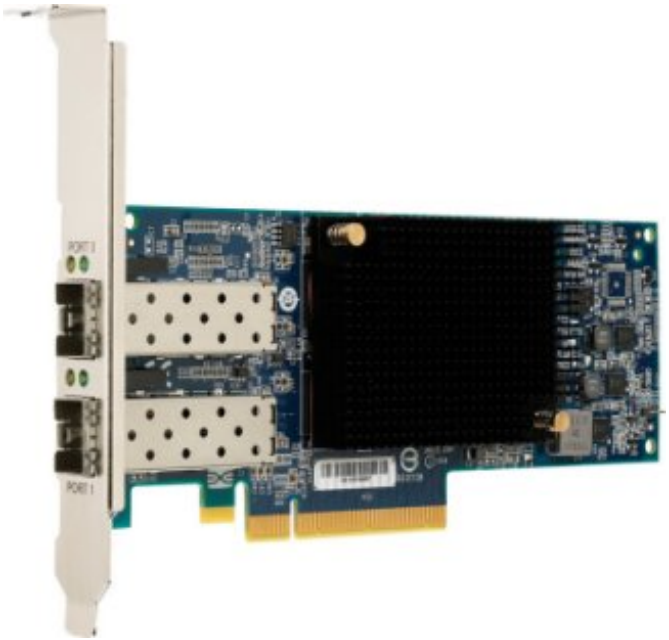

Figure 3. Emulex 10GbE Integrated Virtual Fabric Adapter II (without optional SFP+ transceivers)

Similarly, the Emulex Dual Port 10GbE SFP+ Integrated VFA III has the same functional characteristics as the Emulex Dual Port 10GbE SFP+ VFA III. The integrated adapter must be purchased at the same time as the new supported server (see Table 4). The integrated adapter is factory installed into a standard PCIe slot, and is offered at a price savings compared to the Emulex Dual Port 10GbE SFP+ VFA III. There is a limit of one Emulex Dual Port 10GbE SFP+ Integrated VFA III per system.

Supported transceivers and direct-attach cables

The Emulex 10 GbE Virtual Fabric Adapters have two empty SFP+ cages that support SFP+ SR transceivers and twin-ax direct-attached copper cables as listed in Table 2 and Table 3 respectively.

Table 2. Supported transceivers

Description	Part number	Feature Code
Brocade 10Gb SFP+ SR Optical Transceiver	49Y4216	0069
QLogic 10Gb SFP+ SR Optical Transceiver	49Y4218	0064
10Gb SFP+ SR Optical Transceiver	46C3447	5053
SFP RJ45 Transceiver	81Y1618	3268

Table 3. Supported direct-attach cables

Description	Part number	Feature Code	Supported switches		
			Brocade VDX 6730	Lenovo switches	Juniper EX4500
Passive direct-attach cables					
0.5m Passive DAC SFP+ Cable	00D6288	A3RG	No	Yes	No
1 m Passive DAC-SFP+ Cable	90Y9427	A1PH	No	Yes	No
3 m Passive DAC-SFP+ Cable	90Y9430	A1PJ	No	Yes	No
5 m Passive DAC-SFP+ Cable	90Y9433	A1PK	No	Yes	No
1m Juniper DAC SFP+ Cable	68Y6927	5986	No	No	Yes
3m Juniper DAC SFP+ Cable	68Y6947	5987	No	No	Yes
Active direct-attach cables					
1m Active DAC SFP+ Cable	95Y0323	A25A	No	Yes	No
3m Active DAC SFP+ Cable	95Y0326	A25B	No	Yes	No
5m Active DAC SFP+ Cable	95Y0329	A25C	No	Yes	No
1m 10GE Twinax Act Copper SFP+	81Y8295	A18M	Yes	No	Yes
3m 10GE Twinax Act Copper SFP+	81Y8296	A18N	Yes	No	Yes
5m 10GE Twinax Act Copper SFP+	81Y8297	A18P	Yes	No	Yes

For a complete list of supported SFP+ transceivers and DAC cables refer to RETAIN tip H203108, *Support list matrix for SFP and Twinax DAC cables - Converged Network Adapters*, available from: http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5087884

Features

The members of the Emulex 10 GbE Virtual Fabric Adapter family have the following features and benefits:

- Dual-channel, 10 Gbps Ethernet controller
- Line-rate 10 GbE performance
- 2 SFP+ empty cages to support either SFP+ SR or twin-ax copper connections
  - SFP+ SR link is with SFP+ SR optical module with LC connectors
  - SFP+ twin-ax copper link is with SFP+ direct attached copper module/cable
- TCIP/IP stateless offloads
- TCP chimney offload
- Hardware parity, CRC, ECC, and other advanced error checking
- PCI Express 2.0 x8 host interface
- Low-profile form-factor or slot-less mezzanine card form-factor design
- IPv4/IPv6 TCP, UDP checksum offload
- VLAN insertion and extraction
- Support for jumbo frames up to 9000 bytes
- Preboot eXecution Environment (PXE) 2.0 network boot support
- Interrupt coalescing
- Load balancing and failover support
- Based on Emulex OneConnect technology and including FCoE and iSCSI support as a feature entitlement upgrade
- Simplifies I/O hardware choices for IT managers
- Maximizes I/O consolidation with high-performance 10GbE ports
- One network infrastructure reduces CapEx
- One management console reduces OpEx
- Leverages existing IT investments
- Deploy and manage this and other Emulex OneConnect-based adapters with OneCommand Manager

The Emulex VFA II, VFA III, and VFA IIIr adapters can be upgraded in the field to enable FCoE and iSCSI hardware initiator. Option part number 95Y3751 already has the upgrade installed in the factory.

You can deploy faster and manage less when you combine Virtual Fabric adapters (VFAs) and Host Bus Adapters (HBAs) that are developed by Emulex. Lenovo VFAs and HBAs that are developed by Emulex use the same installation and configuration process, streamlining the effort to get your server running, and saving you valuable time. They also use the same Fibre Channel drivers, reducing time to qualify and manage storage connectivity. With Emulex's OneCommand Manager, you can manage Lenovo VFAs and HBAs that are developed by Emulex through the data center from a single console.

Server support

The Emulex 10GbE Virtual Fabric Adapter family are supported in the servers listed in the following tables.

Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Table 4. Support for System x and dense servers with Xeon E5/E7 v4 and E3 v5 processors

Part number	Description	x3250 M6 (3943)	x3250 M6 (3633)	x3550 M5 (8869)	x3650 M5 (8871)	x3850 X6/x3950 X6 (6241, E7 v4)	nx360 M5 (5465, E5-2600 v4)	sd350 (5493)
95Y3762	Emulex Dual Port 10GbE SFP+ VFA III	N	N	N	N	N	N	N
95Y3768#	Emulex Dual Port 10GbE SFP+ Integrated VFA III	N	N	N	N	N	N	N
00D8540	Emulex Dual Port 10GbE SFP+ VFA IIIr	N	N	N	N	N	N	N
95Y3760	Emulex VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	N	N	N	N	N
90Y6456	Emulex Dual Port 10GbE SFP+ Embedded Adapter	N	N	N	N	N	N	N
00Y7730	Emulex Dual Port 10GbE SFP+ Embedded VFA IIIr	N	N	N	N	N	N	N
90Y5178	Emulex Mezz VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	N	N	N	N	N
49Y7950	Emulex 10GbE Virtual Fabric Adapter II	N	N	N	N	N	N	N
49Y7940#	Emulex 10GbE Integrated Virtual Fabric Adapter II	N	N	N	N	N	N	N
49Y4274	Emulex VFA II FCoE/iSCSI License	N	N	N	N	N	N	N
95Y3751	Emulex Dual Port VFAII Adapter & FCoE/iSCSI License	N	N	N	N	N	N	N

Support for servers with Intel Xeon v3 processors

Table 5. Support for servers with Intel Xeon v3 processors

Part number	Description	x3100 M5 (5457)	x3250 M5 (5458)	x3500 M5 (5464)	x3550 M5 (5463)	x3650 M5 (5462)	x3850 X6/x3950 X6 (6241, E7 v3)	nx360 M5 (5465)
95Y3762	Emulex Dual Port 10GbE SFP+ VFA III	N	N	N	N	N	N	N
95Y3768#	Emulex Dual Port 10GbE SFP+ Integrated VFA III	N	N	N	N	N	N	N
00D8540	Emulex Dual Port 10GbE SFP+ VFA IIIr	Y	N	N	N	N	Y	N
95Y3760	Emulex VFA III/IIIr FCoE/iSCSI License (FoD)	Y	N	N	N	N	Y	N
90Y6456	Emulex Dual Port 10GbE SFP+ Embedded Adapter	N	N	N	N	N	N	N
00Y7730	Emulex Dual Port 10GbE SFP+ Embedded VFA IIIr	N	N	N	N	N	N	N
90Y5178	Emulex Mezz VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	N	N	N	N	N
49Y7950	Emulex 10GbE Virtual Fabric Adapter II	N	N	N	N	N	N	N
49Y7940#	Emulex 10GbE Integrated Virtual Fabric Adapter II	N	N	N	N	N	N	N
49Y4274	Emulex VFA II FCoE/iSCSI License	N	N	N	N	N	N	N
95Y3751	Emulex Dual Port VFAII Adapter & FCoE/iSCSI License	N	N	N	N	N	N	N

Support for servers with Intel Xeon v2 processors

Table 6. Support for servers with Intel Xeon v2 processors

Part number	Description	x3500 M4 (7383, E5-2600 v2)	x3530 M4 (7160, E5-2400 v2)	x3550 M4 (7914, E5-2600 v2)	x3630 M4 (7158, E5-2400 v2)	x3650 M4 (7915, E5-2600 v2)	x3650 M4 BD (5466)	x3650 M4 HD (5460)	x3750 M4 (8752)	x3750 M4 (8753)	x3850 X6/x3950 X6 (3837)	x3850 X6/x3950 X6 (6241, E7 v2)	dx360 M4 (E5-2600 v2)	nx360 M4 (5455)
95Y3762	Emulex Dual Port 10GbE SFP+ VFA III	N	N	N	N	N	N	N	N	N	N	N	N	N
95Y3768#	Emulex Dual Port 10GbE SFP+ Integrated VFA III	N	N	N	N	N	N	N	N	N	N	N	N	N
00D8540	Emulex Dual Port 10GbE SFP+ VFA IIIr	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
95Y3760	Emulex VFA III/IIIr FCoE/iSCSI License (FoD)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
90Y6456	Emulex Dual Port 10GbE SFP+ Embedded Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N
00Y7730	Emulex Dual Port 10GbE SFP+ Embedded VFA IIIr	N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y
90Y5178	Emulex Mezz VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y
49Y7950	Emulex 10GbE Virtual Fabric Adapter II	N	N	N	N	N	N	N	N	N	N	N	N	N
49Y7940#	Emulex 10GbE Integrated Virtual Fabric Adapter II	N	N	N	N	N	N	N	N	N	N	N	N	N
49Y4274	Emulex VFA II FCoE/iSCSI License	N	N	N	N	N	N	N	N	N	N	N	N	N
95Y3751	Emulex Dual Port VFAII Adapter & FCoE/iSCSI License	N	N	N	N	N	N	N	N	N	N	N	N	N

Support for servers with Intel Xeon v1 processors

Table 7. Support for servers with Intel Xeon v1 processors

Part number	Description	x3100 M4 (2582)	x3250 M4 (2583)	x3300 M4 (7382)	x3500 M4 (7383, E5-2600)	x3530 M4 (7160, E5-2400)	x3550 M4 (7914, E5-2600)	x3630 M4 (7158, E5-2400)	x3650 M4 (7915, E5-2600)	x3690 X5 (7147)	x3750 M4 (8722)	x3850 X5 (7143)	dx360 M4 (7912, E5-2600)
95Y3762	Emulex Dual Port 10GbE SFP+ VFA III	N	N	Y	Y	Y	Y	Y	Y	N	Y	N	Y
95Y3768#	Emulex Dual Port 10GbE SFP+ Integrated VFA III	N	N	Y	Y	Y	N	Y	N	N	N	N	N
00D8540	Emulex Dual Port 10GbE SFP+ VFA IIIr	N	N	N	N	N	N	N	N	N	N	N	N
95Y3760	Emulex VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	Y	Y	Y	Y	Y	Y	N	Y	N	N
90Y6456	Emulex Dual Port 10GbE SFP+ Embedded Adapter	N	N	N	N	N	Y	N	Y	N	N	N	Y
00Y7730	Emulex Dual Port 10GbE SFP+ Embedded VFA IIIr	N	N	N	N	N	N	N	N	N	N	N	N
90Y5178	Emulex Mezz VFA III/IIIr FCoE/iSCSI License (FoD)	N	N	N	N	N	Y	N	Y	N	N	N	Y
49Y7950	Emulex 10GbE Virtual Fabric Adapter II	N	N	N	N	N	N	N	N	Y	N	Y	Y
49Y7940#	Emulex 10GbE Integrated Virtual Fabric Adapter II	N	N	N	N	N	N	N	N	Y	N	Y	N
49Y4274	Emulex VFA II FCoE/iSCSI License	N	N	N	N	N	N	N	N	Y	N	Y	N
95Y3751	Emulex Dual Port VFAII Adapter & FCoE/iSCSI License	N	N	N	N	N	N	N	N	Y	N	Y	N

See ServerProven® for the latest information about the System x servers that support this adapter including support for older servers: http://www.lenovo.com/us/en/serverproven/xseries/lan/matrix.shtml

Modes of operation

The adapters support two types of virtual NIC (vNIC) operating modes, and a physical NIC (pNIC) operating mode:

- **Virtual Fabric Mode** (also known as vNIC1 mode) will only work with a Lenovo RackSwitch switches. In this mode, the Emulex adapter communicates with the Lenovo switch to obtain vNIC parameters (using DCBX). A special tag is added within each data packet and is later removed by the NIC and/or switch for each vNIC group to maintain separation of the virtual data paths.
  In vNIC mode, each physical port is divided into four virtual ports for a maximum of eight (8) virtual NICs per adapter. The default bandwidth for each vNIC is 2.5 Gbps. Bandwidth for each vNIC can be configured via the switch from 100 Mbps to 10 Gbps, up to a total of 10 Gb per physical port. The vNICs can also be configured to have 0 bandwidth if you must allocate the available bandwidth to fewer than four vNICs per physical port. In Virtual Fabric Mode, you can change the bandwidth allocations through the switch user interfaces without requiring a reboot of the server.

vNIC bandwidth allocation and metering is performed by both the switch and the VFA. In such a case, a bidirectional virtual channel of an assigned bandwidth is established between them for every defined vNIC.

- In **Switch Independent Mode** (also known as vNIC2 mode) the adapter works with any 10 Gb Ethernet switch. Switch Independent Mode offers the same capabilities as Virtual Fabric Mode in terms of the number of vNICs and the bandwidth each can be configured to have. Switch Independent Mode extends the existing customer VLANs to the virtual NIC interfaces. The IEEE 802.1Q VLAN tag is essential to the separation of the vNIC groups by the NIC adapter or driver and the switch. The VLAN tags are added to the packet by the applications or drivers at each end station rather than by the switch.
  vNIC bandwidth allocation and metering is only performed by VFA itself. In such a case, a unidirectional virtual channel is established where the bandwidth management is only performed for the outgoing traffic on a VFA side (server-to-switch). The incoming traffic (switch-to-server) uses the all available physical port bandwidth, as there is no metering performed on either the VFA or a switch side.

  In vNIC2 mode, when storage protocols are enabled on the Emulex 10GbE Virtual Fabric Adapters, six vNICs (three per physical port) are Ethernet, and two vNICs (one per physical port) are either iSCSI or FCoE.

- In **pNIC mode** the adapter operates as a standard dual-port 10 Gbps Ethernet adapter, and it functions with any 10 GbE switch. In pNIC mode, with the Emulex FCoE/iSCSI License, the card operates in a traditional Converged Network Adapter (CNA) mode with two Ethernet ports and two storage ports (iSCSI or FCoE) available to the operating system.

Although all adapters in the Emulex 10GbE Virtual Fabric Adapter family support pNIC, vNIC1 and vNIC2 modes, availability of each operating mode is also dependent on the top-of-rack switch and the network or storage protocol used (Ethernet only - no storage protocols, iSCSI or FCoE), as shown in the following table.

Table 8. Available VFA operating modes for Ethernet, iSCSI and FCoE configurations

Protocol	Switch	vNIC1	vNIC2	pNIC
Ethernet only	G8124E	Yes	Yes	Yes
	G8264	Yes	Yes	Yes
	Other compatible switches	No	Yes	Yes
iSCSI	G8124E	No	Yes	Yes
	G8264	No	Yes	Yes
	Juniper EX4500	No	Yes	Yes
FCoE	G8124E (transit switch)	No	No	Yes
	Brocade VDX 6730	No	Yes	Yes
	Cisco Nexus 5010/5020	No	Yes	Yes

Supported FCoE configurations are shown in the following table.

Table 9. Supported FCoE configurations

Virtual Fabric adapter	FCoE upgrade	VFA mode	Transit switch	FCF switch	SAN fabric	Storage targets
VFA III, 95Y3762 VFA IIIr, 00D8540 Integrated VFA III, SBB 95Y3768	95Y3760	vNIC1 vNIC2 pNIC	None G8124E G8264	G8264CS	Brocade Cisco MDS	DS8000 DS5000 DS3000 IBM SVC V7000 V3500 / V3700 IBM XIV
		vNIC2 pNIC	None G8124E	Brocade VDX 6730	Brocade	
				Cisco Nexus 5548, 5596	Cisco MDS	
Embedded Adapter, 90Y6456 Embedded VFA IIIr, 00Y7730	90Y5178	vNIC1 vNIC2 pNIC	None G8124E G8264	G8264CS	Brocade Cisco MDS	DS8000 DS5000 DS3000 IBM SVC V7000 V3500 / V3700 IBM XIV
		vNIC2 pNIC	None G8124E	Brocade VDX 6730	Brocade	
				Cisco Nexus 5548, 5596	Cisco MDS	
VFA II, 49Y7950 VFA II and FCoE/iSCSI License, 95Y3751 Integrated VFA II, SBB 49Y7940	49Y4274 (not needed for 95Y3751)	vNIC1 vNIC2 pNIC	None G8124E G8264	G8264CS	Brocade Cisco MDS	DS8000 DS5000 DS3000 IBM SVC V7000V3500 / V3700 IBM XIV
		vNIC2 pNIC	None G8124E	Brocade VDX 6730	Brocade	
				Cisco Nexus 5548, 5596	Cisco MDS	

Important: Use these tables only as a starting point. Configuration support must be verified through the IBM System Storage® Interoperation Center (SSIC):
http://www.ibm.com/systems/support/storage/ssic

Standards supported

The following IEEE standards are supported:

- IEEE 802.3ae (10 Gbps Ethernet XAUI)
- IEEE 802.1q (VLAN)
- IEEE 802.1Qbb (Priority flow control)
- IEEE 802.1Qaz (ETS and Congestion Management)
- IEEE 802.1p (QoS/CoS)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- ANSI INCITS T11 FC-BB-5 2.0, FC-PI-2, FC-GS-4, FC-TAPE and FCP-3
- PCI Express base spec 2.0, PCI Bus Power Management Interface, rev. 1.2
- Advanced Error Reporting (AER)

Physical specifications

The standard form-factor adapter has the following physical specifications:

- Height: 167 mm (6.6 in)
- Width: 69 mm (2.7 in)
- Depth: 17 mm (0.7 in)

The mezzanine adapter has the following physical specifications:

- Height: 60 mm (2.4 in)
- Width: 160 mm (6.3 in)
- Depth: 17 mm (0.7 in)

Operating environment

This adapter is supported in the following environment:

- Temperature:
  - Operating: 0° to 55° C (32° to 131° F)
  - Non-operating: -40° to 70° C (-40° to 158° F)
- Humidity: 5 to 95%, non-condensing

Warranty

One-year limited warranty. When installed in a System x server, these cards assume your system's base warranty and any warranty upgrade.

Supported operating systems

The Emulex 10GbE Virtual Fabric Adapter II and III family support the following operating systems:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 12
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)
- VMware vSphere 5.5 (ESXi)
- VMware vSphere 6.0 (ESXi)

See ServerProven at http://www.lenovo.com/us/en/serverproven/xseries/lan/matrix.shtml for the latest information about the specific versions and service packs supported. Not all servers support all operating systems and versions.

Related publications

For more information refer to these documents:

- Lenovo product page for System x network adapters
  http://shop.lenovo.com/us/en/systems/servers/options/systemx/networking/
- Emulex 10GbE Virtual Fabric Adapter drivers
  http://www.emulex.com/downloads/oem-qualified/lenovo/system-x-rack-software-kits/
- System x Configuration and Options Guide
  https://support.lenovo.com/documents/SCOD-3ZVQ5W
- Lenovo ServerProven compatibility information for network adapters:
  http://www.lenovo.com/us/en/serverproven/xseries/lan/matrix.shtml
- IBM System Storage Interoperation Center (SSIC)
  http://ibm.com/systems/support/storage/ssic/interoperability.wss
- US Announcement Letter - VFA IIIr adapters
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS114-044
- US Announcement Letter - VFA III Embedded adapter (x3550 M4 announcement)
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS112-043
- US Announcement Letter - VFA III adapters (x3500 M4 announcement)
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS112-023
- US Announcement Letter - VFA II FCoE license
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS111-223
- US Announcement Letter - VFA II adapter (x3850 X5 announcement)
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS111-055

Related product families

Product families related to this document are the following:

- 10 Gb Ethernet Connectivity
- Ethernet Adapters

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