



Rocket 7602L
Dual M.2 PCIe Gen5 x16 Low-Profile Bootable RAID AIC

**The Industry’s Premier Dual-Port Gen5 NVMe Boot Solution:
Unmatched Performance. Absolute Redundancy.**

The Rocket 7602L stands alone as the market's premier bootable dual-port Gen5 M.2 AIC. Engineered specifically for high-performance workstations, professional content creation platforms, and specialized edge computing systems, this low-profile adapter delivers an uncompromised electrical link directly to the host CPU. By combining an active physical-layer Gen5 Retimer engine with a full PCIe x16 interface and HighPoint’s high-efficiency storage management, the Rocket 7602L unleashes the maximum native throughput of dual Gen5 M.2 SSDs. There is currently no other bootable dual-port Gen5 M.2 AIC on the market that can match this performance, reliability, and architectural profile.

Feature Highlights

- **PCIe 5.0 x16 Host Interface**
- **2x M.2 Ports** (dedicated x4 lanes per port)
- **Integrated NVMe Boot Capability** for Single-Disks or RAID Arrays
- **RAID 0, & 1 Support for Windows & Linux Platforms**
- **Retimer Architecture Overcomes Distance-Based Signal Degradation**
- **Intelligent Firmware Layer:** Tracks Thermal, Power and Linkspeed metrics at the hardware level

Solving the Gen5 Slot Deficit: Onboard Performance without Onboard Limitations

Many professional and server grade motherboards suffer from a severe deficit of native Gen5 M.2 slots, which forces system builders to choose between inadequate drive counts or passive expansion options that lack boot capabilities. The Rocket 7602L directly addresses these critical hardware pain points:



Motherboard-Grade Latency & Speed



Overcoming Signal Degradation



Bootable RAID

Motherboard-Grade Latency & Speed: By integrating an active physical-layer Retimer, the Rocket 7602L actively regenerates high-speed data streams coming directly from the host CPU to each M.2 port. This active conditioning ensures your boot array maintains access latencies and full Gen5 throughput virtually identical to a native, onboard motherboard M.2 port.

Overcoming Distance-Based Degradation: At 32GT/s, unamplified PCIe Gen5 signals degrade rapidly as trace distances increase through slots and adapter boards. While passive expansion cards risk lane drops and system instability due to signal decay, HighPoint's active Retimer architecture intercepts, re-clocks, and amplifies the signal—ensuring flawless link integrity.

True Bootable RAID Flexibility: Standard motherboard M.2 slots are rarely engineered to handle cross-platform, high-performance RAID logic for the operating system. The Rocket 7602L provides a reliable, self-contained platform to boot directly into an ultra-fast RAID 0 or redundant RAID 1 array, bypassing motherboard BIOS constraints completely.

The Active Retimer Boot Advantage

PCIe**GEN5**
RETIMER

Unlike standard passive adapters that are susceptible to signal decay and link drops, the Rocket 7602L features an active PCIe Gen5 Retimer. The engine re-clocks and regenerates data streams, guaranteeing bit-perfect signal integrity and a permanent, stable link at full PCIe Gen5 x4 speeds for both M.2 slots simultaneously.

HighPoint’s Streamlined NVMe RAID Solution

Achieve native Gen5 speeds for your boot volumes without introducing the latency or throughput bottlenecks common to traditional hardware RAID controllers.



Supported Topologies: RAID 0 (Performance Stripe), RAID 1 (Mirrored Redundancy), and JBOD.

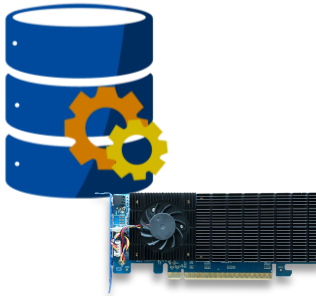
Cross-Platform Support: Complete, out-of-the-box bootable support for Microsoft Windows and mainstream Linux distributions (including RHEL, Ubuntu, Rocky Linux, and CentOS).



Safe Storage Solution: Advanced hardware-level data encryption management for OPAL SSC-compliant Self-Encrypting Drives (SED), protecting your operating system and boot volume from physical tampering.

Intelligent Firmware Layer

An onboard management firmware processor operates independently to deliver real-time system tracking and rack-level deployment optimization:



Power Monitoring: Per-device wattage visibility to monitor and optimize power draw profiles.

Lane Verification: Continuous link monitoring to instantly confirm both drives maintain full Gen5 speed.

Thermal Telemetry: Real-time board and slot temperature tracking alongside an integrated, field-proven Gen5 cooling assembly to permanently prevent performance throttling.

FRU Module (Field Replaceable Unit): Onboard memory for storing Vital Product Data (VPD) to simplify remote asset tracking and streamline maintenance replacement workflows.

Intelligent Self-Diagnostic Hardware Alarms

An onboard management firmware processor operates independently to deliver real-time system tracking and rack-level deployment optimization:



Early Warning LEDs: Physical, color-coded bracket-mounted LEDs allow technicians to instantly assess the physical health of the hosted M.2 media, cooling fan, and retimer hardware right on the floor.

Audible Alarm Buzzer: A built-in physical speaker sounds explicit warning rhythms during critical hardware events (such as a fan failure or temperature spike), ensuring rapid intervention in headless or remote edge layouts.

Target Applications

High-End Professional Workstations



Drastically reduce system startup times, eliminate application loading delays, and accelerate massive local workspace caching for media creation, heavy engineering simulations, and complex software development.

Mission Critical System Redundancy



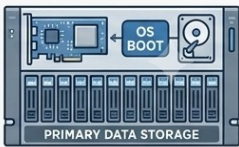
Protect professional configurations from sudden drive failures. Utilize a mirrored RAID 1 array to keep your operating system online and fully operational under heavy multitasking workloads.

AI & Performance Edge Nodes



Power localized computing platforms that require rapid system boot cycles and an ultra-fast local scratchpad to ingest and process high-frequency data streams without dropping a single frame.

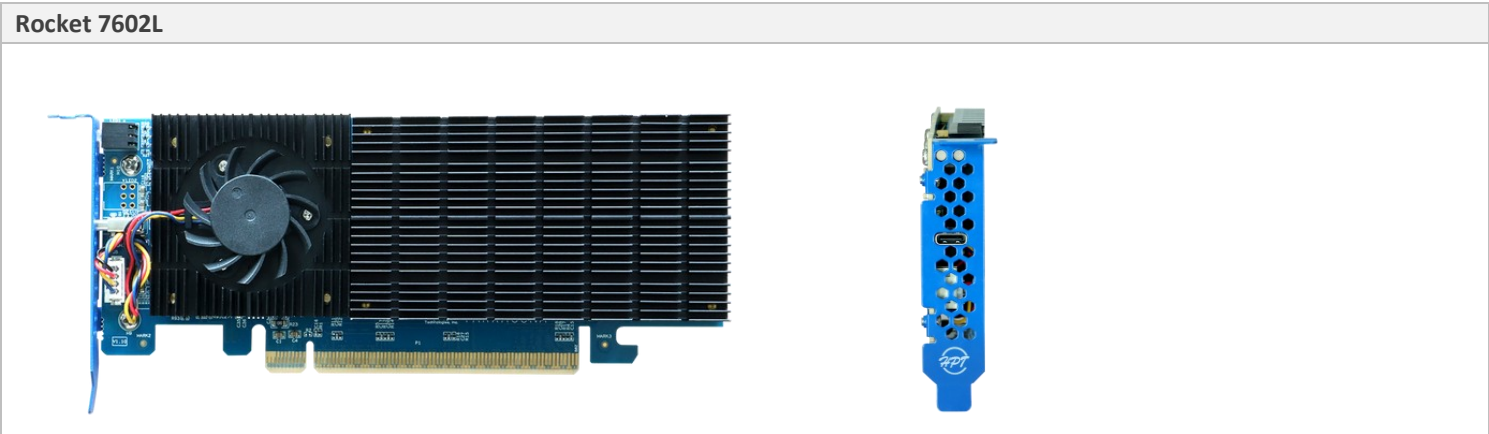
High-Efficiency Server Boot Volumes



Offload your operating system volume to a dedicated internal low-profile card, keeping your main front-loading server drive bays entirely available for revenue-generating primary data storage.

Hardware Features	
Bus Interface	PCIe 5.0 x16
Mode	4 x 4x (standard), x8x4x4
Chipset	Asteralabs PT5161LRS Retimer IC
Number of Channel / Port	2
Connector Type	M.2
Data Transfer Rate	32GB/s (2x M.2 x8 ports)
Number of devices	2
SSD Form Factor	M.2: 2242, 2260, 2280
LED Indication	Disk/RAID Activity, Status
Audible Alarm	Yes
FRU Support	Yes
OOB Connector	USB-C (bracket mounted)
OOB Management	1. SSD Control: Requires SSD with these capabilities 2. Realtime metrics: IC's temperature, Fan Speed, adapter power 3. Firmware update for both Retimer IC and MCU 5. Retimer IC's status
Storage Security Suite	
SED Support	SafeStorage OPAL SED Solution (Windows & Linux)
Mechanical Specifications	
Form Factor	Low-Profile, Half-Length, Single-Width
Card Dimensions	168mm x 68.9mm x 22.08mm
Card Weight	0.21 kg / 0.46 lbs.
PCIe Bracket	Full-Height and Low-Profile Ventilated Brackets
Cooling Solution	Intelligent, Pro-Active PCIe Gen4 Cooling Solution
	Dual Aluminum Heatsink with integrated cooling fans
Supported Systems	
OS	Windows / Linux
Secure Boot	Yes
NVMe Configuration	
RAID Support	RAID 0, 1
TRIM RAID Support	Yes
Storage Mode - NVMe	
Data-RAID	Yes
Boot-RAID	Yes
MTBF (Mean Time Before Failure)	920,585 Hours

NVMe RAID Management	
Management Suites	WebGUI (Browser-Based management tool), CLI (Command Line Interface - scriptable configuration tool), 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.	+5°C ~ + 55°C
Storage Temp.	-20°C ~ +80°C
Operating Voltage	PCIe: 12V, 3.3V
Power	29.58W
MTBF (Mean Time Before Failure)	920,585 Hours
Kit Contents	
Kit Contents	R7602L PCIe 5.0 x16 NVMe RAID AIC
	QIG
	2x additional M.2 rubber twist-pins for M.2 SSDs



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