HighPoint
Technologies, Inc.

Rocket 1628A

PCIe Gen5 x16 to 4-MCIOx8 NVMe Switch Adapter

Revolutionize NVMe Storage Performance with Highpoint PCIe Gen5 Switch Technology

HighPoint Rocket 1600 series switch AICs/adapters provide enterprise-class NVMe storage connectivity and administrative capability and are suitable for use with a wide range of industry-standard x86 server and workstation platforms. These versatile, high-performance AICs and Adapters are equipped with our revolutionary PCIe Gen5 Switch Architecture and are capable of directly supporting up to eight NVMe SSDs, or as many as 32 NVMe devices via backplane connectivity.

NVMe media hosted by Rocket 1600 Switch AIC/Adapters will be automatically recognized by any OS platform with Native NVMe driver support. This makes them an ideal for businesses and organizations seeking to enhance critical workflows with flexible, robust and easily managed Gen5 NVMe storage performance.

Rocket 1628A – PCIe Gen5 x16 to 4-MCIOx8 NVMe Switch Adapter

The Rocket 1628A PCIe Gen5 NVMe Switch Adapter delivers up to 64GB/s of uncompromised Gen5 transfer bandwidth and can support up to eight U.2/U.3 or E3.S NVMe SSDs via four MCIO ports and cable to SFF-8639 or MCIO/SFF-8654/SFF-1016 UBM and VPP compliant backplane connectivity. The compact, robust LP-MD2 form-factor Adapter is broadly compatible with industry-standard server and workstation chassis. Integrated Suprise NVMe Add and Remove technology provides true Hot-Plug/Hot-Swap support, which enables administrators to add or remove SSDs while the host platform remains active. The integrated OOB (out-of-band) Management capability can significantly streamline service and maintenance workflows.

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 1628A 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 1628A to directly manage resource allocation to the downstream PCIe channels and provide true NVMe Surprise Add or Remove 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 1628A 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 1628A is a field replaceable unit (FRU); the VPD stored on each adapter enables customers and service providers to easily procure replacements with the correct firmware/driver combination.

The Rocket 1628A'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.

Advanced PCIe Gen5 Cooling Solution

The Rocket 1628A AICs advanced PCIe Gen5 passive cooling solution employs a full-Length Aluminum heat exchanger with copper piping to rapidly whisk waste heat away from the Gen5 switch IC and controller componentry to ensure reliability and promote longevity of the adapter hardware. The design is ideal for server and datacenter applications as it utilizes no moving parts and requires no maintenance

Intelligent Self-Diagnostic LEDs

HighPoint PCIe Gen5 AICs and Adapters feature Built-In Early Warning LED Indicators. Simple color coding and flash-patterns enable administrators to instantly asses the operational status and condition of hosted SSDs and RAID arrays, the strength of the PCIe connection, and temperature of the PCIe switch hardware.

Feature Highlights

- 8-Dedicated PCIe 5.0 device channels
- 4x MCIO ports can directly support up to 8x U.2/U.3 or E3.S NVMe SSDs, and as many as 32 via 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
- Advanced PCIe Gen5 Cooling Solution
- Hardware Secure Boot

Product Model	Rocket 1628A (R1628A)
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 (direct) / Up to 32 (via backplane)
Data Port Reconfiguration *(Downstream Configuration: 1x16 /2x8 /4x4 /8x2 /16x1)*	Yes
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
FRU Support	Yes
SSD Hot-Plug/Hot-Swap Support	Yes
OOB Management	Yes (BMC and MCTP over PCIe)
Storage Security Suite	
Hardware Secure Boot	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 Ventilated Bracket
Cooling Solution	Advanced PCIe Gen5 Cooling Solution • Full-Length Aluminum Heatsink (Passive) • Copper piping • Compliant with PCIe Specifications
Supported Systems	
OS	Compatible with any OS with native NVMe driver support
Secure Boot	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	R1628A NVMe RAID AIC
	Low-Profile Ventilated Bracket
	QIG
Optional Accessories	
Cabling	CIO8-8639-110
	CIO8-CIO8-110
	CIO8-1002-110
	8654-CIO8-110

Rocket 1628A
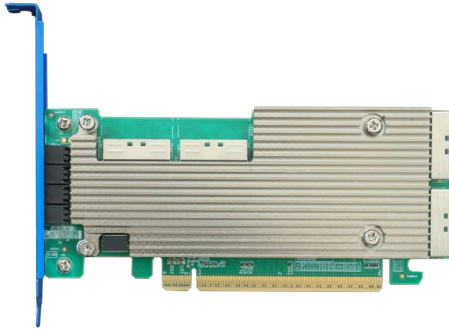
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PCIe 5.0 Switch
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U.2/U.3 & E3.S

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