HighPoint Technologies, Inc.

NVMe Solution

RocketStor 654x Series

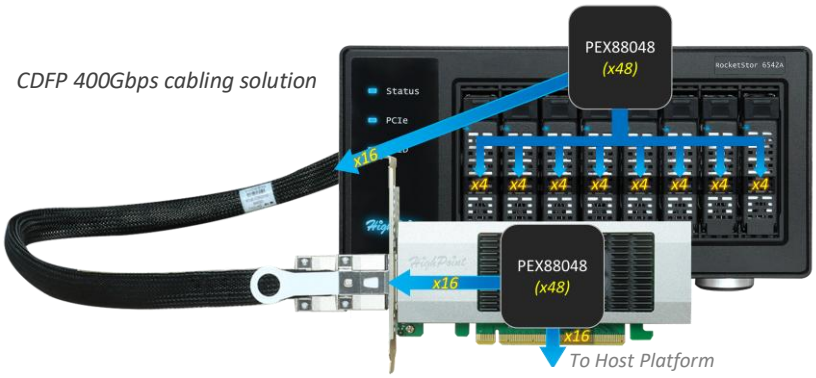
4 & 8 Bay PCIe Gen4 x16 NVMe RAID Enclosures

28GB/s, Half a Petabyte, One Portable Powerhouse

Whether handling read-intensive, write-intensive, or mixed-mode workloads, RocketStor 654x series RAID enclosures are up to the task. The ability to host up to 8 Data Center or Enterprise-class U.2/U.3 NVMe SSDs, deliver dedicated host-to-device PCIe Gen4 x16 transfer speed, in a robust, ultra-compact form-factor is perfect for data intensive applications including AI/ML training, media post production, and enterprise backup solutions.

- Compact, Rugged & Portable External NVMe RAID Storage
- Scalable Solution: Up to 8 independent 2.5" NVMe drives bays & nearly 1/2 Petabytes of storage capacity
- Dedicated Host & Device PCIe 4.0 x16 Connectivity
- Transfer speeds up to 28,000MB/s
- Precision Engineered Dual-Width Cooling Solution Enhances reliability & Prevents Thermal Throttling
- Comprehensive Management & Monitoring Suite
- Supports up to four RAID 0, 1 or 10 arrays

Dedicated Host to Device PCIe Gen4 x16 Connectivity



Integrated PCIe switching technology and 400Gbps CDFP connectivity enables RocketStor 654x enclosures to maximize data transfer speed by fully utilizing all x16 lanes of PCIe bandwidth provided by the host platform. Both the enclosure (device-side) and PCIe adapter (host-side), are equipped with dedicated PCIe switch ICs. This enables each solution to provide x16 lanes of dedicated PCIe Gen4 upstream bandwidth and x4 lanes of dedicated downstream bandwidth to each U.2 or U.3 SSD.

Seamless Scalability & Upgrade Pathways

The external form factor, removable 2.5” drive bays and integrated Hot-Swap capability enables administrators to easily expand or upgrade storage capacity while the host platform remains active.
This includes RAID and single-drive configurations. The enclosure will automatically notify the operating system of any changes, in real time – no reboot required!

External Form Factor Enhances Efficiency and Serviceability

The external form factor makes it easy to allocate storage to a specific task or application. And thanks to the dedicated PCI switch architecture, resource allotment is all handled outside of the primary computing environment. The RocketStor 654x’s dedicated PCIe switch architecture directly manages all I/O between hosted NVMe, freeing up CPU resources for other critical tasks. In addition, the external form factor optimizes platform performance by isolating SSD media from the host hardware environment.

Reduces Power Consumption:

Dedicated PSU offsets power consumption from the host platform.

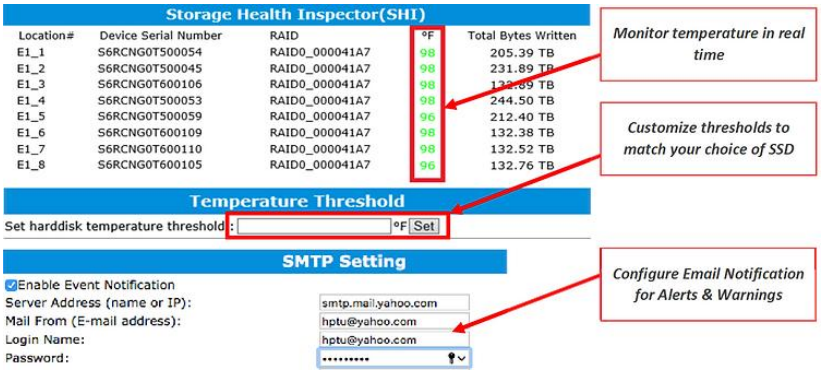
Offloads Waste Heat Management:

The external form factor enhances reliability by ensuring that waste heat generated by the NVMe media never enters the computing environment.

Comprehensive RAID Management Suite & Real-Time SSD Monitoring System

RocketStor 654x series NVMe RAID Enclosures are compatible with HighPoint's comprehensive NVMe monitoring, and management suite for Windows and Linux. The software solution includes a range of graphical and command line interfaces, for use within and outside of an OS, and enable administrators to easily configure and maintain the platform's NVMe storage ecosystem with a few simple clicks and commands.

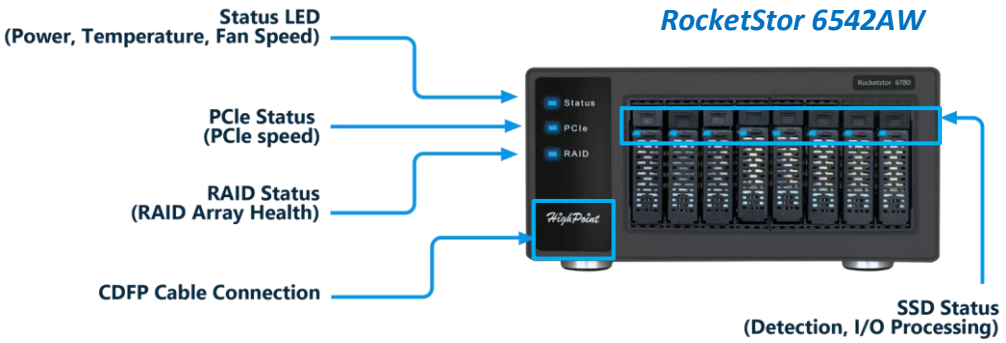
Proven RAID technology empowers administrators with the flexibility to tailor unique storage configurations for a wide range of applications, and maximize storage performance with RAID 0 striping, enhance reliability with RAID 1 mirroring technology, or take a balanced approach with RAID 10. A single RocketStor 654x enclosure is capable of hosting up to 4 separate RAID arrays, which will be automatically recognized by the host OS as ordinary, single physical disks, and can even be used to host bootable volumes.



SHI (Storage Health Inspector) enables administrators to monitor the temperature of each NVMe SSD in real time, and configure warning thresholds to correspond with each make & model, via the WebGUI and CLI software suites.

Intelligent Self-Diagnostic & Monitoring Services

The enclosure's advanced suite of sensors and LED indicators streamline service & management workflows.



These integrated, self-diagnostic and monitoring services actively survey and report the status of the CDFP connection, PCIe lane assignment of the adapter, enclosure / SSD temperature, and the condition / status of SSDs & RAID arrays. Each service works in conjunction with the WebGUI & CLI software management suites.

The enclosure LEDs employ simple color-codes to immediately indicate the status or condition of the enclosure and hosted storage. Blue indicates an optimal/normal condition, Yellow indicates a Warning or Error condition, and Red is used to indicate a failure or disabled device condition.

Protect Data Assets with HighPoint SafeStorage

SafeeStorage was developed to work in conjunction with SED capable Datacenter and Enterprise class NVMe media. It is designed to protect data assets when physical drives are misplaced or stolen by preventing unauthorized access to stored data. SafeStorage can be applied to both single-disk and RAID configurations and can be administered via the WebGUI and CLI management suites.

HighPoint Technologies, Inc.

Product	RocketStor 6541AW	RocketStor 6542AW v1.1
Adapter Hardware Features	Rocket 7534A Adapter	Rocket 1534A Adapter
Bus Interface	PCI-Express 4.0 x16	
Number of Channel/ Port	1 x CDFP Port (Dedicated PCIe 4.0 x16)	
Data Transfer Rate	400Gb/s Port Bandwidth (32GB/s for effective data transfer rate)	
LED Indicators		
PCIe LED	Adapter PCIe host interface status	Adapter PCIe host interface status
Connection LED	CDFP Cable connection status	CDFP Cable connection status
Form Factor	Low-Profile	Low-Profile
Card Dimensions	6.50" (W)*2.72" (H)*0.77" (D)	6.50" (W)*2.72" (H)*0.77" (D)
Hardware Features		
Bus Interface	PCI-Express 4.0 x16	
Number of Channels / Host	1x CDFP	
Data Transfer Rate	400Gb/s Port Bandwidth (32GB/s For Effective data transfer rate)	
Number of devices	4	8
SSD Form Factor	U.2, U.3	U.2, U.3
SSD Hot-Plug Support	Yes	Yes
Enclosure Dimensions	6.10" (W)*4.84" (H)*8.27" (D)	9.25" (W)*4.84" (H)*8.27" (D)
Product Weight	11.44 lbs.	15.00 lbs.
Audible Alarm	Dropped Disk, Fan Speed, SSD Temperature, Switch IC Temperature	
Smart Fan Control	SMART & Manual Modes with 5 speed settings)	SMART & Manual Modes with 5 speed settings)
OOB Support	Yes	Yes
Storage Security Suite		
SED	SafeStorage SED Solution (Windows/Linux)	SafeStorage SED Solution
Hardware Secure Boot	Yes (Windows OS)	Yes (Windows OS)
Front Panel LEDs		
Status LED	Temperature & Fan Status	Temperature & Fan Status
PCIe LED	RocketStor 6541A and Rocket 7534A's PCIe connection status	RocketStor 6542A and Rocket 1544's PCIe connection status
RAID LED	RAID Status & Activity	RAID Status & Activity
Logo LED	Power & CDFP cable connection status	Power & CDFP cable connection status
Drive LED on the Tray	Power, Disk Status & Activity	Power, Disk Status & Activity
Back Panel		
100M Ethernet RJ45 Port	n/a	Yes
DHCP / Static	Supports DHCP to allocate the IP Address and can assign the IP Address manually	
SSDP embedded	Firmware implement SSDP *(i.e, Devices will report their IP/Mac/SN/Name to the local network so that the application/program can know how many RS654x are connected to the local network and list them quickly)*	
User Management	Supports Only 1 User & 1 session	
USB Type C Support	USB 2.0 Supported	
Command Line Support	The Commands in the MCU spec are supported for both Ethernet & USB connectivity	The Commands in the MCU spec are supported for both Ethernet & USB connectivity *(Requires Switch set to "1")*
Switch	n/a	Yes
Switch Setting "1"	n/a	Embedded MCU's USB is redirected to USB Type C connector
Switch Setting "2"	n/a	Broadcom chipset's SDB connector is redirected to USB Type C connector Note: Used for recovery/internal debugging

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Power Switch	ON/OFF	ON/OFF
CDFP Port	Upstream Port for the RocketStor 6541A	Upstream Port for the RocketStor 6542A
Mute Button	Used to mute the enclosure's Audible Alarm	Used to mute the enclosure's Audible Alarm
Kensington Lock	Yes	Yes
Supported Systems		
OS Support	Microsoft Windows, Linux	Microsoft Windows, Linux
Software Secure Boot	Yes (Windows/Linux)	Yes (Windows OS)
RAID Configuration Support		
RAID Level Support	Single, RAID 0, 1, 10	Single, RAID 0, 1, 10
TRIM RAID Level Support	Single, RAID 0, 1, 10	Single, RAID 0, 1, 10
Storage Mode - NVMe		
Data RAID	Yes	Yes
Boot RAID	Yes	Yes
NVMe RAID Management		
Management Suites	WebGUI (Browser-Based management tool), CLI (Command Line Interface- scriptable configuration tool), API package, UEFI BIOS/HII	
SMTP Email Alert Notification	Yes	Yes
Alarm Buzzer	Yes	Yes
Storage Health Inspector	Yes	Yes
NVMe SMART status	Yes	Yes
Automatic and configurable RAID Rebuilding Priority	Yes	Yes
Auto resume rebuilding after power on or reboot system	Yes	Yes
Single-RAID or Multi-RAID Arrays per Controller	Yes	Yes
Cross-Sync RAID Solution Across Controllers	Yes	Yes
Advanced RAID features		
Online Array Roaming	Yes	Yes
RAID Quick Initialization for fast array setup	Yes	Yes
Global Hot Spare Disk support	Yes	Yes
Operating Environment		
Working Temp	+5°C ~ + 55°C	+5°C ~ + 55°C
Storage Temp	-20°C ~ +80°C	-20°C ~ +80°C
Operating Voltage	PCIe: 12V, 3.3V	PCIe: 12V, 3.3V
MTBF	920,585 Hours	920,585 Hours

Product	RocketStor 6541AW	RocketStor 6542AW v1.1
Kit Contents	1x Rocket 7534A Adapter	1x Rocket 1534A Adapter
	1x RocketStor 6541A Enclosure (includes 4x 2.5" Drive Tray)	1x RocketStor 6542A Enclosure (includes 8x 2.5" Drive Trays)
	1x CDFP-CDFP-1M 1M Cable	1x CDFP-CDFP-1M 1M Cable
	1x QIG	1x QIG
	1x UL Power Cord	1x UL Power Cord
	1x Low Profile Bracket	1x Low Profile Bracket
	20x 2.5 SSD Mounting Screws	40x 2.5 SSD Mounting Screws

	RocketStor 6541AW	RocketStor 6542AW v1.1
Product Image		

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PCIe 4.0 Switch

U.2/U.3 & E3.S