

1 Introduction

Preface

Thank you for purchasing our product! This guide is designed for the experienced network installer. It contains information about installation and configure the ***32-bit high performance*** Fast Ethernet PCI Local Bus adapter. It can be used with IBM PC/AT and compatibles with PCI local-bus master slot.

The LFE-8139ATX network interface card (NIC) provides a network connection with the Remote Wake-Up connector installed, it operates only in PCs with the Remote-Wake-Up connector attached to the PC motherboard.

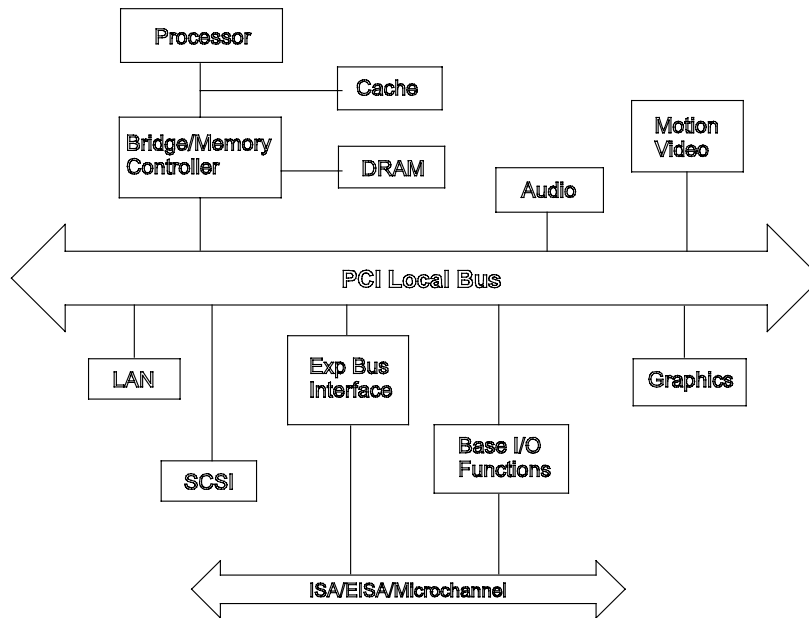
This NIC operates at 100Mbps or 10Mbps automatically, depending on the speed of the connected hub.

Peripheral Component Interconnect (PCI) Bus Overview

The Peripheral Component Interconnect (PCI) local bus is a high performance, 32- or 64-bit bus that dramatically increases the speed of I/O bound peripherals by directly connecting these devices to the CPU local bus. It is intended to use as an interconnected mechanism among highly integrated peripheral controller components, peripheral add-on cards, and processor/cache/memory subsystem. It is an industry standard local bus architecture that provides end-users high performance and eases of use without requiring high cost.

PCI is CPU independent, optimizes I/O functions and accommodates multiple high performance peripherals such as LAN, SCSI, and Graphics. It enables concurrent operation of the local bus with the processor/cache/memory subsystem.

The following PCI block diagram shows a typical PCI local bus system architecture:



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The processor/cache/memory subsystem connects the PCI local bus through a PCI bridge. This bridge supports a low latency path through the processor, and may directly access PCI devices mapped anywhere in the memory or I/O address spaces. It also provides a high bandwidth path that allows PCI masters to directly access the main memory. The bridge may optionally include functions as data buffering/posting and PCI central functions.

Among the features, PCI provides the following features:

- ◆ Processor independent
- ◆ Multiplexed, burst mode operation
- ◆ Synchronous at frequencies up to 40 MHz
- ◆ 120 Mbytes/sec usable throughput (132 Mbytes/sec maximum) for a 32-bit data path
- ◆ Capable of full-concurrency with the processor/cache/memory subsystem
- ◆ Full multi-master capability allowing any PCI master peer-to-peer access to any PCI slave
- ◆ Comprehensive support for auto-configuration through a defined set of standard configuration

Product Description - What's is a LFE-8129ATX Network Adapter ?

The LFE-8139ATX is a 32-bit PCI Fast Ethernet adapter equipped. It is designed for use on computers that are equipped with PCI bus slots. The adapter runs in the bus master mode and directly sending/receiving Ethernet packets to /from memory. The bus master device is a more intelligent device that can conduct processing independently of the bus or other devices. A bus master device shares the bus with the main processor and targets. Bus mastering allows a peripheral device to take control of the system bus, and not rely on the central processor.

It complies with the IEEE 802.3u standard, IEEE 802.3 standard, IEEE802.3x Full Duplex Flow Control and PCI Local Bus version 2.1 and transmits data on the network at 100 Mbps or 10 Mbps. It also operates in full-duplex mode that **doubles the network speed up to 20/200Mbps when working with Fast Switching hub**. It is the fastest Ethernet design of its kind. LFE-8139ATX comes with one RJ-45 port for connection of 100BASE-TX Fast Ethernet or 10BASE-T Ethernet network, and automatically senses the connection type.

The LFE-8139ATX also supports ACPI, PCI power management for modern operating systems that is capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management.

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The following figure shows the board layout of the LFE-8139ATX network interface card :

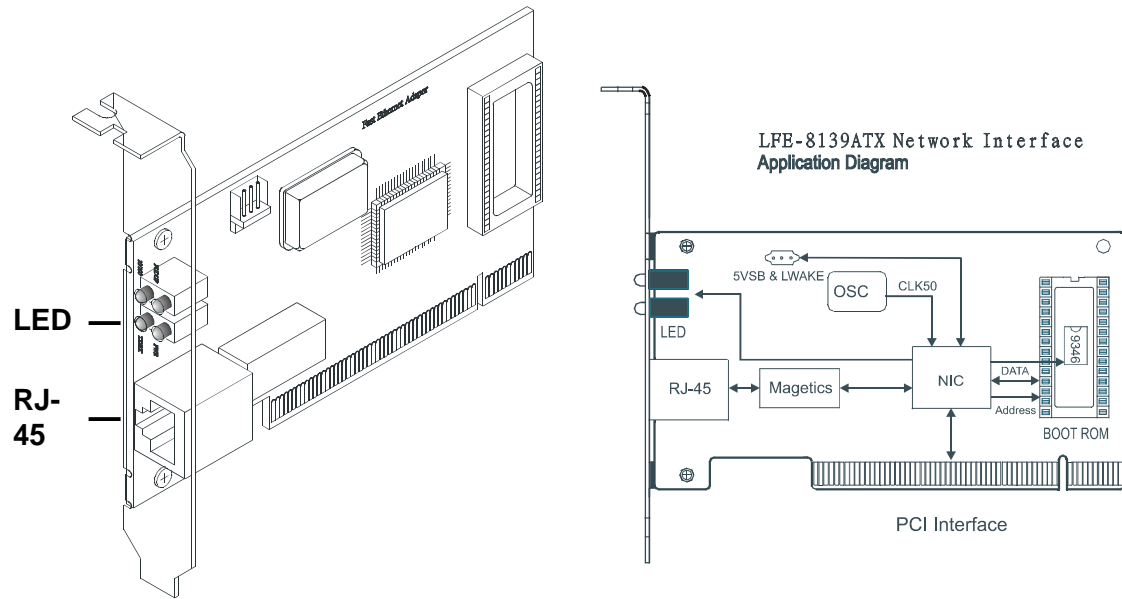


Figure : 1-1 The LFE-8139ATX Network Interface Card

Remote Wake-up Support

The LFE-8139ATX network interface card (NIC) provides a Remote Wake-Up feature that, combined with other remote control capabilities, gives technicians and ability to turn machines on remotely and automatically during off hours, to perform maintenance activities. The system can be automatically transitioned from a sleep state to a fully powered state over the network. Once the system is awake, it can be directed to run utilities and then return to sleep mode.

If you are using the LFE-8139ATX NIC in a PC that supports Remote Wake-Up through the PCI bus, and when the system is turned off, the LFE-8139ATX NIC using an alternate power source, continuously monitors the network and watches for a wake-up packet. When it receives that packet, it alerts the system, which then comes to a full power state and stands ready to perform any maintenance or other tasks.

Auto-Negotiation Support

NWay auto-negotiation enables the LFE-8139ATX NIC to automatically run at the speed and duplex mode that the connect hub supports. Auto-Negotiation detects the various modes

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that exist in the device on the other end of the wire, the Link Partner, and advertises its own abilities to automatically configure the highest performance mode of interoperation.

If the auto-negotiation is supported on both ends of the connection, the auto-negotiation process is initiated to negotiate for one of the following modes :

- **200 Mbps/FDX**
- **100 Mbps/HDX**
- **20 Mbps/FDX**
- **10 Mbps/HDX**

Feature

- ◆ Supports 486/Pentium 32-bit PCI Local Bus master for high throughput and low processor utilization
- ◆ Full compliance with PCI Rev.2.1
- ◆ Complies with the Ethernet/IEEE 802.3u 100BASE-TX and 10 BASE-T industry standard
- ◆ Support IEEE 802.3x Full Duplex Flow Control
- ◆ Complies to ACPI(Rev 1.0), PCI Power Management(Rev 1.1), and Device Class Power Management reference Specification(V 1.0a), such as to support OS Directed Power Management(OSPM) environment

- ◆ Allow remote wake-up(Magic packet and Microsoft wake-up frame)
- ◆ Plug and Play: Simply insert the card into a PC and it will automatically be configuration by the PC BIOS
- ◆ Supports full-duplex operations, thus doubling the network speed up to 20Mbps on 10BASE-T Ethernet or 200Mbps on 100BASE-TX Fast Ethernet when setting in full-duplex mode
- ◆ Four LEDs indicators to report network status
- ◆ Single RJ-45 connector with Auto-sense of cable type of 10 or 100Mbps network operation
- ◆ Support PCI clock speed from 16.75 to 40 MHz, capable of zero wait state
- ◆ Supports optional Remote Boot ROM socket
- ◆ Extensive use of VLSI component that integrated Fast Ethernet MAC, Physical chip and transceiver in one chip to provide high hardware reliability, small power consumption and reduced network interface card size
- ◆ Provides a comprehensive setup program for displaying the adapter configuration, and including diagnostics on board or on network test.

Package Contents

Before you proceed further, please check and see do you have all the necessary materials from the shipping package and make sure nothing is missing. The complete package should include :

one (1) LFE-8139ATX Network Interface Card (NIC)

two (2) LFE-8139ATX NIC driver diskette

one (1) Remote Wake-Up cable

one (1) User's Manual

If any of these items is damaged or missing, please contact your authorized network supplier.