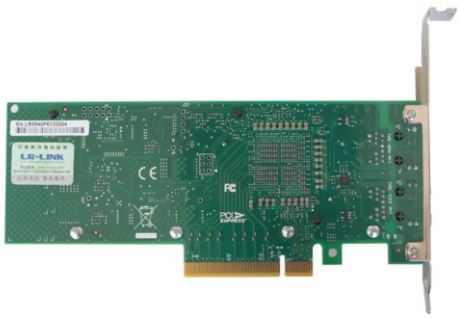
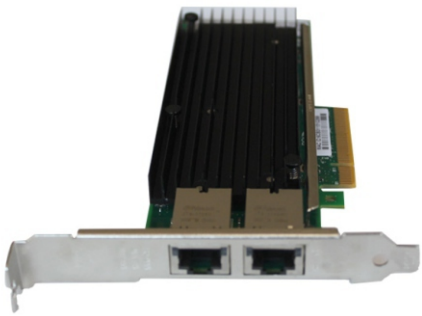
PRODUCTBRIEF
PCI Express x8 Dual Copper Port10 Gigabit Server Adapter (Intel X540AT2 Based)
ProfessionalSuppilerOfNIC

LR-LINK®
Link your world to everywhere

LREC9802BT





DESCRIPTION

10GBASE-T converged network adapter simplifies migration to 10 GbE, provides iSCSI, FCoE, Virtualization, and Flexible Port Partitioning.

10 Gigabit for the Broad Market. The LREC9802BT is the latest innovation in Intel's leadership to drive 10 Gigabit Ethernet into the broader server market. This adapter hosts Intel's latest Ethernet silicon, the Intel Ethernet Controller X540, which is used by many OEMs as a single chip solution for LAN on Motherboard (LOM) to deliver 10 Gigabit Ethernet(10 GbE) on the latest server platforms.

10GBASE-T Simplifies the Transition to 10 GbE. The LREC9802BT 10GBase-T works with existing networks today. It works with legacy Gigabit Ethernet (GbE) switches and Cat 6A cabling. Install the LREC9802BT 10GBase-T adapter into a server and the auto-negotiation between 1 GbE and 10GbE provides the necessary backwards compatibility that most customers require for a smooth transition and easy migration to 10 GbE. When time and budget allows, 10GBASE-T switches can be added any time to experience the full benefits of 10GbE.

10GBASE-T uses the copper twisted pair cables that are very familiar to IT professionals today. It is everything you know and love about 1000BASE-T. The knowledge, training and investment in BASE-T are preserved. 10GBASE-T is the easiest and most versatile 10 GbE and you can deploy it anywhere in your data center. Its flexible reach from 1 meter to 100 meters supports the latest network architectures including Top of Rack (ToR), Middle of Row (MoR), and End of Row (EoR).

10G Performance at Low Cost and Low Power

The LREC9802BT 10GBase-T adapter is the lowest cost way to deploy 10 GbE in your data center today. The LREC9802BT uses low cost, Cat 6 and Cat 6A cabling. Chances are this cabling already exists in the data center.

A way for Intel to reduce cost and power is to integrate components into a single- chip solution. Of course, integration is what Intel does best. With the new Intel X540 Controller, the MAC and the PHY are integrated into a single-chip solution.

WHYISINTEGRATIONIMPORTANT?

•First, integration translates to lower power. A single-chip solution simply uses less power than two separate components.

This means no more active heat sink and reduces the per-port power consumption.

•Second, integration also means lower cost per port. Manufacturing a single part costs less than two. When cabling is accounted for, cost efficiencies realized from a single part mean 10GBASE-T is the lowest cost media to deploy.

•With lower cost and power, 10GBASE-T is ready for broad deployment. 10GBASE-T is an option for every rack and tower server in the data center. The wait for a low cost 10 GbE copper solution to broadly deploy 10 GbE to all corners of the data center is over. The LREC9802BT 10GBase-T adapter provides bandwidth-intensive applications with highly affordable 10 GbE network performance and cost-effective RJ-45 connectivity for distances up to 100 meters.

EXCITINGNEWDATACENTERUSAGEMODELS

More than simply a 10x increase in performance, with 10GbE there are exciting new usage models that are now possible, including Unified Networking (iSCSI, FCoE and LAN), Virtualization (VMDq and SR- IOV), and now, Flexible Port Partitioning (FPP).

FLEXIBLEI/OVIRTUALIZATION

Virtualization changes the way server resources are deployed and managed by running multiple applications and operating systems independently on a single server.

The LREC9802BT 10GBase-T adapter includes Intel Virtualization Technology for connectivity (Intel VT-c) to deliver I/O virtualization and Quality of Service (QoS) features designed directly into the Intel X540 controller on the adapter. Intel I/O virtualization advances network connectivity models used in today's servers to more efficient models by providing FPP, multiple Rx/Tx queues, and on-controller QoS functionality that can be used in both virtual and non-virtual server deployments.

FLEXIBLEPORTPARTITIONING(FPP)

By taking advantage of the PCI-SIG SR-IOV specification, Intel Ethernet products enable FPP. With FPP, virtual controllers can be used by the Linux* host directly and/or assigned to virtual machines. FPP allows you to use the functionality of SR-IOV to assign up to 63 processes per port to virtual functions in Linux. This enables an administrator to partition their 10 GbE bandwidth across multiple processes, ensuring a QoS by giving each assigned process equal bandwidth. Network administrators may also rate-limit each of these services to control how much of the 10GbE pipe is available to each process.

UNIFIEDNETWORKING

Unified Networking solutions on the LREC9802BT 10GBase-T adapter let you combine the traffic of multiple data center networks like LAN and SAN onto a single efficient network fabric. You now have the choice of NFS, iSCSI, or Fibre Channel over

Ethernet (FCoE) to carry both network and storage traffic at speeds of up to 10 Gbps.
The LREC9802BT 10GBase-T adapter combines support for all of these traffic types in one adapter at no additional cost and with no additional licensing fees for the adapter.
Intel's Unified Networking solutions are enabled through a combination of standard Intel Ethernet products along with trusted network protocols integrated in the operating systems. Thus, Unified Networking is available on every Server either through LAN-on-Motherboard (LOM) implementation or via an add-in Network Interface Card (NIC).
Intel has delivered high quality Ethernet products for over 30 years and our Unified Networking solutions are built on the original principles that made us successful in Ethernet:
Open Architecture integrates networking with the server, enabling IT managers to reduce complexity and overhead while enabling a flexible and scalable data centre network.
Intelligent offloads lower cost and power while delivering the application performance that customers expect.
Proven Ethernet unified Networking is built on trusted Intel Ethernet technology, enabling customers to deploy FCoE or iSCSI while maintaining the quality of their traditional Ethernet networks.

ISCSISIMPLIFIESSANCONNECTIVITY

iSCSI uses Ethernet to carry storage traffic, extending the familiarity and simplicity of Ethernet to storage networking, without the need for SAN-specific adapters or switches. LREC9802BT is the easiest, most reliable, and most cost-effective way of connecting servers to iSCSI SANs.

OPENFCoE

Intel's Open FCoE solution enables LREC9802BT (adapters and controllers) to support Fibre Channel payload encapsulated in Ethernet frames. There is no upgrade charge for Open FCoE on the adapter. Just as with iSCSI, now customers can easily connect to an FCoE network with Intel 10 GbE solutions.
For the first time, Open-FCoE is now supported on 10GBASE-T. As 10GBASE-T switches come to market enabled with FCoE support, the LREC9802BT is ready when you're ready. This enables you to use cost-effective 10GBASE-T for all your converged networking needs. The Open- FCoE architecture uses a combination of FCoE initiators in Microsoft Windows*and Linux* operating systems and in the VMware* ESXi hypervisor to deliver high-performance FCoE solutions using standard 10 GbE Ethernet adapters.
This approach enables IT managers to simplify the data center and standardize on a single adapter for LAN and SAN connectivity. The LREC9802BT is designed to fully offload the FCoE data path to deliver full-featured converged network adapter (CNA) functionality without compromising on power efficiency and interoperability.

DATACENTERBRIDGING

Conventional Ethernet does not guarantee successful data delivery, which is not acceptable for SAN traffic. Ethernet enhancements such as Data Center Bridging (DCB) overcome that limitation with technologies that guarantee lossless delivery, congestion notification, priority-based flow control, and priority groups.
The combination of 10 GbE and unified networking helps organizations overcome connectivity challenges and simplify the data center infrastructure. 10 GbE provides a simple, well-understood fabric for virtualized data centers, one that helps reduce cost and complexity as the number of virtual machines continues to grow.

SYSTEMSSOFTWARESUPPORT

- Windows 7 (IA32 and X64)
- Windows Server 2008 (x64 and IPF)
- Windows Server 2008 Core (x64 and IPF)
- Windows Server 2008 R2 (x64 and IPF)
- Windows Server 2008 R2 Core (x64 and IPF)
- Linux- SLES 11 Sp1
- Microsoft Windows Server 2003
- Microsoft Vista
- SUSE- SLES 10 or later, Professional 9.2 or later
- Microsoft Windows Virtual Server- 2005
- Red Hat Enterprise 4 or later
- FreeBSD 5.x or later support
- VMware ESX 4.0/4.1, ESXi 5.0 support
- Fedora
- EFI 1.1

SPECIFICATIONS:

Connector	10G RJ45 Copper
IEEE standard/network topology	10000BASE-T
Cabling Distance	RJ-45 Category-6 up to 55 m; Category-6A up to 100 m
Data rate supported per port	10000 Mbps
Bus Type	PCI-E X8
Interrupt levels	INTA, INTB, INTC, INTD, MSI, MSI-X
Bus Width	8-lane PCI Express; operable in x8 or greater slots
Hardware certifications	FCC , CE
Controller - processor	Intel® Ethernet Controller X540AT2
Power consumption	Typical Power 14.0W; Maximum Power 16.0W
Operating temperature	0℃ to 55℃ (32℉ to 131℉)
Storage temperature	-40℃ to 70℃(-40℉ to 158℉)
Storage humidity	90% non-condensing relative humidity at 35℃
Connect speed LED Indicators	Link/Activity LED: off = No Link; on = Link; Blinking = Activity
Full-height end bracket	12.07 cm (4.755 inches)
Low-profile end bracket	8 cm (3.15 inches)
Packing specification	18x15x3cm （7.08x5.9x1.18 inches）

ORDERINFORMATION

M/N	Description
LREC9802BT	PCI Express x8 Dual Copper Port 10GBase-T Server Adapter (Intel X540AT2 Based)

PS: The above details are just for reference, if there are any changes, no prior notice.

DOWNLOADDRIVERS

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

PRODUCTQUICKGUIDE

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

CUSTOMERSUPPORT

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.

COMPANIONPRODUCTS

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

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.

SHENZHENLIANRUIELECTRONICSCO.,LTD
ADD:C4 Bldg., Xintang Industry Zone, Baishixia Fuyong Town, Bao'an District Shenzhen China 518103
Tel:86-755-33671531 Fax: 86-755-29082065
Product sales: lrlink@lr-link.com
Technical Support: support@lr-link.com
OEM & ODM service: info@lr-link.com
WEB: www.lr-link.com

LR-LINK®
Link your world to everywhere