

FAQ: ATTO ExpressNVM™ Smart NVMe Switch Adapter

Q: What is NVMe?

A: NVMe (Non-Volatile Memory express) is an open standard, host controller interface specification and transport protocol designed to facilitate an accelerated transfer of data between compute systems and solid-state drives over a high-speed PCIe bus.

Designed for use with faster PCIe SSDs, NVMe provides an optimized command set to support a maximum of 65,535 I/O queues, each with up to 65,536 commands.

Q: What is the difference between PCIe cable adapters, PCIe retimer cards and PCIe switch adapters?

A: PCIe cable adapters expands connectivity outside the traditional system to an external source for PCIe functionality, i.e., PCIe connectivity across enclosures. These cards are not suitable for achieving NVMe performance as PCIe signals are less effective when run over a cable.

PCIe retimer cards are signal conditioning devices that provide improved signal integrity and increase maximum allowable PCIe trace length. Retimer cards, generally, require a x16 slot. They do not support dynamic PCIe bifurcations and lack processing power.

PCIe switch adapters, such as the ATTO ExpressNVM™, are intelligent PCIe devices that take upstream signals and transparently routes them using a flexible logic architecture to downstream ports. It extends better PCIe bifurcation by adding more PCIe lanes to the motherboard and allows one to dedicate more PCIe lanes to NVMe SSDs without throttling performance. It also acts as a retimer at its most basic level. Additionally, the switched-based adapter scales dramatically, supporting many devices on a single adapter, even permitting dynamic bifurcation to support x2 device connections while also facilitating real-time monitoring and statistics via in-band and side-band interfaces.

Q: What is an ATTO ExpressNVM Smart NVMe switch adapter?

A: ATTO ExpressNVM Smart NVMe switch adapters are storage controller cards designed to extend NVMe storage connectivity and present NVMe SSDs directly to the operating system.

Q: Is ATTO ExpressNVM backward compatible with previous PCIe generations?

A. Yes, ATTO ExpressNVM is a PCIe Gen4 adapter, backward compatible with PCIe Gen3.

Q: What physical connection does the ATTO ExpressNVM adapters support?

A: ATTO ExpressNVM connects to NVMe SSDs via x4 SlimSAS SFF 8654 connections, each connection providing x8 lanes. Refer to the installation manual for additional information on cabling and other connectivity options with the ATTO ExpressNVM.

Q: How many NVMe drives do ATTO ExpressNVM adapters support?

A: ATTO ExpressNVM is currently available for purchase in two configurations based on the number of NVMe drives that can be connected; ENVM-S48F-000, supports 8-drives and ENVM-S4FF-000, supports 16-drives..

Q: Does ExpressNVM support SSDs from all manufacturers?

A: ATTO regularly tests its products with third-party vendor products to ensure a wide range of compatibility. Please visit our [Interoperability/Certifications](#) page to learn more about the current recommended drives.

Q: What NVMe SSD form factors are supported by ATTO ExpressNVM?

A. M.2, U.2/U.3, and EDSFF.

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Q: What size PCIe slot is required to install ATTO ExpressNVM?

A: ExpressNVM is a PCIe Gen4 x16 adapter that fits in a PCIe Gen3/4 x16 slot.

Q: Do I need to install a driver to see my NVMe devices?

A: No. ExpressNVM uses drivers provided by the operating system to allow for simple, automatic discovery, and configuration. The NVMe adapter should automatically be detected and operational upon system boot.

Q: Do I need to install a driver to use the management features of ATTO ExpressNVM adapters?

A: Yes, you need to install proprietary drivers provided by ATTO to extend features beyond the basic operation of native drivers. Refer to the installation manual for more information on installing the ATTO management driver for ExpressNVM.

Q: How can I identify the adapter when connected to the host?

A: Each ATTO Express has a unique PCI node address which allows the system to recognize it as a unique part of the system configuration. The address is marked on the back of the board for easy identification.

Q: Is there an LED on the adapter to locate it in a server or workstation?

A: Yes, the adapter has one amber LED visible on the bracket to help with locating it.

Q: What are the dimensions of an ExpressNVM Adapter?

A: Without the bracket, 6.6" x 2.713" in LP-MD2 Form Factor.

Q: What operating systems does ATTO ExpressNVM support?

A: ExpressNVM supports NVMe drivers for Windows, Linux, FreeBSD, and VMware.

Q: Do ATTO ExpressNVM adapters support virtualized environments?

A: Yes, ATTO ExpressNVM is designed to support and operate in virtualized environments running VMware ESXi 6.5, 7, and 8.

Q: What backplane management protocols does ATTO ExpressNVM support?

A: ATTO ExpressNVM is designed to support UBM and Virtual SES (SCSI Enclosure Services) to address backplane management.

Q: What type of management tools are provided with ATTO ExpressNVM adapters?

A: ExpressNVM is supported by an easy-to-use application called ATTOview™. ATTOview offers full visibility into the NVMe storage ecosystem by monitoring key performance metrics and generating graphs to help understand trends in the storage environment using ExpressNVM. Additionally, CLI tools are included with the management driver package for ease of management and diagnostics.

Q: What operating systems does ATTOview support?

A: ATTOview supports Windows® and Linux

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Q: Can NVMe devices be remotely monitored with ATTOview?

A: Yes, you may install ATTOview on a remote workstation/machine and centrally monitor all NVMe devices presented to that workstation as well as the ones within the network.

Q: What web browsers are supported with ATTOview?

A: ATTOview runs on the latest versions of Chrome, Firefox, Safari, and Microsoft Edge.

Q: How can ExpressNVM be configured to desired system requirements?

A: ExpressNVM uses proprietary configuration software, ATTO ConfigTool, for adapter and storage configuration. The adapter can also be configured through ATTO provided CLI tools.

Configuration profiles may vary by SKU. Refer to the Utilities Manual for more information.

Q: How can the exact model of the ATTO ExpressNVM adapter be determined for a unit previously purchased?

A: ATTO ExpressNVM adapter can be identified in several ways.

- Product Packaging
- On Windows: Under device manager, once connected the adapter will enumerate itself with the number of ports (as 8 or 16 individual PCIe devices)
- On Linux: Once connected upon invoking the 'lspci' command, all the ports with assigned addresses will be displayed
- ATTO ConfigTool
- CLI Tools
- Warranty Information (Please register your warranty with ATTO Technology. For more information, visit <https://www.atto.com/register/>)
- Product Invoice

Q: How can I distinguish an 8-drive or 16-drive ExpressNVM adapter out of the box?

A: ExpressNVM adapters are labeled with a 16-digit alphanumeric number located on the back of the card.



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Q: Does ATTO ExpressNVM come with connector cables?

A: ExpressNVM is not sold with connector cables. Refer to the installation manual to learn more about recommended cables for ExpressNVM.

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Q: Can I mount an M.2 SSD directly on ExpressNVM?

A: ExpressNVM does not support on-board SSD mounting.

Q: Does the adapter come with a heat sink?

A: Yes, ExpressNVM comes with an active heat sink. Please ensure that the system in which the adapter will be installed is capable of meeting a minimum requirement of 100 LFM.

Q: Are brackets provided with the unit?

A: Yes, a full-height and a half-height bracket are supplied with the ExpressNVM adapter.