

LREC9704HT

Express x4 Quad Port Copper Gigabit Ethernet Server Adapter (Intel 82580 Based)

Quad-port Gigabit Ethernet server adapter designed for multi-core processors and optimized for Virtualization & Unified Networking Environments

Key Features

Four high-performing 1000BASE-T Ethernet connections

Low power high performing bridgeless design supporting PCI Express* Gen 2.0 5 GT/s

Environmentally-friendly lead-free adapter

Hardware acceleration for TCP-IP and iSCSI

Hardware optimizations for virtualized servers

Reliable and proven Gigabit Ethernet technology from Intel Corp.

Based on the new Intel 82580 Gigabit Ethernet Controller, LREC9704HT Server Adapter is

LR-LINK's fourth generation of PCIe GbE

adapter. This adapter showcases the

industry's first fully integrated quad-port PCIe

Gen2 GbE controller, providing a smaller

footprint and lower power dissipation. In

addition, the LREC9704HT Server Adapter

offers advanced features, including support

for multi-core processors and server

virtualization, as well as a scalable PCI

Express Gen2.0 interface. LR-LINK's first

eco-friendly halogen-free board com- bines

low-power and cost for the best

price/performance ratio in a quad-port

solution available today.

Halogen-Free

Working to create a more environmentally sustainable future, LR-LINK is pleased to introduce its first halogen-free Ethernet Server Adapter. The transition to halogen-free products is not government mandated, but driven by LR-LINK's goal to eliminate the use of environmentally sensitive materials. The move to halogen-free products marks another step in our continual march toward minimizing the environmental footprint of Intel's products, processes, and technologies.

Designed for Multi-Core Processors

This quad-port adapter provides high-performing, multi-port Gigabit connectivity in a multi-core platform as well as in a virtualized



environment. In a multi-core platform, the adapter supports technologies such as MSI-X, and Low Latency Interrupts that help accelerate data across the platform, 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 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. 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 helps to improve system performance and application response times. The different features include MSI-X, Low-Latency Interrupts, Receive Side Scaling (RSS), and others. 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 application's address.

Support for iSCSI

LR-LINK LREC9704HT server adapters with native iSCSI initiators built into Microsoft® Windows®, Linux® and VMware® ESX platforms provide a simple, dependable, cost-effective way to connect to LANs and iSCSI SANs. These native initiators are broadly tested using multiple generations of operating systems, storage systems, and OS tools to help ensure reliability and ease of use. Standardizing on Intel Ethernet server adapters for iSCSI allows administrators to use a single initiator, TCP/IP stack, and set of management tools and IT policies. In addition, the LR-LINK LREC9704HT server adapter includes a number of hardware features designed to accelerate iSCSI traffic and enhance data processing. For example, TCP segmentation offload, Receive side coalescing (RSC), and checksum offload capabilities help reduce processor utilization, increase throughput, and deliver exceptional iSCSI performance. The adapters are designed to flexibly scale workloads across multi-core processor-based systems. Finally, using native OS initiators, an LR-LINK LREC9704HT Server Adapter enables support for the CRC-32 digest instruction set included in the Intel Xeon® processor 5500 series, which improves transmission reliability and thus delivers an enterprise class iSCSI solution for the IT customer.

Optimized for Virtualization

The LR-LINK LREC9704HT Server Adapter showcases a suite of hardware assists that improves overall system performance by lowering the I/O overhead in a virtualized environment. This optimizes CPU usage, reduces system latency, and improves I/O throughput. These features include:

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

Virtual Machine Device queues (VMDq)

VMDq reduces I/O overhead on the hypervisor in a virtualized server by performing data sorting and coalescing in the network silicon. 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.

Reliable Performance

The server adapter includes a number of advanced features that enable it to provide industry-leading quad-port 1GbE performance and reliability.

PCIe* v2.0 (5GT/s)

PCIe v2.0 (5GT/s) support enables customers to take full advantage of the 1GbE by providing a maximum of 2.0 Gbps bidirectional throughput per port on a single quad-port card.

For today's demanding virtualized data center environments, the new LR-LINK LREC9704HT Server Adapter delivers ultimate flexibility and scalability.

General Features

- Intel® 82580 Gigabit Ethernet Controller with PCI Express* V2.0 (5 GT/s) Support
- Low-Profile and Standard height full
- 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

I/O Virtualization Features

- 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)

Virtualization Features

- VMDq
- Advanced Packet Filtering
- VLAN support with VLAN tag insertion, stripping and packet filtering for up to 4096 VLAN tags

Manageability Features

- 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

Advanced Software Feature

- Adapter fault tolerance (AFT)
- Switch fault tolerance (SFT)
- Adaptive load balancing (ALB)
- Teaming support
- IEEE 802.3ad (link aggregation control protocol)
- Test switch configuration: Tested with major switch



original equipment manufacturers (OEMs)
 PCIe Hot Plug*/Active periphera component
 interconnect (PCI)
 IEEE 802.1Q* VLANs
 IEEE 1588 Precision Time Control Protocol
 IEEE 802.3 2005* flow control support
 Tx/Rx IP, TCP& UDP checksum offloading (IPv4,
 IPv6) capabilities control protocol (TCP), user
 datagram protocol (UDP), Internet protocol (IP)
 IEEE 802.1p*
 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

Adapter Product Features

Intel® PROSet Utility
 Plug and play specification support
 Intel® I/O Acceleration Technology (Intel® I/OAT)
 Ships with full-height bracket installed; low-profile
 bracket included in package

Technical Features

Data rate supported per port: 1000 Mbps
 Bus type: PCI Express* 2.0 (5 GT/s))
 Bus width: 4-lane PCI Express; operable in x4, x8
 and x16 slots
 Interrupt levels: INTA, INTB, INTC, INTD, MSI,
 MSI-X
 Controller-processor: Intel 82580 Gigabit Ethernet
 Controller

Power consumption (typical): 6.0 W
 Storage temperature: -40 °C to 70 °C (-40 °F to 158
 °F)
 Operating temperature :0 °C to 55 °C (32 °F to 131
 °F)
 Storage humidity: 90% non-condensing relative
 humidity at 35 °C

Network Operating Systems (NOS) Software Support

DOS, Novell ODI
 Windows NT
 Windows 2000
 Windows XP 32-bit(64-bit)
 Windows Server 2003 32-bit(64-bit)
 Windows Vista 32-bit(64-bit)
 Windows 7 32-bit(64-bit)
 Windows 8 32-bit(64-bit)
 Windows 8.1 32-bit(64-bit)
 Windows Server 2008 32-bit(64-bit)
 Windows Server 2008 R2 32-bit(64-bit)
 Windows Server 2012
 Windows Server 2012 R2
 Novell Netware 5.x,6.x
 Linux 2.4 series kernel and 2.6.x and 3.x
 FreeBSD 7.x or later
 OS 8 or later
 SCO Open Server
 UnixWare / OpenUnix 8
 Sun Solaris x86
 OS Independent
 Vmware e

Order Information:

M/N	Description
LREC9704HT	PCI Express x4 Quad Port Copper Gigabit Ethernet Server Adapter (Intel 82580 Based)

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

ORDER CODES

LREC9704HT

COMPANION PRODUCTS

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
opper 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

ONLINE DOCUMENTS

For the latest product information, visit us Web at <http://www.lr-link.com/>

DRIVERS AND PRODUCT LIST

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

FOR PRODUCT INFORMATION

To know the network card basic knowledge to choose the suitable card you need, please visit us at <http://www.lr-link.com/product.html>
To get the product datasheet, please contact the sales in Shenzhen Lianrui Electronics CO.,LTD.

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 <http://www.lr-link.com/service.shtml> Service and availability.

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Professional supplier of NIC

LianRui Electronic Co.LTD

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

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