Unlock GPU Scalability for AI & ADAS—Expand Beyond PCIe Limits with HighPoint

April 2025 – Fremont, CA - The rapid advancements in artificial intelligence (AI), autonomous driving systems (ADAS), and high-performance computing (HPC) have led to an insatiable demand for GPU accelerators, high-speed storage, and advanced I/O solutions. This surge in demand has exposed a critical bottleneck: the limited availability of PCIe lanes and expansion slots. Even the most advanced server-grade motherboards, offering up to 128 PCIe lanes, struggle to meet the connectivity requirements of modern workloads, particularly for applications that require multiple GPUs per system. Each GPU consumes a substantial number of PCIe lanes, quickly exhausting available resources and restricting overall system performance and scalability.

To address this challenge, HighPoint introduces an innovative solution: the PCIe Gen5/Gen4 MCIO and SlimSAS x16 Adapter Series, powered by HighPoint's robust PCIe switching architecture. These advanced adapters dramatically expand system connectivity, enabling the addition of up to eight PCIe devices or supporting four additional x8 GPUs per single adapter. This significantly increases expansion capacity without compromising signal integrity or bandwidth, effectively overcoming the limitations of traditional motherboard designs.

This series includes two flagship adapter products, the PCIe Gen5 x16 Rocket 1628A, and PCIe Gen4 x16 Rocket 1528D.

Advantages of HighPoint's PCIe Switching Architecture

HighPoint's PCIe Switching Architecture offers several advantages over traditional solutions that rely on passive riser cards.

Configurable PCIe Lane Counts enable customers to optimize data flow and/or transfer performance to facilitate seamless integration of NVMe media into various storage architectures and workloads.

Compliant with Industry Backplane Specifications: The adapters support UBM (Universal Backplane Management), VPP (Voltage Protection Profile) and real-time storage health and connectivity monitoring to ensure full compliance with industry standard backplane specifications for superior reliability.

Comprehensive Storage Communication Interfaces: With support for SMBus, I2C, and advanced Out-of-Band protocols like MCTP and SMC, HighPoint NVMe Switch Adapters provide extensive communication options to enhance storage administration across a diverse range of hardware environments.

Robust and Versatile Cabling Solutions

HighPoint also provides a comprehensive range of fully validated cabling solutions that complement the R1628A and R1528D adapters. These solutions are meticulously designed and rigorously tested to:

Maximize Adapter Performance: Ensure optimal data transfer rates and reliability.

Simplify Deployment: Industry standard MCIO and SlimSAS connectivity streamlines initial setup and service with robust, easy to use cabling solutions.

Ensure Long-Term Reliability: Engineered for enterprise server and data center applications, HighPoint cabling solutions provide durable and dependable connections for sustained operation.

Learn more about HighPoint's PCIe Switching Adapter Series:

HighPoint PCIe Switching MCIO/SlimSAS Adapter Solutions

Explore compatible cabling solutions:

HighPoint NVMe & PCIe Cabling Accessories

In Summary

HighPoint's PCIe Gen5/Gen4 MCIO and SlimSAS x16 Adapter Series, featuring the R1628A Gen5 and R1528D 2nd-Gen Gen4 products, represents a significant leap forward in PCIe connectivity. By expanding system capabilities to support up to four additional GPU's via a single PCIe slot and ensuring optimal performance, HighPoint empowers organizations to unlock the full potential of AI, ADAS, and HPC applications, paving the way for unprecedented innovation and efficiency in enterprise and edge computing environments.

Rocket 1528D PCIe Gen4 x16 (2nd Gen) Switch Adapter — 4x SlimSAS Ports

https://www.highpoint-tech.com/nvme-switch-adapter/gen4/rocket-1528d

Rocket 1628A PCIe Gen5 x16 Switch Adapter — 4x MCIO Ports

https://www.highpoint-tech.com/nvme-switch-adapter/gen5/rocket-1628a

About HighPoint Technologies, Inc.

HighPoint is committed to providing innovative, reliable, and scalable solutions that meet the evolving demands of today's high-performance computing, video editing, AI, and 3D rendering applications. Our team is dedicated to helping you achieve your technical and business goals, ensuring your systems run at peak efficiency.

We invite you to explore our PCIe Gen5 and Gen4 x16 expansion solutions and experience the difference that HighPoint makes. For more information, visit our website or contact our sales team directly.