

# LREC9260PF-SFP

—PCIe x1 1000Base Single Port Fiber Ethernet Adapter (Intel 82576 Based) (SFP LC Connector)

## Description

LREC9260PF-SFP is a typical model of 1000base-SX/LX Ethernet adapter, based on Intel 82576 Ethernet Controller, researched and designed by Shenzhen Lianrui Electronics Co., LTD. This new Ethernet adapter builds on LR-LINK's 10 years history of excellence in NIC R&D and Manufacture. LR-LINK continues to maintain the leadership position on NIC in China. This optical fiber Ethernet adapter is widely applied various occasions of Fiber To The Desktop (FTTD), set up optical fiber LAN network, optical fiber connection with life expectancy of 30 years, not subject to electromagnetic interference and against lightning. This adapter has very high data security, high reliability, stability and compatibility, has been widely used in the secret industry, such as prosecution, courts, police and military industrial enterprises etc. represented defense sectors, and gained all customers' unanimous recognition.

LR-LINK has PCI, PCIe x1; 100Mbps, 1G; SC, SFP, LC, ST, FC; Multi-Mode, Single-Mode and Bidirectional etc. Full-Series Fiber To The Desktop optical fiber network card (FTTD fiber network card). There are more than 50 models for your choose. LR-LINK is an important pusher of the solutions application for global Fiber To The desktop (FTTD), is the leader of global desktop optical fiber network card. If you want to know more product information, please browse: <http://www.lr-link.com/DesktopFiberNICCards/index1.shtml>

## General Features

- Intel 82576 Gigabit Ethernet Controller
- Low-profile
- iSCSI remote boot support
- Load balancing on multiple CPUs
- Compatible with x4, x8, and x16 standard and low-profile PCI Express slots
- Multi-port design
- Support for most network operating systems (NOS)
- Intel PROSet Utility for Windows Device Manager
- RoHS-compliant3

## Designed for Multi-Core Processors

These single-port Adapter provide high-performing, single-port Gigabit connectivity in a multi-core platform as well as in a virtualized environment. In a multi-core platform, the adapters support different technologies such as multiple queues, receive-side scaling, MSI-X, and Low Latency Interrupts, that help in accelerating the data across the platform, thereby improving application response times. The I/O technologies on a multi-core platform make use of the multiple queues and multiple interrupt vectors available on the network controller. These queues and interrupt vectors help in load balancing the data and interrupts amongst themselves in order to lower the load on the processors and improve overall system performance. For example, depending upon the latency sensitivity of the data, the low level latency interrupts feature can bypass the time interval for specific TCP ports or for flagged packets to give certain types of data streams the least amount of latency to the application.



## Optimized for Virtualization

The LR-LINK LREC9260PF Single-Port Ethernet Adapter showcase the latest virtualization technology called Intel Virtualization Technology for Connectivity (IntelVTfor Connectivity).IntelVT for Connectivity is a suite of hardware assists that improve overall system performance by lowering the I/O overhead in a virtualized environment. This optimizes CPU usage, reduces system latency, and improves I/O through- put.

### IntelVT for Connectivity includes:

- Virtual Machine Device Queues (VMDq)
- Intel I/O Acceleration Technology

Use of multi-port adapters in a virtualized environment is very important because of the need to provide redundancy and data connectivity for the applications/workloads in the virtual machines. Due to slot limitations and the need for redundancy and data connectivity, it is recommended that a virtualized physical server needs at least six GbE ports to satisfy the I/O requirement demands.

## Virtual Machine Device queues (VMDq)

VMDq reduces I/O overhead created by the hypervisor in a virtualized server by performing data sorting and coalescing in the network silicon.<sup>2</sup> VMDq technology makes use of multiple queues in the network controller. As data packets enter the network adapter, they are sorted, and packets traveling to the same destination (or virtual machine) get grouped together in a single queue. The packets are then sent to the hypervisor, which directs them to their respective virtual machines. Relieving the hypervisor of packet filtering and sorting improves overall CPU usage and throughput levels.

LR-LINK LREC9260PF PCIe Gigabit adapter provides improved performance with the next-generation VMDq technology, which includes features such as loop back functionality for inter-VM communication, priority-weighted bandwidth management, and doubling the number of data queues per port from four to eight. It now also supports multicast and broadcast data on a virtualized server.

## Intel I/O Acceleration Technology

Intel I/O Acceleration Technology (Intel I/OAT) is a suite of features that improves data acceleration across the platform, from networking devices to the chipset and processors, which help to improve system performance and application response times. The different features include multiple queues and receive-side scaling, Direct Cache Access (DCA), MSI-X, Low-Latency Interrupts, Receive Side Scaling (RSS), and others. Using multiple queues and receive-side scaling, a DMA engine moves data using the chipset instead of the CPU. DCA enables the adapter to pre-fetch data from the memory cache, thereby avoiding cache misses and improving application response times. MSI-X helps in load-balancing I/O interrupts across multiple processor cores, and Low Latency Interrupts can provide certain data streams a non-modulated path directly to the application. RSS directs the interrupts to a specific processor core based on the applications address.

## End-to-end Wired Security

The LR-LINK LREC9260PF Single-Port Ethernet Adapter is PCIe adapters to provide authentication and encryption for IPsec and LinkSec. LinkSec is already designed into the network adapter hardware. These adapters are future-proof and prepared to provide LinkSec functionality when the ecosystem supports this new technology.

IPsec provides data protection between the end-point devices of a network communication session. The IPsec offload feature is designed to offload authentication and encryption of some types of IPsec traffic and still delivers near line-rate throughput and reduced CPU utilization.

LinkSec is an IEEE industry-standard feature that provides data protection in the network. The IEEE 802.3ae and IEEE 802.3af protocols provide hop-to-hop data protection between two network devices in the transaction line between the host and destination. The two network devices must support the LinkSec technology. The network devices could be servers, switches, and routers.

## I/O Features for Multi-Core Processor Servers

Multiple queues & receive-side scaling  
 MSI-X support  
 Low Latency Interrupts  
 Header splits and replication in receive  
 Multiple queues: 8 queues per port  
 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- environment and Scalable I/O for Linux- environments (IPv4, IPv6, TCP/UDP)  
 IPsec Offload  
 LinkSec

## Virtualization Features

Virtual Machine Device queues2 (VMDq)  
 Next-generation VMDq  
 IPv6 offloading  
 Advanced packet filtering  
 VLAN support with VLAN tag insertion, stripping and packet filtering for up to 4096 VLAN tags  
 PC-SIG SR-IOV Implementation (8 virtual functions per port)

## Manageability Features

On-board microcontroller  
 Advanced filtering capabilities  
 Preboot execution Environment (PXE) Support  
 Simple Network Management Protocol (SNMP) and Remote Network Monitoring (RMON) Statistic Counters  
 Wake-on-LAN support  
 iSCSI boot  
 Watchdog timer  
 IEEE 1588 precision time control protocol

## Network Operating Systems (NOS) Software Support

Windows 2000  
 Windows XP  
 Windows Vista 32-bit(64-bit)  
 Windows 7 32-bit(64-bit)  
 Windows 8 32-bit(64-bit)  
 Windows Server 2003 32-bit(64-bit)  
 Windows Server 2008 32-bit(64-bit)  
 Windows Server 2008 R2 32-bit(64-bit)  
 Windows Server 2012 R2 32-bit(64-bit)  
 Novell Netware 5.x,6.x  
 Linux kernel version 2.6.30 or greater (x86\_64) (w/ SR-IOV support)  
 FreeBSD 7.x OR later  
 DOS  
 Novell ODI  
 OS 8 or later  
 SCO Open Server  
 UnixWare / OpenUnix 8  
 Sun Solaris x86  
 OS Independent  
 VMware ESX

## Order Information

M/N	Description
LREC9260PF-LX	PCIe x1 1000Base-LX SC Port SM Fiber NIC (Intel 82576 based,1.25Gbps,1310nm,20Km at 9 μm)
LRGP8512-X5ATL	1.25Gbps SFP multi-mode Transceiver (1.25Gbps,850nm,275m at 62.5 μm; 550m at 50 μm)
LRGP1312-20ATL	1.25Gbps SFP Single-mode Transceiver (1.25Gbps,1310nm,20Km at 9 μm)

PS: The above details is just for reference,if there is any change,no inform will have.

## Companion Products

### Fiber NIC

- LR-LINK PCI 100FX Desktop Adapter
- LR-LINK PCIe 100FX Desktop Adapter
- LR-LINK PCI 1000BASE-SX/LX Desktop Adapter
- LR-LINK PCIe 1000BASE-SX/LX Desktop Adapter
- LR-LINK PCIe 1000BASE-SX/LX Server Adapter
- LR-LINK PCIe 10GBASE-SR/LR Server Adapter
- LR-LINK PCIe 25GBASE-SR/LR Server Adapter
- LR-LINK PCIe 40GBASE-SR/LR Server Adapter
- LR-LINK PCIe 100GBASE-SR/LR Server Adapter

### Copper NIC

- LR-LINK PCI 10/100Mbps Desktop Adapter
- LR-LINK PCIe 10/100Mbps Desktop Adapter
- LR-LINK PCI 10/100/1000Mbps Desktop Adapter
- LR-LINK PCIe 10/100/1000Mbps Desktop Adapter
- LR-LINK PCIe 10/100/1000Mbps Server Adapter
- LR-LINK PCIe 100/1Gbps/10Gbps Server Adapter

## Download Drivers

To get the drivers, please visit us at <http://www.lr-link.com/ProductDriver/index1.shtml>

## Product Quick Guide

To know the network card basic knowledge to choose the suitable NIC you need, please visit us at: <http://www.lr-link.com/product.html>

## Customer Support

LR-LINK customer Support Services offers a broad selection of programs including phone support and warranty service. For more information, contact us at Service and availability. <http://www.lr-link.com/service.shtml>

### LianRui Electronic Co.LTD

A professional supplier of high-quality NIC:PCI,PCI-X,PCI-Express;SC,ST,LC,SFP,SFP+,QSFP+;100M,1G,10G,25G,40G,100G;single,dual,quad ports. all series fiber and copper NIC with nearly 150 specifications which can meet demands of various applications, continuously creates value for customers and partners as well as OEM/ODM services provided.

## Declaration

Shenzhen Lianrui Electronics Co., Ltd is an efficient Ethernet adapter design company with independent research and development, using Intel,Broadcom, Mellanox, Marvell, VIA, Realtek and other manufacturers Ethernet controller, developed by our company's independent R & D design team,manufactured by our company workshop, and then sell.

Our products specifications come from modifying the chip manufacturer's specifications released. Product features, technical parameters, technology right, intellectual property rights and brand names etc.mentioned in specifications are just referenced only. There is no infringement meaning.If there is any important and sensitive content related, please contact our Lianrui company, we'll delete them, thank you.

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