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HPC Optics X520-DA2-HPC

HPC Optics X520-DA2-HPC 10G Dual SFP+ Network Adapter Card

USER MANUAL

1. Introduction

This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of your HPC Optics X520-DA2-HPC 10G Dual SFP+ Network Adapter Card. This adapter is designed to provide high-performance 10 Gigabit Ethernet connectivity for servers and workstations, offering full compatibility with the Intel X520-DA2 (E10G42BTDA) specification.

2. Safety Information

Please read and follow these safety guidelines to prevent damage to the product or injury to yourself:

- Always disconnect power from your computer before installing or removing any internal components.
- Wear an anti-static wrist strap or frequently touch a grounded metal object to discharge static electricity before handling the network adapter card.
- Handle the card by its edges to avoid touching sensitive components.
- Ensure proper ventilation around the computer to prevent overheating.
- Do not expose the card to moisture or extreme temperatures.

3. Package Contents

Verify that your package contains the following items:

- HPC Optics X520-DA2-HPC 10G Dual SFP+ Network Adapter Card
- Documentation (this user manual)
- Low-profile bracket (if applicable for your specific model variant)

4. Product Overview

The HPC Optics X520-DA2-HPC is a high-performance 10 Gigabit Ethernet network interface card featuring two SFP+ ports. It utilizes an X8 Lane PCIe interface for optimal data throughput.

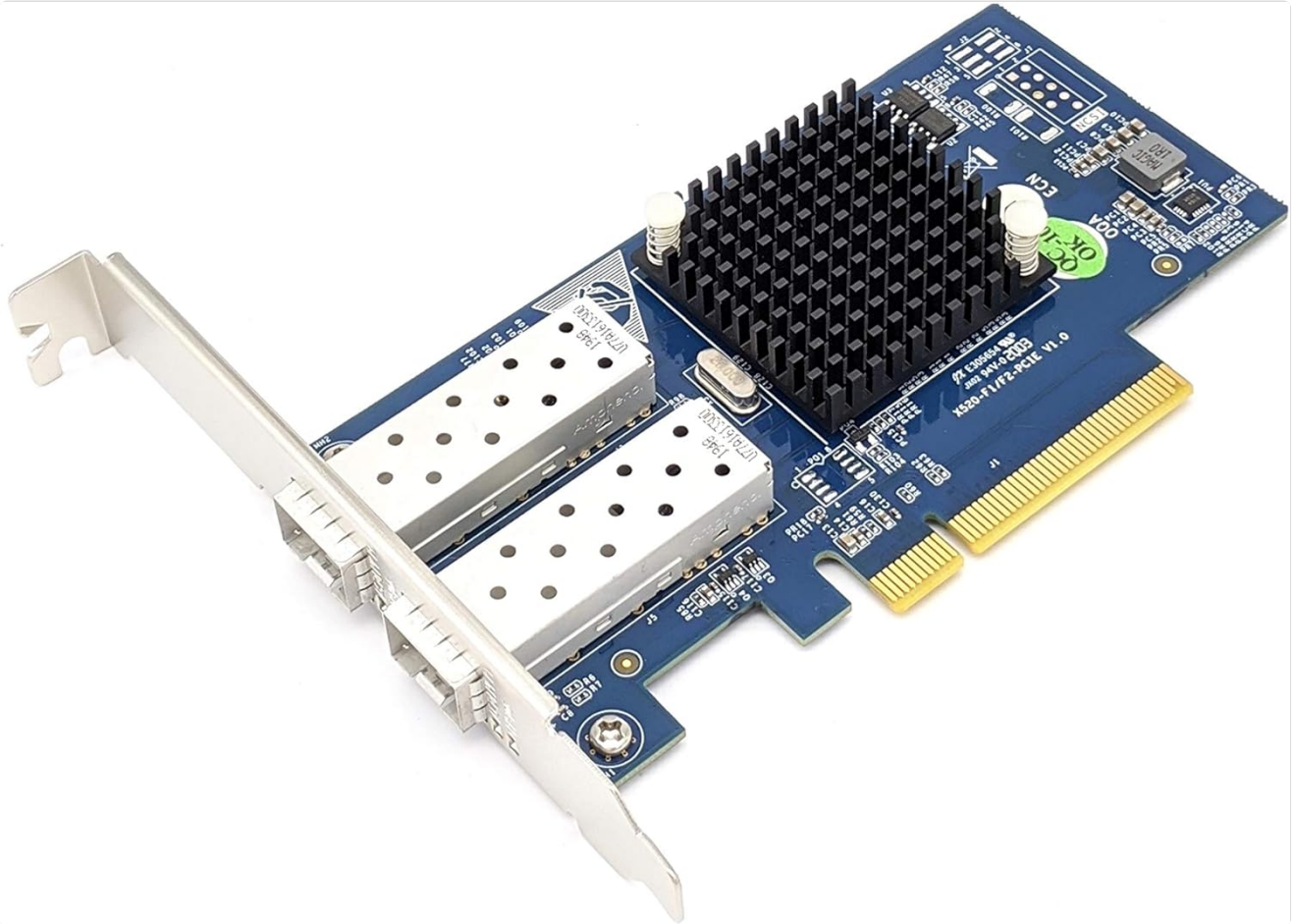


Figure 4.1: Top-down view of the HPC Optics X520-DA2-HPC network adapter card, showing the heatsink, PCIe connector, and dual SFP+ ports.

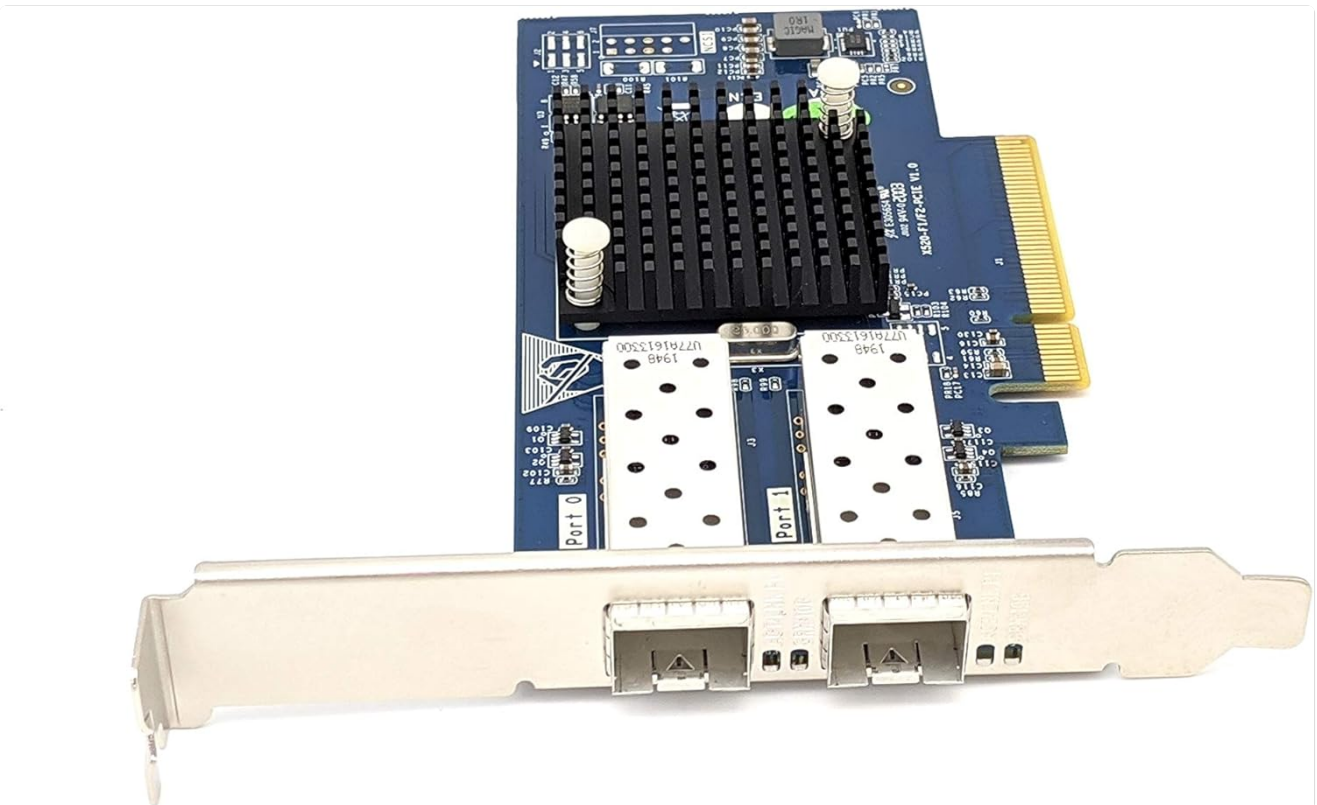


Figure 4.2: Angled view of the HPC Optics X520-DA2-HPC network adapter card, highlighting the two SFP+ ports and the mounting bracket.

Key Components:

- **Dual SFP+ Ports:** For 10 Gigabit Ethernet fiber or direct attach copper connections.
- **PCIe x8 Connector:** Connects to a compatible PCI Express slot on your motherboard.
- **Heatsink:** Dissipates heat from the main controller chip for stable operation.
- **LED Indicators:** Provide status information for each SFP+ port (Link/Activity).

5. Setup

5.1 System Requirements

- Available PCI Express x8 or larger slot (compatible with x16 slots).
- Compatible operating system (e.g., Windows Server, Linux distributions, VMware ESXi).
- SFP+ transceivers or Direct Attach Copper (DAC) cables (sold separately).

5.2 Hardware Installation

Follow these steps to install the network adapter card:

1. Power down your computer and disconnect the power cord.
2. Open the computer case.
3. Locate an available PCI Express x8 or x16 slot.
4. Remove the metal slot cover from the back of the computer chassis corresponding to the chosen PCIe slot.
5. Carefully insert the HPC Optics X520-DA2-HPC card into the PCIe slot, ensuring it is fully seated. Apply even pressure to both ends of the card.
6. Secure the card with the screw or retention clip from your computer case.
7. Close the computer case and reconnect the power cord.

5.3 Driver Installation

After hardware installation, you may need to install or update drivers for the operating system to recognize and utilize the network adapter. Drivers are typically available from the manufacturer's website or the operating system's built-in driver repository.

- **Windows:** The operating system may automatically install a generic driver. For optimal performance, download the latest drivers from the HPC Optics support website or Intel's official website for the X520 series.
- **Linux:** Most modern Linux distributions include inbox drivers for Intel X520 series adapters. If not, drivers can be compiled from source or installed via distribution-specific package managers.
- **VMware ESXi:** Ensure your ESXi version supports the Intel X520 series. Drivers (VIBs) can be installed via ESXCLI.

6. Operating Instructions

6.1 Connecting SFP+ Transceivers/Cables

Insert compatible SFP+ transceivers (fiber optic modules) or Direct Attach Copper (DAC) cables into the SFP+ ports on the network adapter. Ensure they are fully seated. Connect the other end of the cable to your 10GbE switch or network device.

6.2 Network Configuration

After driver installation, the operating system should detect the new network interfaces. You will need to configure IP addresses, subnet masks, gateways, and DNS settings according to your network environment. Refer to your operating system's network configuration documentation for detailed steps.

6.3 LED Indicators

The SFP+ ports typically have LED indicators to show network status:

- **Solid Green/Amber:** Indicates a stable network link.
- **Flashing Green/Amber:** Indicates network activity (data transmission/reception).
- **Off:** No link detected or port is disabled.

Note: Specific LED behavior may vary slightly depending on the driver and firmware version.

7. Maintenance

7.1 Cleaning

To ensure optimal performance and longevity, periodically clean the network adapter card. Use compressed air to remove dust from the heatsink and other components. Ensure the computer is powered off and unplugged before cleaning.

7.2 Firmware Updates

Occasionally, firmware updates may be released to improve performance, add features, or address compatibility issues. Check the HPC Optics support website for the latest firmware versions and instructions on how to apply them.

8. Troubleshooting

If you encounter issues with your network adapter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Card not detected by OS.	Card not fully seated; incorrect PCIe slot; power issue; missing drivers.	Ensure card is fully seated in a compatible PCIe x8/x16 slot. Check power connections. Install/update drivers.
No link light on SFP+ port.	Faulty SFP+ transceiver/cable; incompatible transceiver; switch port issue; disabled port.	Verify SFP+ transceiver/cable is working and compatible. Check switch port status. Ensure the network interface is enabled in the OS.
Slow network performance.	Outdated drivers; network congestion; faulty cable/transceiver; incorrect network settings.	Update drivers. Check network infrastructure for bottlenecks. Verify cable/transceiver integrity. Review OS network settings.
Intermittent connectivity.	Loose connection; driver issues; overheating.	Reseat the card and SFP+ modules. Update drivers. Ensure adequate cooling for the card and system.

9. Specifications

Model Number	X520-DA2-HPC
Compatibility	Fully Compatible with Intel X520-DA2 (E10G42BTDA)
Interface	PCI Express v2.0 (5.0 GT/s) x8 Lane
Ports	2 x SFP+

Data Rate	10 Gigabit Ethernet (10GbE)
Controller	Intel X520 Series (or compatible)
Hardware Interface	Ethernet
Data Link Protocol	Ethernet
Compatible Devices	Intel-based systems
UPC	646819728379

10. Warranty Information

HPC Optics provides a **LIFETIME WARRANTY** for this product. This warranty covers defects in materials and workmanship under normal use. For detailed warranty terms and conditions, please refer to the official HPC Optics website or contact customer support.

11. Technical Support

If you require technical assistance or have questions not covered in this manual, please visit the official HPC Optics support website or contact their customer service department. When contacting support, please have your product model number (X520-DA2-HPC) and a detailed description of your issue ready.

For the latest drivers, firmware, and additional resources, please visit: [HPC Optics Support](#) (Note: This is a placeholder link; please replace with the actual support URL if available.)