HighPoint
Technologies, Inc.

Rocket 7638D
External PCIe Gen5 x16 Switch Adapter

Powering Next-Generation AI, HPC, Scientific Research, and Media Production

The Rocket 7638D PCIe Gen5 Switch Adapter is a game-changing connectivity solution designed to eliminate bandwidth bottlenecks in high-demand computing environments. A dedicated 48-lane Gen5 PCIe switch chipset enables each adapter to intelligently allocate bandwidth to ensure hosted GPUs and NVMe storage operates at their maximum performance potential.

The unique hybrid 1x external CDFP-CopprLink port and 2x internal MCIO 8i ports configuration enables the Rocket 7638D to establish a direct, high-speed data pathway between hosted GPUs and NVMe storage arrays. The result is ultra-fast rendering, seamless real-time data processing, and accelerated workflows—making it the ideal choice for mission-critical applications in AI/ML, HPC, scientific research, and professional media production.

Feature Highlights

- Industry's first External PCIe Gen5 x16 Switch Adapter
- 1x External CDFP-CopprLink Port & 2x MCIO 8i Ports
- Robust PCIe Switching Architecture Delivers x32 Downstream Lanes (x16 to CDFP, x8 to each MCIO)
- Provides a direct pathway between the hosted GPU and NVMe Storage
- Uncompromised GPU & NVMe Storage Expansion solution for AI, ML & HPC Workflows
- Compatible with x86 & ARM Platforms

Key Features

Proven PCIe Gen5 x16 Switch Architecture

PCIe 5.0 Switch

- Powered by Broadcom's PEX 89048 48-lane PCIe Gen5 Switch Chipset
- 32 Lanes of Dedicated Downstream Bandwidth: Allocates x16 lanes exclusively for external GPU + x16 lanes for NVMe storage
- Eliminates compute and storage contention for maximum throughput

Enterprise-Grade Connectivity

- 1x External CDFP-CopprLink Port for GPU expansion: *Complies with PCI-SIG CopprLink standard, ensuring signal integrity at Gen5 speeds*
- 2x Internal MCIO 8i Ports for scalable NVMe storage arrays: Up to 16 Drives

Performance Without Compromise
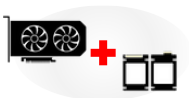
- GPU and NVMe operate on independent pathways
- Up to 64GB/s & 12Million IOPS
- Ultra-low latency, high-bandwidth throughput for AI training, 8K media editing, scientific simulations, and HPC modeling

Cross-Platform Compatibility

- Universal support for **x86 (Intel/AMD)** & **ARM-based** platforms
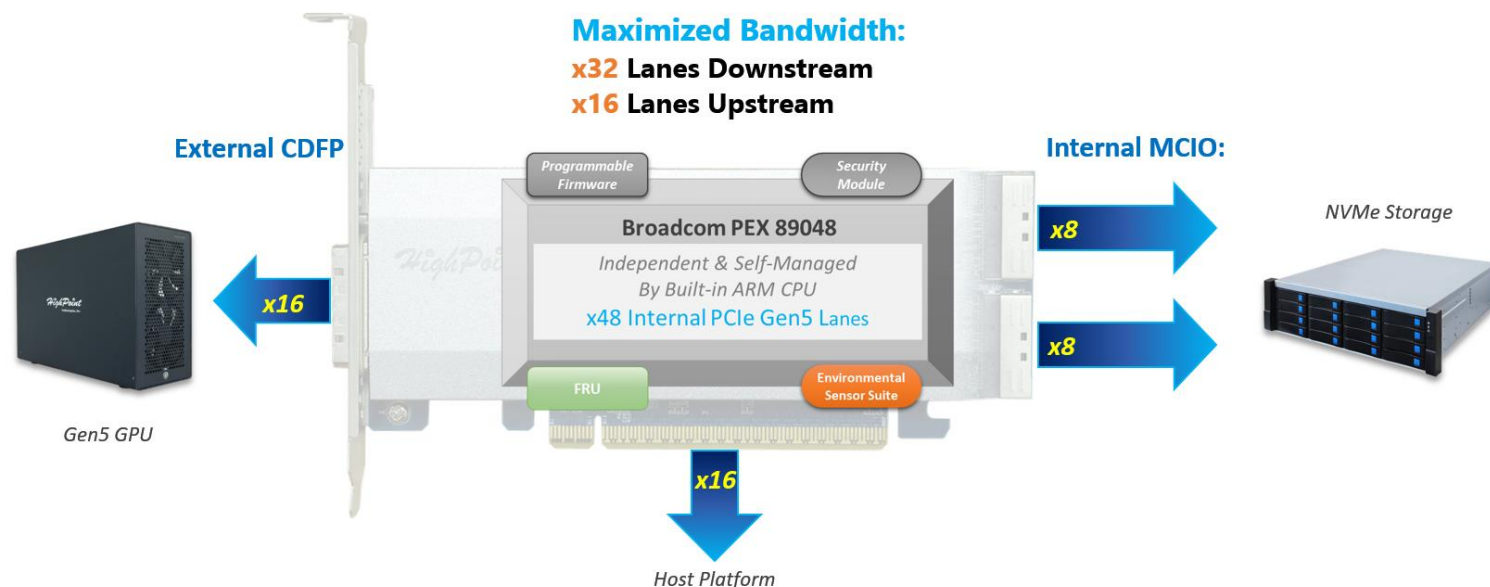 **Driverless deployment using** native NVMe drivers **across all major OS platforms**

Smart Diagnostics & Custom Firmware

- Integrated firmware-level monitoring suite
- Real-time health, connectivity, and bandwidth utilization tracking
- **Flexible Firmware Customization** services **to meet unique workflow & application requirements**

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Industry Leading PCIe Switching Architecture

The Rocket 7638D is powered by industry proven PCIe Gen5 Switching Architecture, which delivers a full x16 lanes of **PCIe bus bandwidth**, and is capable of transmitting data at a staggering 60 GB/s, in either direction, with minimal latency! This level of sustained transfer speed is essential for data intensive applications including AI, ML, Scientific modeling and Engineering, and 3D design and animation workflows, all of which increasingly rely on high end GPUs and today's fastest NVMe storage to maintain optimal performance.

Maximized Bandwidth:
x32 Lanes Downstream
x16 Lanes Upstream

External CDFP

Internal MCIO:

Programmable Firmware

Security Module

NVMe Storage

Broadcom PEX 89048
Independent & Self-Managed By Built-in ARM CPU
x48 Internal PCIe Gen5 Lanes

x8

x16

x8

FRU

Environmental Sensor Suite

Gen5 GPU

x16

Host Platform

Why Choose the Rocket 7638D?

HighPoint's Rocket 7638D sets a new standard for high-speed interconnect solutions. Unlike traditional adapters and expansion boards, which force GPUs and PCIe storage devices to share bandwidth, the Rocket 7638D's innovative switching architecture ensures both operate at peak performance—boosting rendering speeds, accelerating AI/ML pipelines, and optimizing real-time data analysis.

The unique CDFP-CopprLink connectivity and PCI-SIG certified cabling solution guarantees that maximum Gen5 bandwidth is always on tap, optimizing signal integrity and eliminating bottlenecks for mission critical applications. For professionals in data centers, research labs, AI clusters, and media studios, the Rocket 7638D provides the scalability, reliability, and performance to address today's most challenging workflows.

Applications and Use Cases

HighPoint's groundbreaking Rocket 7638D external PCIe Switch adapter is engineered to address today's most demanding AI/ML and HPC workflows. Powered by a Broadcom 48-lane PCIe Gen5 switch and enterprise-grade CopprLink CDFP cabling, the Rocket 7638D delivers up to 128GB/s of bi-directional bandwidth, providing a direct link between the hosted GPUs and NVMe storage arrays.

Artificial Intelligence & Machine Learning (AI/ML)	HPC (High Performance Computing)	Scientific Research	Media Editing & Content Creation
Faster training and inference with seamless GPU-to-NVMe integration	Optimized throughput for complex simulations, climate modeling, and analytics	Accelerated workflows for imaging, data acquisition, and real-time processing	Smooth 8K video editing, VFX rendering, and data-intensive production pipelines

Hardware Features	
Switching Architecture	Gen5
PCIe Host Interface	5.0 x16
Connectors	1 x CDFP (Dedicated PCIe 5.0 x16 per port) and
	2 x MCIO (x8) Connectors (Configured to 4 x4 as default)
Connector Pinout Definition (CDFP)	CopprLink Spec Compliant
Data Transfer Rate	64GB/s
Form Factor	LP, Single-Width
Dimensions	6.50" L x 2.72" H x 0.77 W (165mm x 69mm x 20mm)
Weight	0.46 lbs. (0.21kg)
Cooling Solution	Passive Full-Length aluminum heatsink
CDFP Hot-Plug	RocketStor 664xCW NVMe Storage enclosure only
SRIS and REFCLK Support	Host Connectivity (PCIe connection): REFCLK Support (Common Clock Mode） CDFP/MCIO Connectivity: REFCLK Support (works with devices with SRIS support)
Downstream port containment	Yes
External Power Support	No
UBM Backplane	Yes (Contact sales@highpoint-tech.com)
Firmware Customization	Yes (upon request)
Storage Features	
Drive Form Factor	Direct Cable: U.2/U.3/E3.S Backplane: E1.S, E3.S, 2.5" U.2 and EDSFF
Drive Features	X2/x4 modes, Opal SED
Bandwidth (MB/s)	60,000
IOPS (Million)	12.0 M
RAID Level	Single, RAID 0, 1, 10 *(TBA)*
TRIM (RAID)	Single/RAID 0, 1, 10 *(TBA)*
Storage Modes	Data RAID, Boot RAID *(TBA)*
Management Suite	
Host and Device Status LED	Yes
Power Measurement	Real Time Power Measurement
FRU (Field Replacement Unit)	Yes (Stores VPD data)
Operating Environment	
Work Temp.	0°C ~ + 55°C
Storage Temp.	-20°C ~ +80°C
Operating Voltage	PCIe: 12V (+/- 8%), 3.3V (+/- 8%)
Power	*16.26 (est. - subject to change)*
MTBF	> 5,000,000 hours at 40° C
Kit Contents	
Kit Contents	R7638D External Adapter
	Low-Profile Ventilated Bracket
	QIG
Optional Accessories	
Cabling	CDFP-CDFP-1M (CopprLink Gen5) CIO8-CI08-110 (MCIO 8i to MCIO 8i) CIO8-1002-110 (MCIO 8i to SFF-1002) 8654-CIO8-110 (MCIO 8i to SFF-8654) CIO8-8639-110 (MCIO 81. To SFF-8639)
eGPU Enclosure	RS8631C

Expansion Accessories	
RocketStor 8631C - PCIe Gen5 x16 eGPU Expansion Chassis	**CDFP-CDFP-1M** - 1 Meter CDFP to CDFP cable

Supports 1x Gen5/Gen4 GPU:
- Full-length, Full-height
- Up to 3-Slot Width

GPU Max Card Size:
370mm x 170mm x 88mm
Includes Gen5 x16 CDFP/CopprLink cable

- PCIe Gen5 x16
- Compatible with CopprLink Devices

CIO8-CI08-110 – 1 Meter MCIO 8i to MCIO 8i cable	**8654-CIO8-110** – 1 Meter MCIO 8i to SFF-8654 cable

- Designed for U.2/U.3 NVMe SSDs
- UBM Backplane compatible

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CIO8-1002-110 – 1 Meter MCIO 8i host to SFF-TA-1002 Device Cable	**CIO8-8639-110** - 1 Meter MCIO 8i to SFF-8639 Cable

- Designed for E3.S NVMe SSDs
- UBM Backplane compatible

- Direct to U.2/U.3 media

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