Network Adapter

PEX10GSFP-D is designed for data center, and provides flexible and scalable I/O solutions.

PCIe2.0 x8 Dual Port SFP+ 10 Gigabit Server Adapter

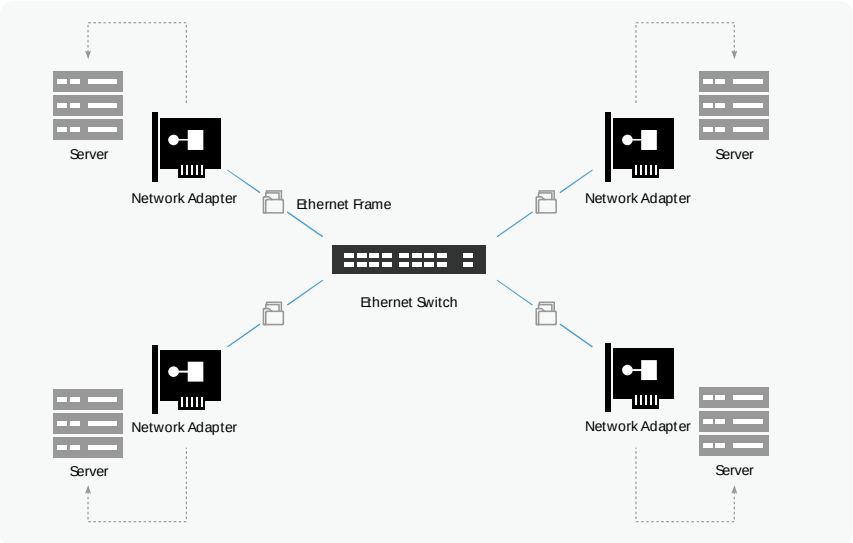
PCI Express x8 Dual Port SFP+ 10 Gigabit Server Adapter with SFP+ connectivity is the most flexible and scalable Ethernet adapters for today's demanding data center environments. Data center networks are being pushed to their limits. The escalating deployments of servers with multi-core processors and demanding applications such as High Performance Computing (HPC), database clusters, and video-on-demand are driving the need for 10 Gigabit connections. This adapter provides flexible and scalable I/O solutions to meet the rigorous requirements of running mission-critical applications in virtualized and unified storage environments.

BENEFITS

- Load balancing on multiple CPUs
- iSCSI remote boot support
- Fiber 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 CHANNAL 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.

I/O FOR VIRTUALIZED

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

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.

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.

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.

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

The Ethernet adapter is the most flexible and scalable for the diverse applications in data center environments. Here's a look at the details...

CHARACTERISTICS	
Performance	PEX10GSFP-D
Ports	Dual
Data Rate Per Port	1/10GbE
Cable	10G SFP+DAC/AOC
Interface	PCIe v2.0
Speed & Slot Width	5.0 GT/s x8 lanes
Controller	Intel® 82599ES
Standards	IEEE 802.3ad

FEATURES

Functionality	Description
General	SFP+ 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 on Linux 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

FEATURES

Functionality	Description
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)
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.

Network Operating Systems (NOS) Software Support

Functionality	Description
Software	Windows 7/8/8.1/10/Vista Windows Server 2003/2008/2008 R2/2012/2012 R2 Linux RHEL5.6/ RHEL6.x/SLES 11SP1/SLES 10 SP4/SLES 10 SP4/kernel 2.6.30 or greater FreeBSD7.2 or laster OS Independent DOS NDIS 2/ODI EFI 1.1 UEFI 2.1 VMware ESX 4.02/Workstation

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