Optimized High-Capacity Storage Solution for Real-World Compute and Storage Workloads

Tech Brief

Solidigm D5-P5316 QLC 30.72 TB NVMe SSD and Pliops Extreme Data Processor (XDP) combine to seamlessly deliver best-in-class performance, reliability, and scalability

Solidigm | Pliops Solution

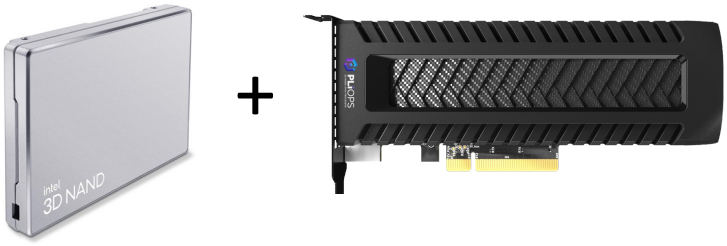
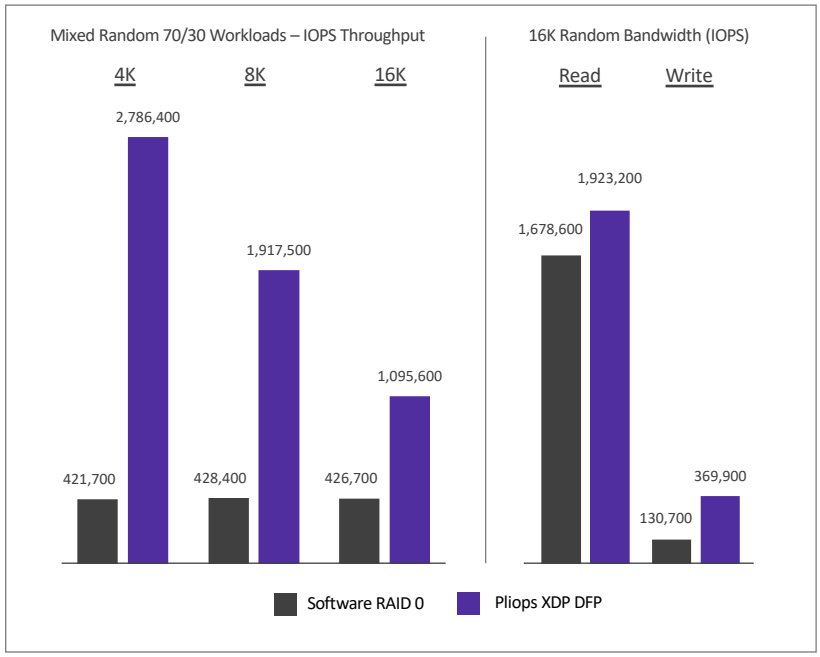


Figure 1. Solidigm D5-P5316 30.72 TB NVMe SSD and Pliops Extreme Data Processor (XDP)

Solution Testing

The following is a sampling of test results comparing the performance of SW RAID 0 against Pliops XDP with Drive Failure Protection. Testing was performed with a Dell PowerEdge R750 server, four Solidigm D5-5316 SSDs, and a single Pliops XDP using a Linux® FIO benchmark tool.



Solution Highlights

With surging growth in data volumes, rising infrastructure costs, and the need for accelerated performance, optimizing data scalability has never been more critical.

High-capacity QLC SSDs from Solidigm combined with Pliops XDP deliver greater performance and data protection at a lower cost/TB.

Higher Performance and Endurance

XDP and Solidigm QLC SSDs testing show performance acceleration up to **6.6x** for a 4K 70/30 workload and up to **9.3x** for 4K random writes. Endurance is enhanced up to **7x** for longer drive life by transforming all random writes into sequential, dramatically reducing write amplification.

Pliops Drive Failure Protection (DFP)

Pliops DFP offers full performance RAID 5/6 style reliability without the tradeoffs of traditional solutions.

Other tests show throughput performance during a drive rebuild running an 8K 70/30 workload is 905MB/s. It took 450 minutes to rebuild user data at 14.7 Min/TB.

Capacity Savings

XDP shapes and optimizes data before writing to the SSD. Hardware compression engines, minimal DFP overhead, and near-full drive utilization expand usable capacity up to **6x**, for greater data storage density at a lower cost.

Unlock and efficiently scale the value of stored data with Pliops and Solidigm

Solution Benefits

- High-capacity SSDs for higher data storage density
- Accelerated application workload performance
- Eliminate blast radius anxiety with no compromise RAID 5/6 style protection with ultra-fast rebuilds
- Extended endurance for longer drive life
- Simple deployment – no changes needed
- Single solution across a range of workloads