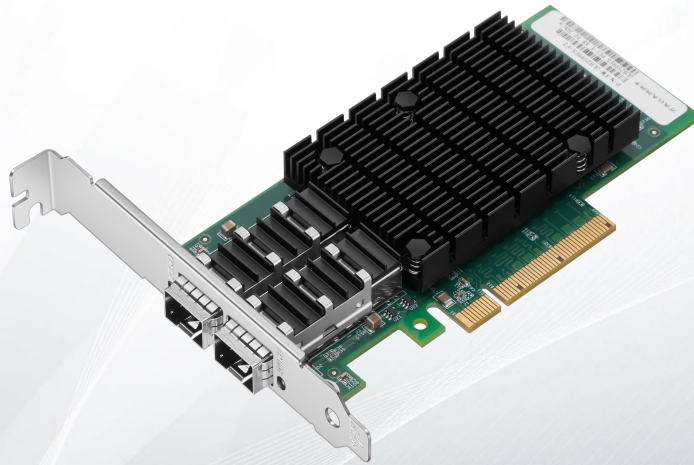**FS**

Network Adapters

IDEAL FOR DATA CENTER, ENTERPRISE & ISP NETWORK SOLUTIONS

FS Network adapters are designed for data center, and provide flexible and scalable I/O solutions.

10G/25G/40G/100G Ethernet Adapters

FS.COM 10G/25G/40G/100G Ethernet Adapters with SFP+/SFP28/QSFP+/QSFP28 connectivity are the most flexible and scalable for today's demanding data center environments. Data center networks are being pushed to their limits. The escalating deployments of servers with multi-core processors and demanding applications such as High Performance Computing (HPC), database clusters, and video-on-demand are driving the need for 10/25/40/100 Gigabit connections. The adapters provide flexible and scalable I/O solutions to meet the diverse requirements of running mission-critical applications in virtualized and unified storage environments. With a reliable performance in a flexible LAN and SAN networks, the server adapters can meet the demand of next-generation data centers by providing unmatched features for both server and network virtualization.

BENEFITS

- Load balancing on multiple CPUs

- iSCSI remote boot support

- Fibre Channel over Ethernet (FCoE) Support

- Support for most network operating systems with (VMDq) and SR-IOV

- Support VLAN, QOS policy, flow control

- Tx TCP segmentation offload (IPv4, IPv6)

Application

Extremely high throughput and excellent signal quanlity for server networks and Internet
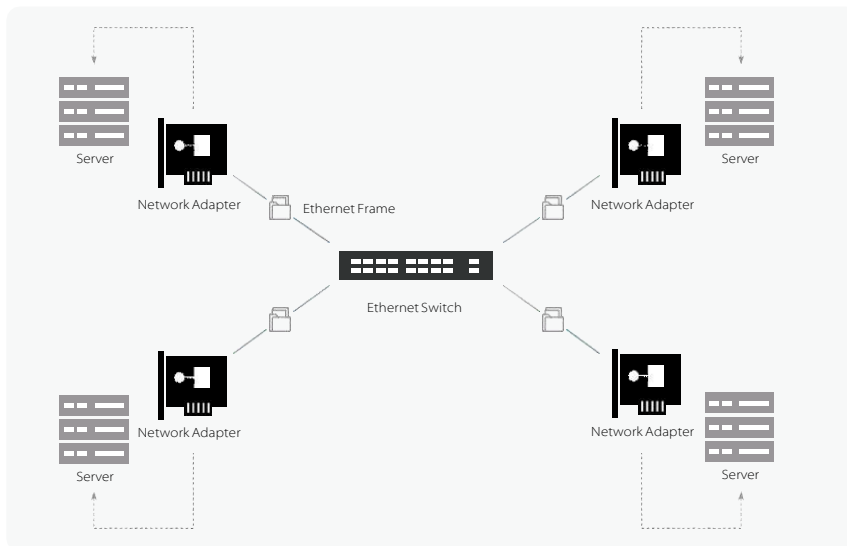
Advanced Features

SUPPORT FOR FIBER CHANNEL OVER ETHERNET (FCoE)

FCoE encapsulates Fiber Channel frames over standard Ethernet networks, enabling Fiber Channel to take advantage of 10/25/40GbE networks while preserving its native protocol.

SUPPORT FOR ISCSI

The adapters provide complete support for proven native OS and VMM iSCSI initiators as well as iSCSI boot. The Ethernet adapter truly delivering on the promise of unified networking. The adapters do it all: 10/25/40G LAN, FCoE, and iSCSI.

I/O FOR VIRTUALIZED

I/O bottlenecks are reduced through intelligent offloads such as Virtual Machine Device Queues (VMDq) and Flexible Port Partitioning, usingSR-IOV for networking traffic per Virtual Machine (VM), enabling near-native performance and VM scalability.

VMDQ FOR EMULATED PATH

VMDq, enables a hypervisor to represent a single network port as multiple network ports that can be assigned to the individual VMs. Traffic handling is offloaded to the network controller, delivering the benefits of port partitioning with little to administrative overhead by the IT staff.

SR-IOV FOR DIRECT ASSIGNMENT

Adapter-based isolation and switching for various virtual station instances enable optimal CPU usage in virtualized environments. With Virtual Functions each VF can support a unique and separate data path for I/O related f unction within the PCI Express* hierarchy. Using SR-IOV with a networking device, allows to be partitioned into smaller slices that can be allocated to specific VMs or guests.

PCI-SIG IMPLEMENTATION

PCI-SIG provides an implementation of the PCI-SIG standard for I/O Virtualization. The physical configuration of each port is divided into multiple virtual ports. Each virtual port is assigned to an individual VM dir, integrated with Intel® VT for Directed I/O (Intel® VT-d) to provide data protection between VMs by assigning separate physical addresses in the memory to each VM.

Technical Specification

10G/25G/40G/100Gseries Ethernet adapters are the most flexible and scalable for the diverse applications in data center environments. Here's a look at the details...

	82599ES-2SP	X710BM2-2SP	X550AT2-2TP	XL710BM1-4SP
Performance				
Controller	Intel 82599ES	Intel X710-BM2	Intel X550AT2	Intel XL710-BM1
DataRate	10GbE	10GbE	1/10GbE	1/10GbE
Interface	PCIev2.0	PCIev3.0	PCIev3.0	PCIev3.0
Ports	Dual	Dual	Dual	Quad
Speed	5.0GT/s	8.0GT/s	8.0GT/s	8.0GT/s
Slot Width	8lanes	8lanes	4lanes	8lanes
Cable	10GSFP+SR/LR/DAC	10GSFP+SR/LR/DAC	RJ-45	10GSFP+SR/LR/DAC

Technical Specification

10G/25G/40G/100G series Ethernet adapters are the most flexible and scalable for the diverse applications in data center environments. Here's a look at the details...

	E810XXVAM2-2BP	XXV710AM2-2BP	XL710BM2-2QP	E810CAM2-2CP
Performance				
Controller	Intel E810-XXVAM2	Intel XXV710	Intel XL710-BM2	Intel E810CAM2
Data Rate	1/10/25GbE	1/10/25GbE	40GbE	100GbE
Interface	PCIe v4.0	PCIe v3.0	PCIe v3.0	PCIe v4.0
Ports	Dual	Dual	Dual	Dual
Speed	16.0GT/s	8.0GT/s	8.0GT/s	16.0GT/s
Slot Width	8 lanes	8 lanes	8 lanes	16 lanes
Cable	25G SFP28 SR/LR/DAC	25G SFP28 SR/LR/DAC	40G QSFP+ SR/LR/DAC	100GQSFP28 SR/LR/DAC

FEATURES

Functionality	Description
General	SFP+/ SFP28/ QSFP Connectivity
	Increases performance on multi-processor systems by efficiently balancing network loads across CPU cores when used with Receive-Side Scaling (RSS) from Microsoft or Scalable I/O onLinux
	Provides centralized storage area network (SAN) management at a lower cost than other iSCSI solutions
	Support for most network operating systems (NOS)
	Provides point-and-click management of individual adapters, advanced adapter features, connection teaming, and virtual local area network (VLAN) configuration
Manageability Features	Enables system boot up via the LAN.
	Flash interface for PXE image.
	Easy system monitoring with industry-standard consoles.
	Enables system boot up via iSCSI.
	Provides additional network management capability.
	Gives an indication to the manageability firmware or external devices that the chip or the driver is not functioning.
I/O Features for Multi-core Processor	Enables the adapter to pre-fetch the data from memory, avoiding cache misses and improving application response time.
	Based on the sensitivity of the incoming data, the adapter can bypass the automatic moderation of time intervals between the interrupts
	Tx/Rx IP, SCTP, TCP, and UDP checksum offloading (IPv4, IPv6) capabilities
	Tx TCP segmentation offload (IPv4, IPv6)
	Receive and Transmit Side Scaling for Windows en_x0002_vironment and Scalable I/O for Linux environments (IPv4, IPv6, TCP/UDP)

FEATURES

Functionality	Description
Virtualization Features	Offloads the data-sorting functionality from the Hypervisor to the network silicon, improving data throughput and CPU usage
	Provides QoS feature on the Tx data by providing round-robin servicing and preventing head-of-line blocking
	Sorting based on MAC addresses and VLAN tags
	Virtual Machines Load Balancing (VMLB) provides traffic load balancing (Tx and Rx) across Virtual Machines bound to the team interface, as well as fault tolerance in the event of switch, port, cable, or adapter failure.
	VLAN support with VLAN tag insertion, stripping and packet filtering for up to 4096 VLAN tags.
	Lower processor usage.
	Promiscuous (unicast and multicast) transfer mode support.
Advanced Software Features	Adapter fault tolerance (AFT)
	Switch fault tolerance (SFT)
	Adaptive load balancing (ALB)
	IEEE 802.3 (link aggregation control protocol)
	IEEE 802.1Q* VLANs
	Tx/Rx IP, TCP, & UDP checksum offloading (IPv4, IPv6) capabilities (Transmission control protocol (TCP), user datagram protocol (UDP), Internet protocol (IP)
	TCP segmentation/large send offload.
	MSI-X supports Multiple Independent Queues
	Interrupt moderation
	IPv6 offloading Checksum and segmentation capability extended to new standard packet type

Network Operating Systems (NOS) Software Support

Functionality	
10G SFP+ Single Port	Windows 7/8/8.1/10/Vista Windows Server 2003 SP2 Windows Unified Storage Solution 2003 Windows Server 2008/2016 Linux Stable Kernel Version 2.6 Linux RHEL4/RHEL5/SLES9/SLES10 FreeBSD 7.0 UEFI 1.1 VMware ESXi 6.7
10G SFP+ Dual Ports	Windows 7/8/8.1/10/Vista Windows Server 2008 R2/2008 R2 Core/2012 R2/2012/2012 R2 Core/2012Core/2016 Linux RHEL 6.5/RHEL7.0/SLES 11 SP3/SLES 12 Linux Stable Kernel version 2.6.32/3x FreeBSD9 and FreeBSD10 EFI 2.1 UEFI 2.3 VMware ESXi 6.7
10GBase-T Dual Copper Ports	Windows 7 sp1/8/8.1/10 Windows Server 2008 R2/2012/2012 R2 Windows PE 3.0/4.0/5.0 Linux Stable Kernel Version 2.6/3.x/4.x Linux RHEL 6.7/7.1 Linux SLES 11 SP4/12 FreeBSD 10.2 UEFI 2.1/2.3/2.4 VMware ESXi 5.5

Network Operating Systems (NOS) Software Support

Functionality	Description
10G SFP+ Quad Ports	Windows 7/8/8.1/10/Vista Windows Server 2008 R2/2008 R2 Core/2012 R2/2012/2012 R2 Core/2012 Core/2016 Linux RHEL 6.5/RHEL7.0/SLES 11 SP3/SLES 12 Linux Stable Kernel version 2.6.32/3x FreeBSD9 and FreeBSD10 EFI 2.1 UEFI 2.3 VMware ESXi 6.7
25G SFP28 Dual Ports	Windows 7/8/8.1/10 Windows Server 2016 R2/2012 R2/2012/2008 R2/2016 Linux Stable Kernel version 2.6.32/3.x/4.x or newer Red Hat Enterprise Linux 6.8/7.3 FreeBSD 10.3/11 Linux SLES 12 SP2 VMvare ESXi 6.7 WinPE 3.0 (2008 R2 PE)/4.0 (2012 R2 PE) (2012 R2 PE)/6.0 (2016 PE)
40G QSFP+ Dual Ports	Windows 7/8/8.1/10/Vista Windows Server 2008 R2/2008 R2 Core/2012 R2/2012/2012 R2 Core/2012 Core/2016 Linux RHEL 6.5/RHEL7.0/SLES 11 SP3/SLES 12 Linux Stable Kernel version 2.6.32/3x FreeBSD9 andFreeBSD10 EFI 2.1 UEFI 2.3 VMware ESXi 6.7

Network Operating Systems (NOS) Software Support

Functionality	Description
100G QSFP28 Dual Ports	WindowsServer2016
	WindowsServer2016 R2
	WindowsServer2016/R2Ubuntu16.10 /It will be updated from time to time
	WindowsServer2019
	WindowsServer2019/R2
	WindowsServer2019/R2 *UOSV20/It will be updated from time to time
	Linux RHEL 7.x/8.0
	Linux Sles 12.x
	Linux Sles 15.x
	Linux Ubuntu 16.x LTS
	Linux Ubuntu 18.x LTS
	Linux FreeBSD 11.x/12.x

United Kingdom   Russia

Germany

United States

China

Singapore

Australia

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