



Rocket 7628x/7628U

PCIe Gen5 x16 to 4-MCIOx8 NVMe RAID Adapter

Flexible, Server-Grade PCIe Gen5 x16 8-Channel NVMe RAID Solution for Edge Computing & Datacenter Platforms

Rocket 7600 PCIe Gen5 NVMe RAID Series AICs & Adapters

HighPoint RocketRAID 7600 PCIe Gen5 NVMe RAID AICs and Adapters are engineered to enhance the capabilities of Linux and Windows-based Edge Servers & Workstations, and Datacenter platforms. Built on the foundation of our Rocket 1600 Switch series product lines, each RAID AICs/Adapter is armed with industry proven RAID technology and an unparalleled storage health monitoring and management suite designed to maximize the performance, reliability and serviceability of NVMe arrays.

Rocket 7628x PCIe Gen5 x16 to 4-MCIOx8 NVMe RAID Adapter

The Rocket 7628 8-Channel PCIe Gen5 NVMe RAID Adapter was designed for professional server and datacenter applications that require uncompromised storage performance with the flexibility of proven RAID technology. The four MCIO 8i ports can directly support up to 8 U.2/U.3 or E3.S NVMe SSDs, and as many as 32 devices backplane connectivity. Hosted media can be configured into as many as 4 separate RAID 0, 1 or 10 arrays, including bootable volumes or mixed configurations of single SSDs and arrays.

48 Lanes of Dedicated PCIe Gen5 Bandwidth

HighPoint's high-performance PCIe Gen5 switching architecture integrates Broadcom's 48-Channel PEX89048 switch IC to provide x16 lanes of dedicated PCIe Gen5 upstream bandwidth and x4 lanes of dedicated downstream bandwidth to each device channel. The innovative architecture enables the Rocket 7628x to deliver up to 64GB/s of transfer bandwidth, minimize latency, facilitate consistent, robust I/O throughput, and support as many as 32 NVMe devices via backplane connectivity.

The Architecture employs a technique known as a "Synthetic Hierarchy" to isolate the host system's OS from any PCIe topology changes. This enables the Rocket 7628x to directly manage resource allocation to the downstream PCIe channels and provide true Hot-Swap/Hot-Plug capability by facilitating a more efficient interaction between the host CPU and PCIe switch.

Engineered to Enhance the Efficiency & Serviceability of Datacenter & Server Applications

The Rocket 7628x incorporates a wide range of features designed to enhance the efficiency of day-to-day operations of datacenter and Edge Server platforms. First and foremost, the adapter has been built to the highest standards of quality and reliability, and is fully compliant with PCIe Card Electromechanical (CEM) specifications. The Rocket 7628x is a field replaceable unit (FRU); the VPD (vital product data) stored on each adapter enables customers and service providers to easily procure replacements with the correct firmware/driver combination.

The Rocket 7628x's OOB (out-of-band) management capability is an essential component of professional server infrastructure. MBC & MCTP over PCIe enables an administrator to securely interface with the adapter without the need for internet access. The service is scalable and can be used to administrate multiple servers via Linux command prompts to manage storage in both Pre-OS and OS-level environments. In addition, Rocket 7628x Adapters are Hot-Plug & Hot-Swap capable; administrators can easily add or remove RAID arrays and individual NVMe SSDs without rebooting the OS or powering down the host platform.

Intelligent, Pro-Active PCIe Gen5 Cooling Solution

HighPoint's intelligent PCIe Gen5 cooling solutions combine the industry's most advanced hardware cooling systems with a suite of pro-active monitoring and management tools designed to keep temperatures in check under the most grueling working conditions. The Rocket 7628x employs a full-Length Aluminum heat exchanger with copper piping to rapidly whisk waste heat away from the Gen5 switch IC and controller componentry. Though designed to ensure NVMe media runs optimally without user intervention, administrators can configure temperature thresholds for each SSD to match published specifications, or for compliance with unique computing environments and workflows.

Optimize Performance and Reliability with HighPoint's Advanced NVMe Hardware Sensor & Analysis Solution: HighPoint's groundbreaking Active Sensor Logging & Analysis solution closely monitors the NVMe storage environment in real-time. Tracking and logging critical metrics such as temperature, power usage, and drive health enables administrators to take a proactive approach to storage management. Data sets can be reviewed to identify optimal working conditions and zero-in on potential issues to ensure the target platform runs smoothly and efficiently.

Comprehensive Storage Health Monitoring & Management Suite: HighPoint's comprehensive Storage Management and Monitoring suite enables administrators to easily configure and maintain the platform's NVMe storage ecosystem via a selection of intuitive graphical and command line user interfaces. RAID arrays created and hosted by the Rocket 7608A will be recognized as single, physical disks, which can be formatted and partitioned like any other drive using the operating system's default storage toolsets. In addition, the AIC incorporates UEFI-HII technology to provide RAID functionality both inside and outside of the OS environment, and provide secondary features such as Boot-RAID (bootable RAID array) capability.

Feature Highlights

- 4x MCIO 8i ports directly support up to 8x U.2/U.3 or E3.S SSDs & as many as 32 devices via industry standard backplane connectivity
- High-Performance 48-Lane Gen5 Switch Architecture: x16 lanes of dedicated upstream & x4 lanes of downstream bandwidth for each device channel
- Delivers 64GB/s of Bandwidth & Real-world Sustained transfer speeds up to 56,000MB/s
- Integrated NVMe Hot-Plug & Hot-Swap Capability
- Intelligent, Pro-Active Gen5 Cooling Solution
- Advanced NVMe Hardware Sensor & Analysis Solution
- Comprehensive Storage Health Monitoring & Management Suite
- Industry-proven NVMe RAID Technology supports up to four RAID 0, 1 or 10 configurations
- Optional Boot-RAID Capability for Linux & Windows
- SafeStorage SED Solution
- Hardware Secure Boot
- TAA Compliance (Rocket 7628U)

Full-Featured Data Security Suite: HighPoint Pro/RAID solutions benefit from a full-feature suite of hardware and software level features designed to enhance the security of critical data assets. Hardware Secure Boot enhances the overall security of the computing platform by preventing the execution of unauthorized software during the boot process; there by halting potentially devastating rootkits and ransomwares in their tracks. SMTP Email notification includes SSL data encryption to keep vital storage configuration and status data from prying eyes. Each Rocket 7600 AIC/Adapter is protected by SafeStorage, a revolutionary OPAL SSC TCH based NVMe hardware Encryption Solution designed to safeguard critical assets by preventing access to stored data when physical disks are misplaced or stolen.

Versatile Cabling Solutions: The Rocket 7628x's flexible MCIO 8i ports enables the adapter to interface with a variety of industry standard storage chassis, including internal 2.5" drive bays, Mobile Racks, and storage backplanes, via a selection of cabling solutions. These include direct to SSD connections such as MCIO to SFF-8639 (U.2/U.3 SSD), and MCIO to SFF-TA-1002 (E3.S SSDs). Options for backplane/mobile rack connectivity include MCIO to MCIO, MCIO to SFF-8654 , MCIO to SFF-8643, and MCIO to SFF-TA-1002 (for E3.S media).

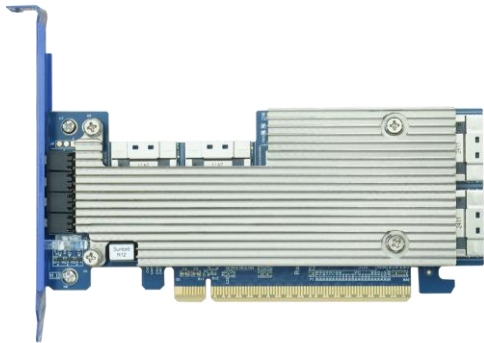
Hardware Features	
Bus Interface	PCIe 5.0 x16
Number of Channel / Port	8x Device Channels / 4x MCIO Ports (Dedicated PCIe 5.0 x8 per MCIO)
Connector Type	MCIO (SFF-1016 8x)
Connector Pinout Definition	SFF-9402 Compliant
Number of devices	8
Data Port Reconfiguration (Downstream Configuration: 1x16 /2x8 /4x4 /8x2 /16x1)	Yes: please contact Sales for more information
SSD Form Factor	U.2, U.3, E3.S (via cabling accessories)
SRIS and REFCLK Support	TBA; please contact Sales for more information
Downstream port containment	Yes
Read tracking	Yes
Synthetic Hierarchy	Yes
LED Indication	Intelligent, Self-Diagnostic LEDs
Audible Alarm	Yes
Power Measurement	Real Time Power Measurement
FRU Support	Yes
TAA Compliance	Yes (Rocket 7628U)
SSD Hot-Plug/Hot-Swap Support	Yes
OOB Management	BMC and MCTP over PCIe; please contact Sales for more information

Storage Security Suite	
SED Support	SafeStorage OPAL SED Solution (Windows & Linux)
Hardware Secure Boot	Yes
Backplane Features	
UBM Support	Yes
VPP Support	Yes
Mechanical Specifications	
Form Factor	LP-MD2
Card Dimensions	155mm x 68.9mm with primary component 14.1mm
Card Weight	0.75 lbs.
PCIe Bracket	Full-Height and Low-Profile Ventilated Brackets
Cooling Solution	Intelligent, Pro-Active PCIe Gen5 Cooling Solution <ul style="list-style-type: none"> • Full-Length Aluminum Heatsink (Passive) • Copper piping • Compliant with PCIe Specifications
Supported Systems	
OS	Only Supports 64-bit operating systems; Windows 11, 10 / Windows Server 2022, 2019, 2016 / Microsoft Hyper-V; RHEL, Debian, Ubuntu, Fedora, Proxmox & Rocky Linux (Linux kernel 3.10 and later)
Secure Boot	Yes (Windows Only)
NVMe Configuration	
RAID Support	Single, RAID 0, 1, 10
TRIM RAID Support	Single, RAID 0, 1, 10
Storage Mode - NVMe	
Data-RAID	Yes
Boot-RAID	Yes

Storage Security Suite	
SED Support	SafeStorage SED Solution (Windows & Linux)
Hardware Secure Boot	Yes
Backplane Features	
UBM Support	Yes
VPP Support	Yes
Mechanical Specifications	
Form Factor	LP-MD2
Card Dimensions	155mm x 68.9mm with primary component 14.1mm
Card Weight	0.75 lbs.
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Secure Boot	Yes (Windows Only)

Advanced RAID Features	
Online Array Roaming , RAID Quick Initialization for fast array setup, Global Hot Spare Disk support	
Operating Environment	
Working Temp.	0°C ~ + 55°C
Storage Temp.	-20°C ~ +80°C
Operating Voltage	PCIe: 12V(+/- 8%), 3.3V (+/- 8%)
Power	16.26W
MTBF	> 5,000,000 hours at 40° C
Kit Contents	
Kit Contents	R7628x NVMe RAID Adapter
	Low-Profile Ventilated Bracket
	QIG
Optional Accessories	
Cabling	CIO8-8639-110 CIO8-CIO8-110 CIO8-1002-110 8654-CIO8-110

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HighPoint Headquarters
Phone: 1-408-942-5800
Fax: 1-408-942-5801
E-mail: sales@highpoint-tech.com
Website: www.highpoint-tech.com
Address: 41650 Christy St. Fremont, CA, 94538

