HighPoint’s SSD7749E PCIe 4.0 x16 8-Channel E1.S NVMe RAID controller was designed for Industrial and Edge Server applications that demand a compact, easily integrated high-density RAID storage solution with blistering PCIe Gen4 x16 performance and enterprise class 24/7 reliability. The SSD7749E is a simple, cost-efficient PCIe Gen4 RAID storage upgrade solution for Intel and AMD x86 based servers. It can directly host up to eight 9.5mm E1.S SSDs at speeds up to 28,000MB/s, yet is no longer than a modern PCIe graphics adapter, and can be easily integrated into industry-standard computing platforms with a free PCIe 4.0 x16 slot.

**Performance Matters! The SSD7749E unveils the true performance potential of Gen 4 NVMe Store**

The SSD7749E represents the epitome of PCIe Gen4 Storage Technology. Armed with HighPoint’s advanced NVMe RAID engine and NVMe Hardware Architecture, the SSD7749E is capable of supporting RAID 0, 1, 10 arrays & single-drives, including mixed configurations of single-disks and arrays, multiple arrays, multiple bootable volumes, and boot + storage configurations at speeds up to 28GB/s! State of the art PCIe switch technology enables the controller to dynamically allocate up to 4x lanes of PCIe 4.0 transfer bandwidth to each E1.S SSD.

**Multi-CPU/Core Performance Optimizer:** Edge and Industrial Computing platforms utilize multi-core/CPU motherboards. While resources are readily available, they may not be properly allocated to the target application and NVMe storage. HighPoint’s HPT-Optimize utility simplifies the tuning process for all Multi-Core platforms by intelligently allocating system resources to ensure the target application utilizes the full potential of the NVMe media. The utility intuitively maps the most efficient I/O processing route to minimize the risk of latency and eliminate performance bottlenecks.

**Cross-Sync RAID Technology:** The SSD7749E enables administrators to optimize RAID performance by scaling available bus bandwidth up to 32 lanes, and deliver up to 55,000MB/s of transfer performance.

**Advanced Cooling Solution Prevents Performance Throttling**

**Configurable Temperature Thresholds & 24/7 Monitoring with Email notification & Event Logging**

PCIe Gen4 NVMe SSDs generate a considerable amount of waste heat under load, especially when compared to PCIe 3.0 media. This is why many E1.S SSDs are available with optional heat sinks. In addition, many Gen4 NVMe SSDs will limit throughput when faced with the threat of overheating; a technique known as “thermal throttling”. The SSD7749E was designed to actively combat the risk of thermal throttling and ensure E1.S media is always operating at peak performance. The unique HBA architecture incorporates an advanced cooling system which combines a full-length anodized aluminum casing and integrated heat sinks with a pair of ultra-durable, low-decibel cooling fans. This compact, efficient solution fully encases and insulates the E1.S media, and rapidly transfers waste heat away from critical componentry without injecting excessive noise into the work environment. The cooling system was designed to work in conjunction with the SHI (Storage Health Inspector) management interface, which allows administrators to instantly check the operating status and temperature of NVMe media in real-time via S.M.A.R.T. technology.

**Revolutionary Board Design & Toolless Loading System**

The SSD7749E represents the next generation of compact RAID solutions, and features a unique loading system designed to simplify installation, upgrade and maintenance procedures. Administrators will no longer need to remove the PCIe device from the host system in order to access the storage media; the cooling system features a unique latch-lock mechanism that enables the module to swing up and away from the PCB to reveal the SSD slots. The HBA houses up to eight 9.5mm or four 15mm E1.S SSDs. Each SSD slot features a quick-release latch which enables administrators to quickly install or remove the SSDs without the need for hand tools or fasteners.

*Feature Highlights*

- Up to 8x ES.1 Form factor SSDs
- Directly Hosts over 60TB of enterprise class storage
- Dedicated PCIe Gen4 x16 Host Bandwidth delivers up to 28,000MB/s
- Cross-Sync Technology: Scale Up to x32 Lanes of Gen4 Transfer Bandwidth
- RAID 0, 1, 10 & Single Disk
- Advanced Cooling Solution Prevents Thermal Throttling
- Toolless SSD Installation
- For Linux, macOS & Windows

**Universal Software Suite Easily Manages & Monitors RAID Storage**

The SSD7749E’s comprehensive management suite streamlines installation, service and upgrade workflows.

**Pre-OS Level Management:** The UEFI Tool is a command line utility designed to configure arrays prior to OS installation.

**BIOS Level Management:** The UEFI HII utility will add RAID creation menus to the motherboard’s BIOS interface for systems that support 3rd party HII capable devices.

**OS-Level Management:** The WebGUI is an intuitive graphical user interface designed to work with all modern Web Browsers. The CLI(Command Line Interface) is ideal for seasoned administrators and platforms that do not utilize graphical operating systems.

**Drive Encryption Support:** designed for use with self-encrypting drives (SEDs); secures data against unauthorized access.

**1-Click Self Diagnostic & Logging Service:** The WebGUI’s Diagnostic tab enables the interface to gather all necessary hardware, software and storage configuration data and compile it into a single file.
## HighPoint E1.S NVMe RAID Controllers

<table>
<thead>
<tr>
<th>Product feature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Interface</td>
<td>PCI-Express 4.0 x16</td>
</tr>
<tr>
<td>No. of Channel / Ports</td>
<td>8x E1.S NVMe port (Dedicated PCIe 4.0 x4 per port)</td>
</tr>
<tr>
<td>Port Type</td>
<td>8x E1.S NVMe</td>
</tr>
<tr>
<td>Data Transfer Rate</td>
<td>16 GT/s</td>
</tr>
<tr>
<td>No. of Devices</td>
<td>8x 9.5 mm E1.S NVMe SSDs, 4x 10 mm E1.S NVMe SSDs</td>
</tr>
<tr>
<td>External Power Support</td>
<td>Yes (Use 6pin PCIe Power Connector)</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Full-Height, Dual-Width</td>
</tr>
<tr>
<td>Dimensions</td>
<td>11.18” L x 4.92” H x 1.53” W</td>
</tr>
<tr>
<td>Weight</td>
<td>2.67 lbs.</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 Years</td>
</tr>
</tbody>
</table>

### Supported Operating Systems

- **Windows (64-bit only)**: Windows 11, 10, Windows Server 2022, 2019, 2016, Microsoft Hyper-V
- **Linux (64-bit only)**: RHEL/Debian/Ubuntu/Fedora/Rocky Linux (Linux kernel 3.10 & later)
- **macOS**: macOS 10.13 ~ macOS Ventura 13.x

### ARM Platform Support (NVIDIA models)

- Yes (Linux)

### System Requirements

- **Mac Platforms**:
  - Intel & Apple M1 Platform compatible
- **PC Platforms**:
  - Any PC Systems or Motherboard with a PCI Express x16 physical Slot (Bifurcation is not required)

### Secure Boot (PC platforms)

- **Windows**: Supports Secure Boot enable and disable
- **Linux**: Supports Secure Boot disable

### Cooling System

- Aluminum casing with integrated thermal pad & cooling fan

### Fan Control

- Yes (Windows, Mac)

### NVMe Configuration

- **RAID Support**: Single, RAID 0, 1, 10
- **TRIM RAID Support**: Single, RAID 0, 1, 10

### Storage Mode-NVMe

- **Data RAID (Non-Bootable)**: Windows, Linux, Mac
- **Boot RAID**: Windows: Windows 10, Windows server 2016 and later, Linux: kernel 3.10 and later, Mac: Not support

### NVMe RAID Management

- **Management Suites**: WebGUI (Browser-Based management tool), CLI (Command Line Interface- scriptable configuration tool), API Package, UEFI Tool
- **SMTP Email Alert Notification**: Yes
- **Alarm Buzzer**: Yes
- **Storage Health Inspector**: Yes
- **NVMe SMART status**: Yes
- **Automatic & configurable RAID Rebuilding Priority**: Yes
- **Auto resume incomplete rebuilding after power on or reboot system**: Yes
- **Single-RAID / Multi-RAID Arrays per Controller**: Yes
- **Cross-Sync RAID Solution Across Controllers**: Yes (Windows, Linux, Mac)

### Advanced RAID features

- **Flash ROM for Upgradable UEFI**: Yes
- **Bootable RAID Array**: Yes
- **Multiple RAID Partitions supported**: Yes
- **Online Array Roaming**: Yes
- **RAID Quick Initialization for fast array setup**: Yes
- **Global Hot Spare Disk support**: Yes

### Operating Environment

- **Work Temp**: +5°C ~ +55°C
- **Storage Temp**: -20°C ~ +80°C
- **Operating Voltage**: PCI-e: 12V, 3.3V
- **Power**: Typical: 920,585 Hours
- **Certification / Approval**: CE, FCC, RoHS, REACH, WEEE

### Kit Contents

- 1x SSD7749E
- 1x Quick Installation Guide
The fan-module is hinged and can be unlatched and moved counter-clockwise to expose the SSD slots.