LANTRONIX®

N-FXE-xx-02B

100Base-FX Fiber Adaptor NIC Cards

User Guide

Part Number 33865
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Revision History

Date	Rev.	Comments
9/29/22	A	Initial N-FXE-xx-02B release.
9/18/24	B	Update bracket information and note NDAA and TAA Compliant.

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1 Introduction

This document applies to the Lantronix N-FXE-xx-02B 100Base-FX Fiber Adaptor NIC Cards.

Product Description

The N-FXE-xx-02B Series is a Fiber Fast Ethernet to PCI-Express (PCIe) bus adapter that fully complies with all IEEE 802.3u and 100Base-FX standards. It provides up to 200Mbps full-duplex bandwidth capacity to support high-end systems. In addition, with advanced functions like VLAN filtering packet processing, the adapter provides added performance, flexible configuration and secure networking to users in a standards-based environment.

The PCI-Express (PCIe) design gives you the maximum possible bandwidth and bus efficiency, along with low power consumption. For users equipped with PCI-Express systems, N-FXE-xx-02B Series provides the ability to easily build or connect to Fast Ethernet fiber networks.

Two LED indicators (LINK/ACT and FDX) on the bracket display NIC link activities and full-duplex status. The N-FXE-xx-02B support Preboot Execution Environment (PXE). The Multi-Boot Agent (MBA) software module lets your networked system boot with the images provided by remote systems across the network.

Ordering Information

Part Number	Fiber Port
N-FXE-ST-02B	100Base-FX 1300nm multimode (ST); [2 km/1.2 mi.*] Link Budget: 12.0 dB. Standard bracket attached; low profile bracket included. PXE boot included.
N-FXE-SC-02B	100Base-FX 1300nm multimode (SC); [2 km/1.2 mi.*] Link Budget: 12.0 dB. Low-profile bracket attached; standard bracket included. PXE boot included.
N-FXE-LC-02B	100Base-FX 1300nm multimode (LC); [2 km/1.2 mi.*] Link Budget: 13.0 dB. Standard bracket attached; low profile bracket included. PXE boot included.
N-FXE-MT-02B	100Base-FX 1300nm multimode (MT-RJ) [2 km/1.2 mi.] Link Budget: 12.0 dB. Standard bracket attached; low profile bracket included. PXE boot included.

* Typical max. cable distance. Actual distance depends on installed network physical characteristics.

Features

- PCI-Express x1 Interface
- IEEE 802.3x Full-Duplex Flow Control
- Supports IEEE 802.1Q VLAN tagging
- IPv6 Capable
- Wake-on-LAN (WoL) power management
- Microsoft certified drivers
- PXE remote boot support
- RoHS Compliance
- UEFI (PC platform BIOS must support)
- Message Signaled Interrupts (MSI)
- Extended Message Signaled Interrupts (MSI-X)
- TCP Segmentation Offload (large send v1 and large send v2 support)
- Available with SC, LC, ST, and MT-RJ multimode fiber connectors
- NDAA Compliant and TAA Compliant
- Compliant with PCIe Rev 1.1 interface
- Supports Jumbo Frame
- ACPI supported (if PC BIOS supports)

For More Information

For Lantronix Drivers, Firmware, Manuals, Product Notifications, Warranty Policy & Procedures, etc. go to the Lantronix Technical Resource Center. Note that this manual may provide links to third party websites for which Lantronix is not responsible.

2 Installation

Checklist

Before installing the N-FXE Series NIC, verify that the package contains these items:

- One Fast Ethernet N-FXE Series 100Base-FX Fiber NIC with bracket attached
- One Alternate Bracket (not attached)
- One Product Post Card

Please notify your sales representative immediately if any of these items is missing or damaged.

Standard and LP Brackets

The N-FXE-SC-02B version ships with the low-profile bracket attached; the standard profile bracket is included separately. All other versions ship with the standard profile bracket attached; the low profile bracket is included separately.

N-FXE-ST-02B: standard profile bracket attached; low profile bracket included separately.

N-FXE-SC-02B: low-profile bracket attached; standard profile bracket included separately.

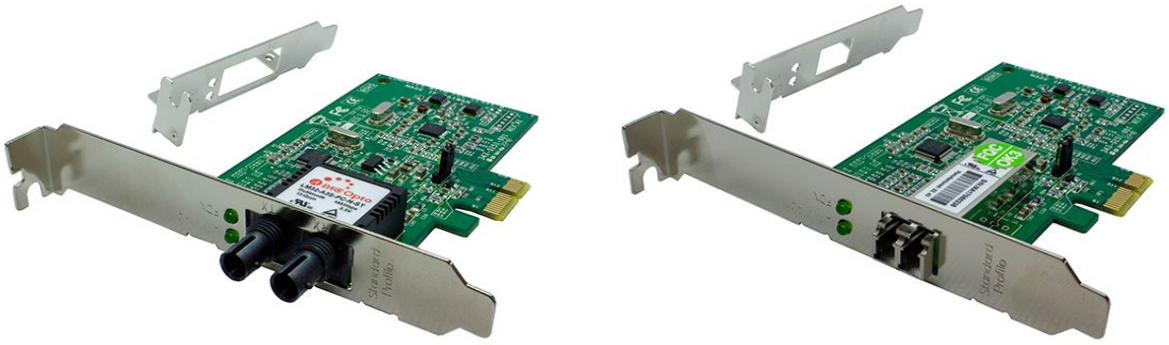
N-FXE-LC-02B: standard profile bracket attached; low profile bracket included separately.

N-FXE-MT-02B: standard profile bracket attached; low profile bracket included separately.

Switching the Brackets

To swap the brackets:

1. Carefully remove and retain the two Phillip head screws.
2. Remove the installed bracket.
3. Install the replacement bracket.
4. Replace the two screws that you removed in step 1.



N-FXE-ST-02B **N-FXE-LC-02B**

Figure 1. N-FXE-xx-02B

LED Indicators

The two LED indicators, LINK/ACT and FDX located on the bracket, show network/NIC link activities, collision, and full-duplex statuses. See Figure 1 below.

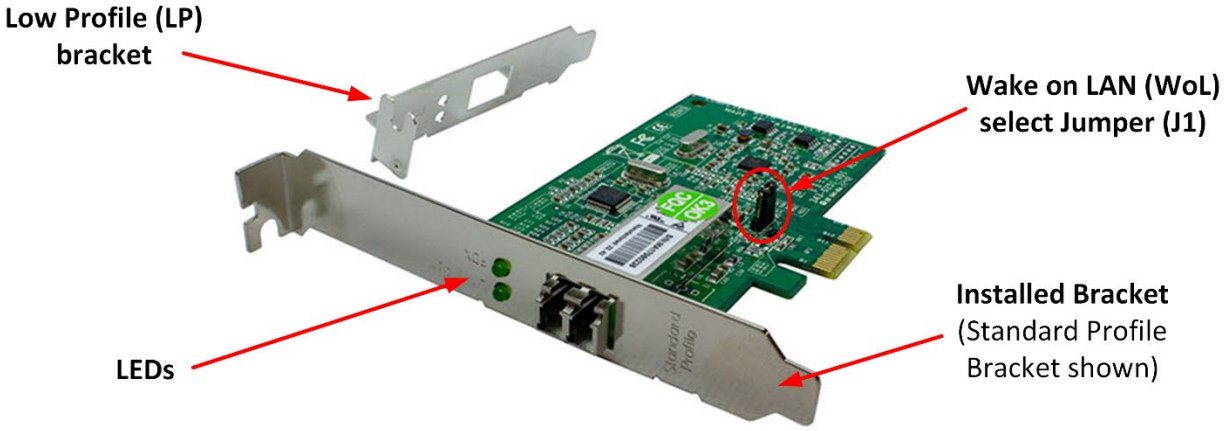


Figure 2. N-FXE-xx-02B Components

Installation Procedure

CAUTION: Wear a grounding strap and observe electrostatic discharge precautions when installing the N-FXE. Failure to observe this caution could result in failure or damage of the N-FXE.

WARNING: Turn PC power OFF before installing the N-FXE.

To install the N-FXE:

1. Turn OFF power to the PC or file server and unplug the power cord.
2. Remove the cover from the PC or file server and keep the retaining screws.
3. Select an empty PCI-e slot (see system documentation if unsure where PCI-e slots are located) and remove the faceplate. Keep the faceplate.
4. Remove the network N-FXE from the shipping package and store the packaging material in a safe place.
5. Verify the Wake on LAN (WoL) Select Jumper (J1) setting (see below).
6. Apply even pressure on the corners of the N-FXE, pushing down until it seats firmly into the PCI-e slot.
7. Replace the PC or file server cover and secure it with the screws removed in Step 2.
8. Power up the PC or file server.
9. Check the LEDS for proper operation (see below).

Wake on LAN (WoL)

The WoL function on this NIC can recognize a wake-up frame and signal the PC to power up. The default state of the WoL function is enabled (ON), which means pin 2 and pin 3 on J1 (*3-pin header*) are connected via a jumper, as shown below.

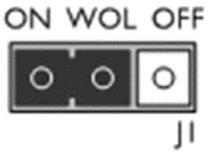


Figure 3. Wake on LAN Select Jumper (J1)

Network Remote Boot Configuration

Select remote boot type
To enter the MBA configuration menu to select remote boot type (PXE), press SHIFT-F10 keys within 3 seconds after powering up the PC, otherwise the computer will load the OS.

Set network remote reboot
To set the network remote boot, enter PC BIOS first and then select the Boot tab, after that choose MBA as the priority.

Cancel network remote boot
To cancel network remote boot, change the PC BIOS setting for MBA to Hard Drive or devices.

Cable Specifications

Fiber cable

Bit error rate:	<10-9
Single mode fiber (*recommended*):	9 µm
Multimode fiber (*recommended*):	62.5/125 µm
Multimode fiber (*optional*):	100/140, 85/140, 50/125 µm
N-FXE-ST-02B	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -xx.0 dBm
Link budget:	12.0 dB
N-FXE-SC-02B	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -14.0 dBm
Link budget:	12.0 dB
N-FXE-LC-02B	1310 nm multimode
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -32.0 dBm max: -14.0 dBm
Link budget:	13.0 dB
N-FXE-LC-02B	1300 nm multimode (MT-RJ)
Fiber optic transmitter power:	min: -19.0 dBm max: -14.0 dBm
Fiber optic receiver sensitivity:	min: -31.0 dBm max: -14.0 dBm
Link Budget:	12.0 dB

The fiber optic transmitters on the device meet Class I Laser safety requirements per IEC-825/CDRH standard and comply with 21CRF1040.10 and 21CRF1040.11.

Specifications

For model N-FXE-xx-02B:

Standards:	IEEE 802.3u, IEEE 802.3x, IEEE 802.1Q, IEEE 802.1p
Bus Slot	PCIe 1.1
Data rate:	100Mbps fiber media
Status LEDs:	LINK/ACT (Link/Activity): ON = communication link; FLASHING = activity on link FDX (Full-duplex): ON = Full-duplex link
Software support:	Windows Server 2003, 2008, 2012, Windows XP, Vista, Linux 2.4.x, 2.6.x, Novell Netware 5.x, 6.x, Windows 7, 8, 10, 11
Boot Server Support	PXE Boot ROM
Dimensions:	Depth: 4.25” [108 mm], Height: 2.70” [68.5 mm]
Power Consumption	1.2 Watts (max), +3.3 VDC @ 0.7A
Weight	1 lb. [0.45 kg]
Environment	Operating Temp: 0°C to 50°C Storage Temp: -15°C to 65°C Humidity: 5% to 95% (non-condensing) Altitude: 0 – 10,000 ft.
Certifications	EMI Standard, FCC Class B, CE Mark, NDAA and TAA Compliant
Warranty:	Lifetime

WARNING: Visible and invisible laser radiation when open: DO NOT stare into the beam or view directly with optical instruments. Failure to observe this warning could result in damage to your vision or blindness.

CAUTION: Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Electronic emission notices

This equipment has been tested and found to comply with the limits for a class B computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN61000-3 and the Generic European Immunity Standard EN55024.

The information in this manual is subject to change without further notice.

NDAA, RoHS, REACH and WEEE Compliance

See our Compliance Statement at NDAA, RoHS, REACH and WEEE Compliance Statement | Lantronix

3 Troubleshooting

Diagnostics LEDs

LED	Color	Function
LINK/ACT	Green	Lit when cable connection is good and speed is at 100 Mbps. Blinks when any traffic is present.
FDX	Green	Lit when full-duplex mode is active.

Federal Communications Commission (FCC) Statement

This Equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Declaration of Conformity

Name of Mfg:	Lantronix, Inc., 48 Discovery, Suite 250, Irvine, CA 92618, USA
Model:	N-FXE-xxx-02B Network Interface Cards
Part Numbers:	N-FXE-ST-02B, N-FXE-SC-02B, N-FXE-LC-02B, N-FXE-MT-02B
Purpose:	To declare that the N-FXE-xxx-02B, to which this declaration refers, is in conformity with the following standards:

FCC 47 CFR Part 15 Subpart B, ICES-003 Issue 7, ANSI C63.4-2014.
EN 55032: 2015 + A11: 2020; CISPR 32: 2015 (Ed 2.0) + C1: 2016; AS/NZS CISPR 32: 2015;
EN IEC 61000-3-2: 2019; EN 61000-3-3: 2013; EN 55035: 2017 + A11: 2020.
IEC 61000-4-2: 2008; IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010; IEC 61000-4-4: 2012;
IEC 61000-4-5: 2014 + A1: 2017
BS EN 55032: 2015 + A11: 2020; BS EN IEC 61000-3-3: 2013; BS EN 55035: 2017 + A11: 2020;
IEC 61000-4-6: 2013 + COR1: 2015; IEC 61000-4-8: 2009; IEC 61000-4-11: 2004 + A1: 2017.
NDAA Compliant and TAA Compliant

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Fathi Hakam

Fathi Hakam, Vice President of Engineering

Date: Sept. 28, 2022

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