HighPoint
Technologies, Inc.

Rocket 7628A

PCIe Gen5 x16 to 4-MCIOx8 NVMe RAID Adapter

Revolutionize NVMe Storage Performance with Highpoint PCIe Gen5 Switch Technology

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 Server and High-End workstation 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 7628A PCIe Gen5 x16 to 4-MCIOx8 NVMe RAID Adapter

The Rocket 7628 8-Channel PCIe Gen5 NVMe RAID Adapter was designed for professional applications that require uncompromised Storage Performance with the flexibility of proven RAID technology and the industry's most comprehensive storage health Monitoring & Management suite. It can directly support up to 8 U.2/U.3 or E3.S NVMe SSDs via four MCIO ports and cable-to-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. In addition, RocketStor 7628A 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.

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 7628A 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 7628A 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 7628A 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 7628A 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 7628A'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.

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 7628A 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.

Comprehensive Storage Health Monitoring, Management & Analysis Suite

HighPoint's proven NVMe RAID technology incorporates UEFI-HII features to provide RAID functions both inside and outside of the OS environment, and provide secondary functions such as Boot-RAID (bootable RAID array) capability. The Rocket 7628A is equipped with HighPoint's intuitive yet comprehensive monitoring, management and analysis suite, which enables administrators to easily configure and maintain the platform's NVMe storage ecosystem with a few simple clicks and commands. RAID arrays created using these interfaces will be recognized as single, physical disks, and can be used to install a bootable OS. The graphical interfaces now incorporate a real-time NVMe Sensor logging system which tracks and records the temperature, fan-speed and electrical characteristics of the adapter and each hosted SSD over time, and presents the data via a series of simple plotted curves and line charts. These records can be exported as needed, and can help administrators narrow the scope of troubleshooting tasks by identifying potential faults and at-risk storage media, and implement preventative measures to maximize the lifespan of the RAID array and maintain optimal performance.

SafeStorage - OPAL SED Solution

Developed to accommodate large-scale RAID arrays as well as individual SSDs, SafeStorage is a comprehensive OPAL SSC TCG based NVMe Hardware Encryption Solution designed to safeguard critical assets by preventing access to stored data when physical disks are misplaced or stolen.

Feature Highlights

- 8-Dedicated PCIe 5.0 device channels
- Directly Supports up to 8x U.2/U.3 or E3.S NVMe SSDs via 4x MCIO Ports & 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
- Comprehensive Storage Health Monitoring, Management & Analysis Suite
- Industry-proven NVMe RAID Technology supports up to four RAID 0, 1 or 10 configurations
- Optional Boot-RAID Capability for Linux & Windows
- SafeStorage TCG SSD Solution
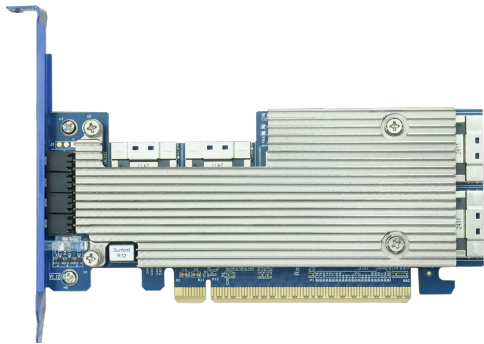- Hardware Secure Boot

Product Model	Rocket 7628A (R7628A)
Product Name	Rocket 7628A PCIe Gen5 x16 to 4-MCIOx8 NVMe RAID Adapter
Product Category	PCIe Gen5 NVMe RAID AIC/Adapter
Hardware Features	
Bus Interface	PCIe 5.0 x16
Number of Channel / Port	8x Device Channels / 8x NVMe Ports (Dedicated PCIe 5.0 x4 per port)
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**
SSD Form Factor	U.2, U.3, E3.S (via cabling accessories)
External Power Support	No
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
SSD Hot-Plug/Hot-Swap Support	Yes
OOB Management	Yes (BMC and MCTP over PCIe)

Storage Security Suite	
SED Support (Linux & Windows)	SafeStorage OPAL SED Solution
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 • Full-Length Aluminum Heatsink (Passive) • Copper piping • Compliant with PCIe Specifications
Toolless SSD mounting system	N/A
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

NVMe RAID Management

Management Suites	WebGUI (Browser-Based management tool), CLI (Command Line Interface - scriptable configuration tool), API package, UEFI HII
SMTP Email Alert Notification	Yes
Alarm Buzzer	Yes
Storage Health Inspector	Yes
NVMe SMART status	Yes
Automatic and configurable RAID Rebuilding Priority	Yes
Auto resume incomplete rebuilding after power on or reboot system	Yes
Single-RAID or Multi-RAID Arrays per Controller	Yes
Cross-Sync RAID Solution Across Controllers	Yes

Advanced RAID features

Online Array Roaming	Yes
RAID Quick Initialization for fast array setup	Yes
Global Hot Spare Disk support	Yes

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 (Mean Time Before Failure)	> 5,000,000 hours at 40° C

Kit Contents

Kit Contents	R7628A NVMe RAID AIC
	Low-Profile Ventilated Bracket
	QIG

Optional Accessories

Cabling	CIO8-8639-110
	CIO8-CIO8-110
	CIO8-1002-110
	8654-CIO8-110

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