

What's New at FMS 2022

I/O+ Technology Introduction
E26 Updates and Performance
X1 Launch



PHISON

A nighttime cityscape featuring illuminated skyscrapers and light trails in blue, orange, and purple. A prominent orange diagonal line separates the image from the white text area on the right.

AGENDA

Phison I/O+ Technology Introduction
Phison E26 Update
Phison X1 Launch



Flash Memory Summit

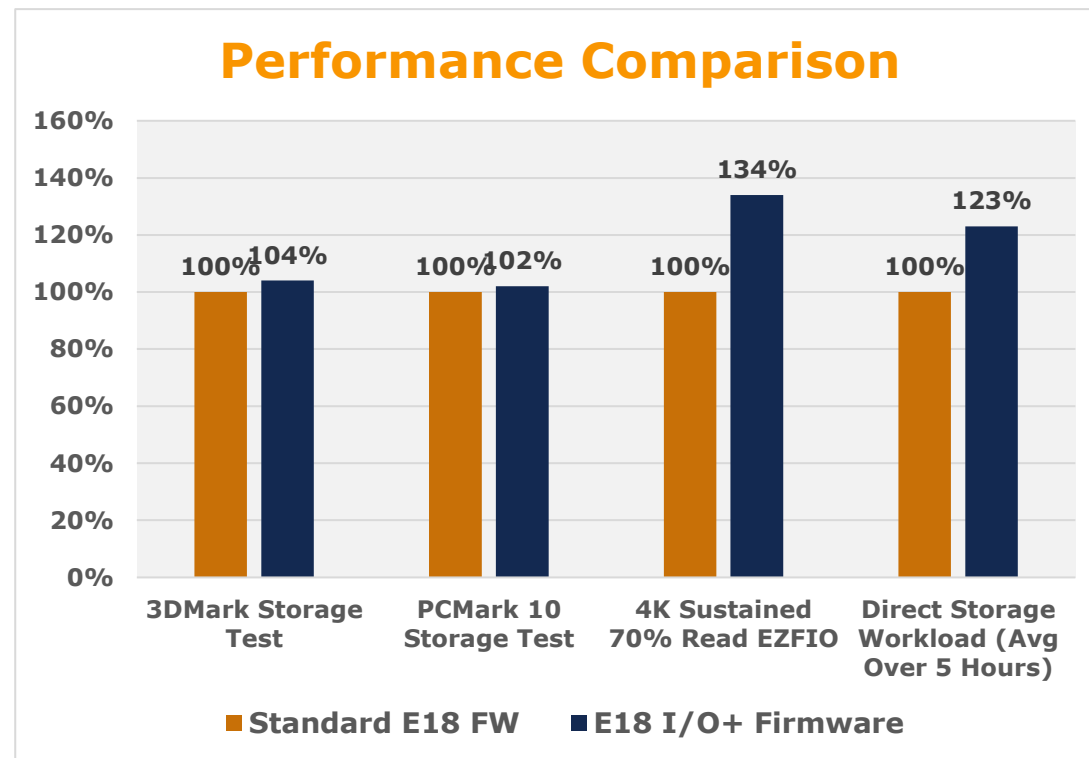
1 Phison I/O+ Technology

What Phison I/O+ Technology?

Phison I/O+ Technology

Deliver better guaranteed bandwidth for Microsoft's DirectStorage API technology

- Specifically optimized for sustained read workload that run for hours
- Without compromising classical workloads or benchmarks
- The biggest gains on tasks that emphasize medium to large IO (32K to 1MB)
- No degradation if smaller IOs are used, but the performance gains are limited



What Phison I/O+ Technology?

DirectStorage benefits

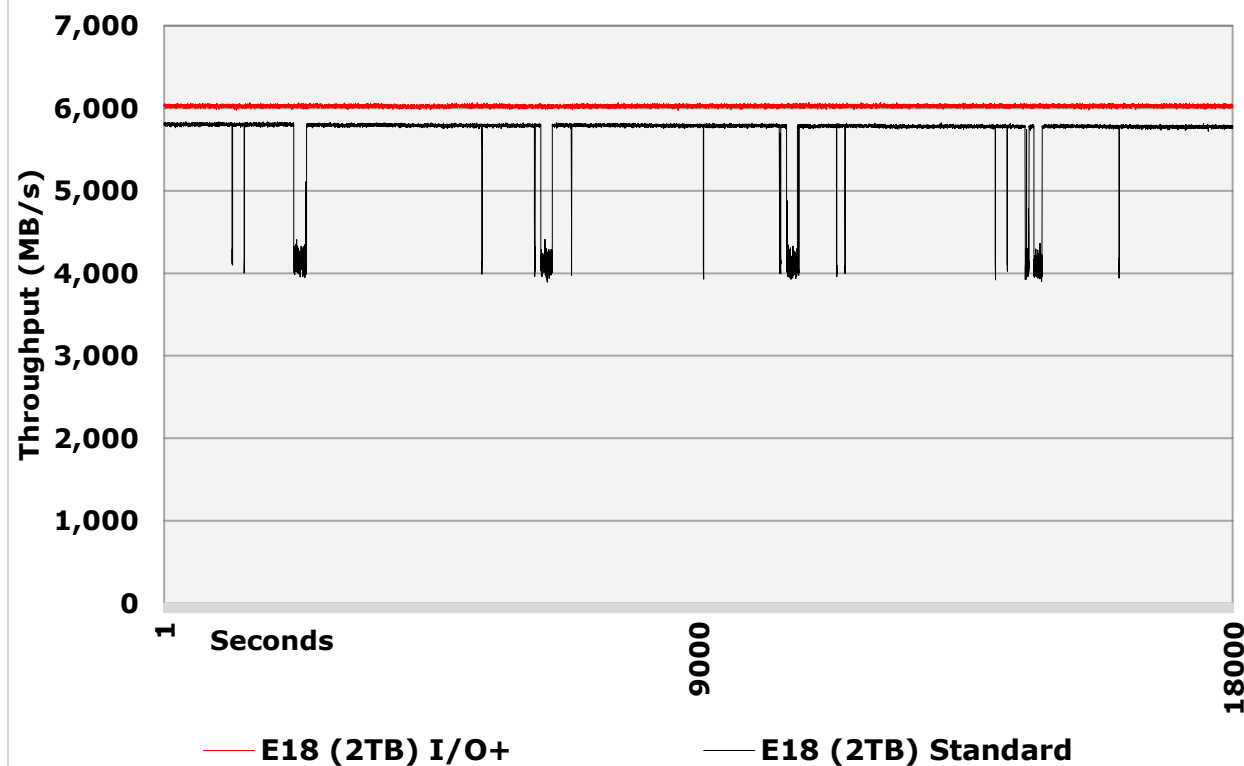
Guaranteed bandwidth is the lowest performance dip in the data stream.

- With a large dip, the game will be forced to run with less graphic detail or the user will see the dip as a stutter or “hitching” in game.
- In 3rd party testing, some “flagship” PCIe Gen4 SSDs can only deliver 900 MB/s of guaranteed bandwidth for DirectStorage-enabled applications.
- With I/O+ technology, the Phison E18 with Micron B47R (1200MT/s) memory can sustain 6,000 MB/s to give game developers ample bandwidth make the most photo realistic games ever.



32KB Random Read QD64 T4 (256oio)

DirectStorage Medium Detail Setting Emulation in MB/s - Higher Is Better





Flash Memory Summit

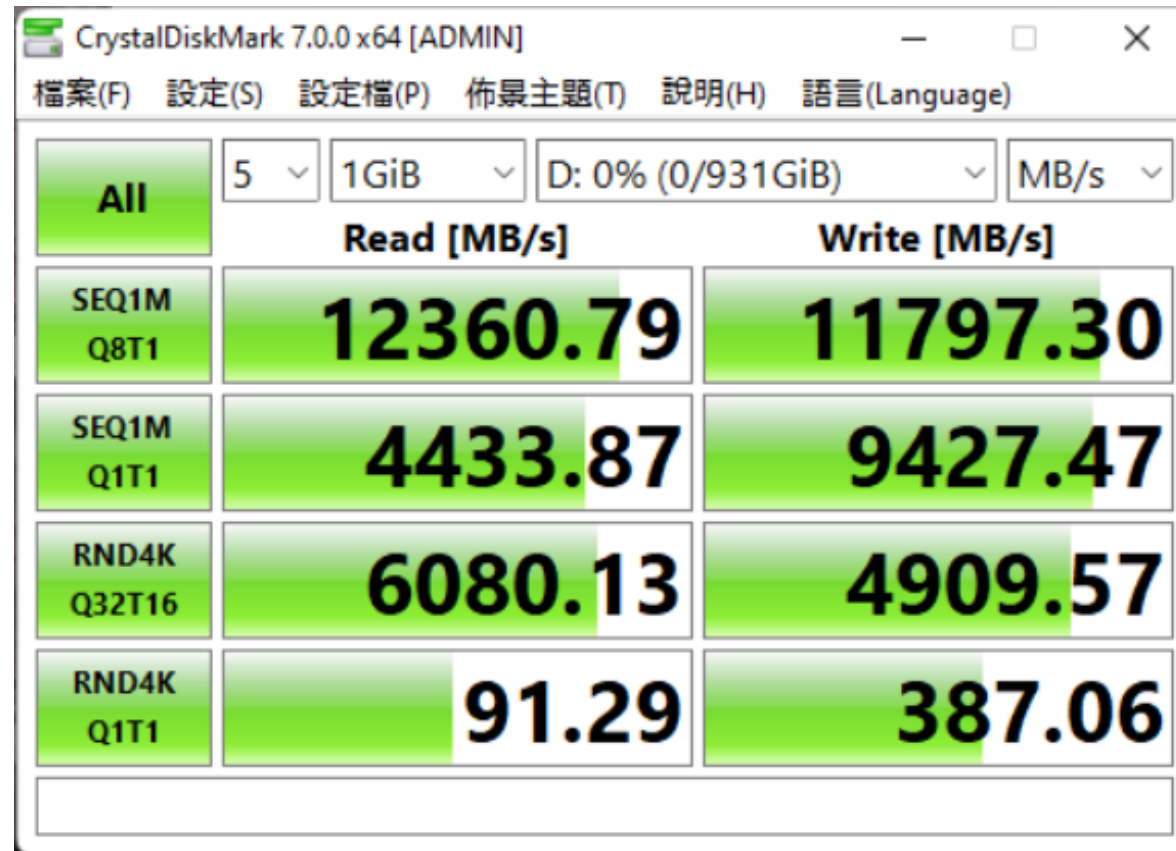
2 Phison E26 PCIe Gen5 Update

Phison PS5026-E26 Updates



Gen5 E26 is on pace to come to market through our partners in Q3 2022.

- Will be Fastest consumer SSD solution to date
- Will retain the flagship title until 2025
- SSD solution will also be the first new-to-market with innovative I/O+ technology at launch.
- PCIe Gen5 gives E26 a massive bandwidth advantage over previous generation consumer SSDs (at a time when bandwidth becomes more critical to the user experience)
- Technologies like Microsoft's DirectStorage API, Nvidia's RTXIO, and AMD's SmartAccess Storage will leverage the bandwidth to stream data to GPUs like a large cache to deliver just-in-time data payloads





Flash Memory Summit

3 Phison X1 Launch



Introducing Phison X1



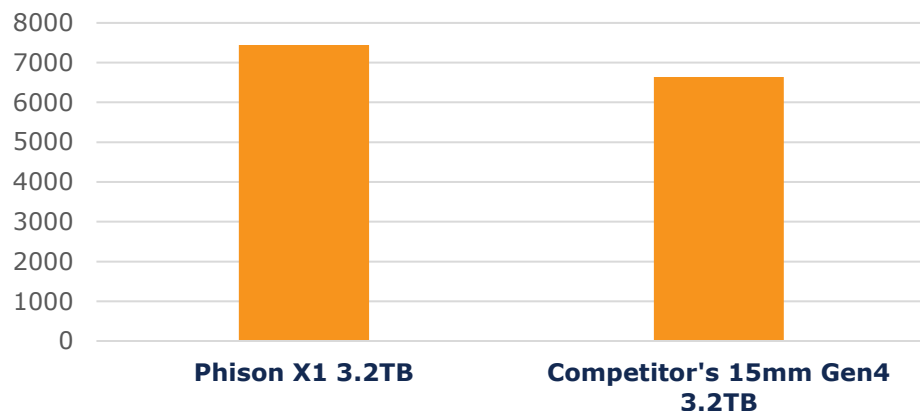
The X1 SSD platform has unrivaled performance while also consuming the least amount of power of drives in its class

Phison's unique and patented CPU architecture

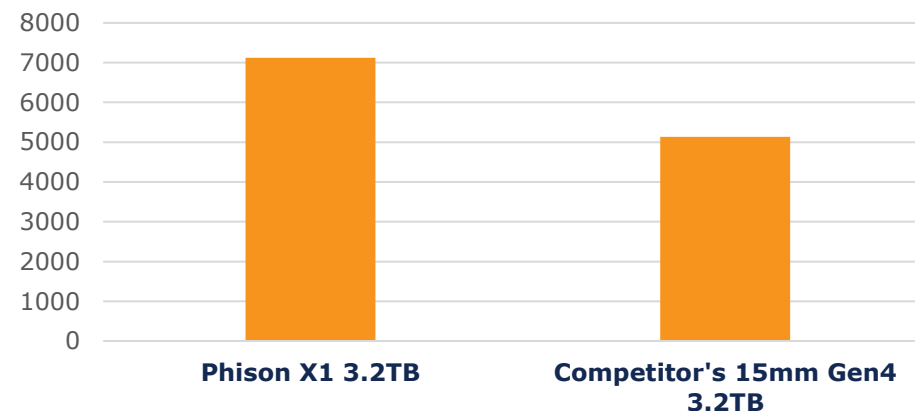
- Two performance and power efficient ARM R5 CPUs and dozens of small CPU co-processors that complete computationally heavy, redundant tasks at high speed with a minimum of power consumption.
- class-leading performance in a usable power envelope that doesn't require exotic memory to surpass 1.75 million random read IOPS.

Phison X1 4-Corner Performance

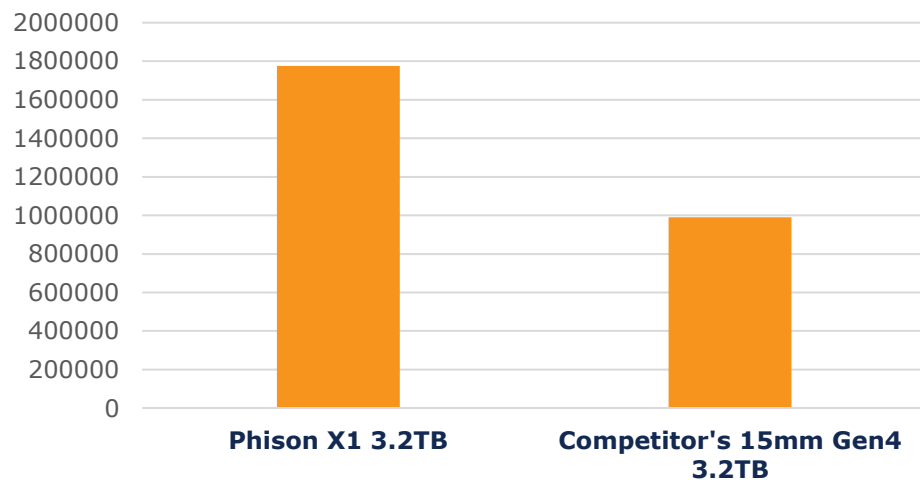
Sequential Read 128KB Blocks



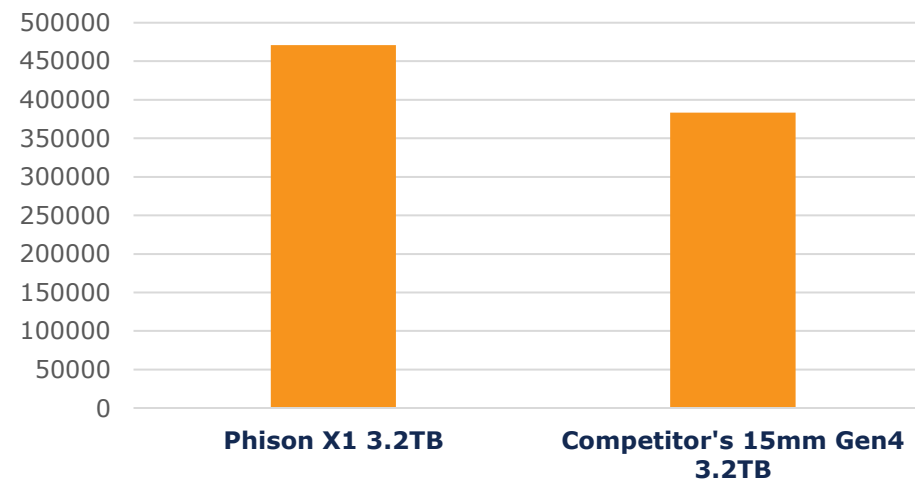
Sequential Write 128KB Blocks



Random Read 4KB Blocks



Random Write 4KB Blocks



Phison X1 Specifications

Capacities	1DWPD: 1.92, 3.84, 7.68, 15.36TB 3DWPD: 1.60, 3.20, 6.40, 12.8TB
Interface	PCIe Gen4x4, NVMe 1.4
Form Factor	U.3, 15mm & 7 mm thickness
NAND Flash	128L 3D eTLC
Sustained Performance (Up to 99%) 1,2,3	
Sequential Read	7,400 MB/s
Sequential Write	7,200 MB/s
4K Random Read	1,750,000 IOPs
4K Random Write	470,000 IOPs
Quality of Service (99%) 3	
4K Random Read QD1 Latency	84 μ s
4K Random Write QD1 Latency	10 μ s
Reliability	
UBER	< 1 sector per 1018 bits read
Power	
Typical	Random Read: 13.5W Random Write: 17.9W
Idle	6.5W
Temperature	
Operating	0°C ~ 70°C
Non-Operating	-40°C ~ 85°C
Advanced Features	<ul style="list-style-type: none"> • Power Loss Protection capacitors (pFail) • End-to-End Data Path Protection • SMBus • Multistreams • SR-IOV • TCG Opal 2.0, Sanitize, Crypto Erase • PRP/SGL • DIF/DIX • NVMe-MI • SECEDED • PI • Memory Scrubbing

PHISON

THANK YOU!

