LREC9224PT

PCI Express x1 Quad Port Copper Gigabit Server Adapter (Intel I35AM4 Based)

Key Features

Halogen-free quad-port Gigabit Ethernet adapters with copper interface options

Innovative power management features including Energy Efficient Ethernet (EEE) and DMA Coalescing for increased efficiency and reduced power consumption
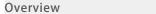
Flexible I/O virtualization for port partitioning and quality of service (QoS) of up to 32 virtual ports

Scalable iSCSI performance delivering cost-effective SAN connectivity

High-performing bridgeless design supporting PCI Express* Gen 2.1 5GT/s

Reliable and proven Gigabit Ethernet technology from Intel Corporation

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Overview

The new LREC9224PT builds on LR-LINK's history of excellence.LR-LINK continues its market leadership with this new generation of PCIe* GbE network adapters. Built with the bridgeless Intel® Ethernet Controller I350, these adapters represent the next step in the Gigabit Ethernet (GbE) networking evolution for the enterprise and data center by introducing new levels of performance through industry-leading enhancements for both virtualized and iSCSI Unified Networking environments. This new family of adapters also includes new power management technologies such as Energy Efficient Ethernet (EEE) and DMA Coalescing (DMAC).

Flexible I/O Virtualization

The LREC9224PT includes Intel® Virtualization Technology for connectivity (Intel® VT-c) to deliver I/O virtualization and Quality of Service (QoS) features designed directly into the controller on the adapter. I/O virtualization advances network connectivity models used in today's servers to more efficient models by providing Flexible Port Partitioning (FPP), multiple Rx/Tx queues, and on-controller QoS functionality that can be used in both virtual and non-virtual server deployments.

By taking advantage of the PCI-SIG SR-IOV specification, the adapter enables Flexible Port Partitioning (FPP). With FPP, virtual controllers can be used by the Linux* host directly and/or assigned to virtual machines. With this port partitioning, administrators can create up to eight dedicated connections on a single Ethernet port for use in bare metal and virtualized server deployments.

In a bare-metal Linux server, host processes can be assigned to dedicated network resources to provide traffic isolation and balanced bandwidth allocation.

In a virtualized environment, a VM can be assigned to a virtual controller to reduce the CPU overhead seen when using a software-based network bridge by offloading network traffic management to the controller.

Scalable iSCSI Performance

LREC9224PT with native iSCSI initiators built into Microsoft* Windows*, Linux* and VMware* ESX platforms provides a simple, dependable, cost-effective way to connect to 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 LR-LINK® Ethernet Adapters for iSCSI enables administrators to use a single initiator, TCP/IP stack, and a common set of management tools and IT policies. In addition, LR-LINK® Ethernet Server Adapters include a number of hardware features designed to accelerate iSCSI traffic and enhance data processing.

For example, TCP segmentation offload and checksum offload capabilities help reduce processor usage, increase throughput, and deliver exceptional iSCSI performance. Finally, using native OS initiators, an LREC9224PT supports the CRC-32 digest instruction set included with Intel® Xeon® processor products, which improves transmission reliability and delivers an enterprise-class iSCSI solution.

Power Management Technologies

Today, companies everywhere are looking for ways to decrease energy consumption across the enterprise to reduce costs and environmental impact, while at the same time solving increasingly important power density challenges. That's why LR-LINK has introduced new, advanced Power Management Technologies (PMTs)with the LREC9224PT that enable enterprises to configure power options on the adapter and more effectively manage their power consumption.

Energy Efficient Ethernet (EEE)

The LREC9224PT supports the IEEE802.3az Energy Efficient Ethernet (EEE) standard so that, during periods of low network activity, EEE reduces the power consumption of an Ethernet connection by negotiating with a compliant EEE switch port to transition to a low power idle (LPI) state. This reduces the controller power to approximately 50% of its normal operating power, saving power on the network port and the switch port. As soon as increased network traffic is detected, the controller and the switch quickly come back to full power to handle the increased network traffic. EEE is supported for both 1000BASE-T and100BASE-TX.

DMA Coalescing

Another power management technology that can reduce power on the server platform is DMA Coalescing (DMAC). Typically, when a packet arrives at a server, DMA calls are made to transfer the packet within the server. These calls wake up the processor, memory and other system components from a lower power state in order to perform the tasks required to handle the incoming packet.

Based on the configurable DMAC settings, incoming packets are buffered momentarily before any DMA calls are made. This enables the controller to intelligently identify opportunities to batch multiple packets together so that when components are wakened from lower power states they can efficiently handle the batched packets at the same time. This enables platform components to remain in lower power states longer, which can dramatically reduce platform energy consumption. DMAC synchronizes DMA calls across all controller ports to ensure maximum power savings.

Software Tools and Management

LR-LINK® Advanced Network Services (LR-LINK® ANS) include new teaming technologies and techniques such as Virtual Machine Load-Balancing (VMLB) for Hyper-V environments. Today, LR-LINK ANS includes a variety of teaming configurations for up to eight adapters, support for mixed vendors server adapters teaming and includes support for 802.1q VLANs, making LR-LINK ANS one of the most capable and comprehensive tools for supporting server adapter teaming.

Additionally, Intel® PROSet for Windows* Device Manager and PROset CL extends driver functionality to provide additional reliability and Quality of Service features and configuration.

General Features

Intel® Ethernet Controller I350

With PCI Express* V2.1 (5 GT/s) Support

Halogen Free1

Low-Profile and Standard height full

Ethernet Features

IEEE* 802.3 auto-negotiation

1Gb/s Ethernet IEEE 802.3, 802.3u, 802.3ab PHY specifications Compliant

Integrated PHY for 10/100/1000 Mb/s for multispeed, full, and half-duplex

IEEE 802.3x and 802.3z compliant flow control support with software-controllable Rx thresholds and Tx pause frames

Automatic cross-over detection function (MDI/MDI-X)

IEEE 1588 protocol and 802.1AS implementation

Power Management and Efficiency

<1W S0-Max (state) 1000BASE-T Active 90oC (mode)

<400mW S0-Typ (state) 100BASE-T Active (mode)

IEEE802.3az - Energy Efficient Ethernet (EEE)

DMA Coalescing

Smart Power Down (SPD) at S0 no link / Sx no link
Active State Power Management (ASPM) Support
LAN disable function
Full wake up support
Advanced Power Management (APM) Support (formerly Wake on LAN)
Advanced Configuration and Power Interface (ACPI) specification v2.0c
Magic Packet* wake-up enable with unique MAC address
ACPI register set and power down functionality supporting D0 and D3 states
MAC Power Management controls
Low Power Link Up - Link Speed Control
Power Management Protocol Offload (Proxying)
Latency Tolerance Reporting (LTR)

I/O Virtualization Features

Eight transmit (Tx) and receive (Rx) queue pairs per port
Flexible Port Partitioning:
32 Virtual Functions on Quad-port or 16 Virtual Functions on Dual-port
Support for PCI-SIG SR-IOV specification
Rx/Tx Round-Robin Scheduling
Traffic Isolation
Traffic Steering
VM to VM Packet forwarding (Packet Loopback)
MAC and VLAN anti-spoofing
Malicious driver detection
Storm control
Per-pool statistics, offloads, and jumbo frames support
Independent Function Level Reset (FLR) for Physical and Virtual Functions
IEEE 802.1q Virtual Local Area Network (VLAN) support with VLAN tag insertion, stripping and packet filtering for up to 4096 VLAN tags
IEEE 802.1q advanced packet filtering
Mirroring rules
Support for Simple VEPA
VF Promiscuous modes

Stateless Offloads/Performance Features

TCP/UDP, IPv4 checksum offloads (Rx/ Tx/Large-send)

Extended Tx descriptors for more offload capabilities

IPv6 support for IP/TCP and IP/UDP receive checksum offload

Tx TCP segmentation offload (IPv4, IPv6)

Transmit Segmentation Offloading (TSO)

Interrupt throttling control

Legacy and Message Signal Interrupt (MSI) Modes

Message Signal Interrupt Extension (MSI-X)

Intelligent interrupt generation

Receive Side Scaling (RSS) for Windows environment

Scalable I/O for Linux environments (IPv4, IPv6, TCP/UDP

Support for packets up to 9.5K Bytes (Jumbo Frames)

Low Latency Interrupts

Header/packet data split in receive

PCIe v2.1 TLP Processing Hint Requester

Descriptor ring management hardware for Transmit and Receive

Remote Boot Options

Preboot eXecution Environment (PXE) flash interface support

Intel® Ethernet iSCSI Remote Boot for Windows, Linux, and VMware

Intel Boot Agent software: Linux boot via PXE or BOOTP, Windows* Deployment Services, or UEFI

Manageability Features

Management Component Transport Protocol (MCTP)
Firmware Based Thermal Management
IEEE 802.3 MII Management Interface
MAC/PHY Control and Status
Watchdog timer
Extended error reporting
Controller Memory Protection
Vital Product Data (VPD) Support

Adapter Product Features

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: 10/100/1000 Mbps

Bus type: PCI Express* 2.1 (5 GT/s))

Bus width: 1-lane PCI Express; operable in x4, x8 and x16 slots

Interrupt levels: INTA, INTB, INTC, INTD, MSI, MSI-X

Controller-processor: Intel Ethernet Controller I350

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 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

Linux 2.4 series kernel、2.6.x、3.x

FreeBSD 7.x or most of the FreeBSD

UnixWare / Open Unix 8

Sun Solaris x86

Xen4

Vmware

Ordering Information

M/N	Description
LREC9224PT	PCI Express x1 Quad Port Copper Gigabit Server Adapter (Intel I350AM4 Based)

PS: Above details are only for reference, if there are any changes, 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 Adapte
- 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 40GBASE-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+;100M,1G,10G,40G;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,manufacturedby our company workshop, and then sell.

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

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