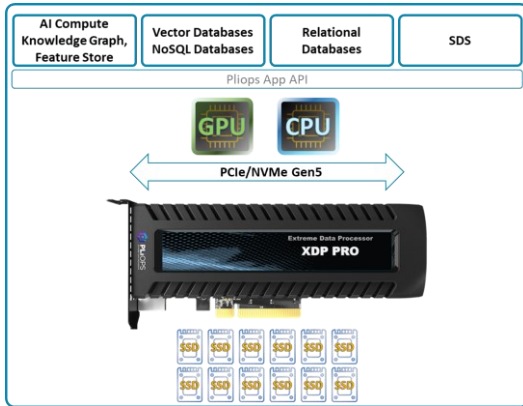**PLiOPS**
EXTREME DATA PROCESSOR

Extreme Data Processor (XDP)
Accelerating AI Storage

XDP PRO Accelerator Card

Overcome storage inefficiencies, massively accelerate application performance, and dramatically lower overall infrastructure costs for AI, databases, analytics, and more. The Pliops Extreme Data Processor (XDP) radically simplifies the way data is processed and SSD storage is managed. Delivered on an easy-to-deploy, low-profile PCIe card, Pliops XDP exponentially increases performance, reliability, capacity, and efficiency to multiply the effectiveness of your infrastructure investments.

Pliops XDP Accelerator Card enhances CPU and GPU storage processing speeds using AccelKV Data Shaping technology and PCIe Gen5, achieving new performance heights

Performance

Unprecedented performance up to 10x higher for AI, databases, analytics, and more.

Pliops' AccelKV technology enhances data processing by leveraging hundreds of CPU cores through innovative data structures and algorithms. It introduces the XDP-CoreKV Key-Value interface, fully compatible with existing software APIs. Seamless integration with RocksDB and MongoDB is possible via XDP-Rocks and XDP-WiredTiger interfaces. Pliops XDP boosts instance density for databases and AI applications, reducing latency and improving system efficiency.

Reliability

Get data protection at the speed of flash with ZERO performance penalty.

Traditional data protection solutions require tradeoffs in both performance and capacity. Pliops XDP-RAIDplus eliminates these tradeoffs with advanced drive failure protection that maintains constant data availability and eliminates data loss and downtime. XDP-RAIDplus supports multiple single drive failures, and with virtual hot capacity (VHC), there is no need for a hot spare. Because XDP-RAIDplus manages the data, only actual data is rebuilt, unlike RAID-based solutions.

Capacity

Store up to 6x more data with no performance cost.

Pliops XDP supports TLC, QLC, including ZNS –all common flash technologies and SSDs from any vendor. XDP increases endurance by up to 10x, making it possible to take advantage of high-capacity, low-cost SSDs. Data is efficiently compressed and packed with leaving no gaps, so there is no internal fragmentation. When using the block storage API, the volume can also be thinly provisioned, enabling the full use of all SSD capacity at maximum performance.

Efficiency

One easy-to-deploy solution for every workload for up to 80% better economics.

Pliops XDP provides value across a broad range of applications with one-solution fits-all acceleration. Pliops XDP makes it valuable and easy to deploy across an entire data center. Compact yet powerful, XDP gets more out of the existing infrastructure footprint to keep up with organizational data growth and application adoption.

Data Resiliency
Capacity Expansion
Media Enhancement

Pliops XDP AccelKV
Data Storage Acceleration Engine

## Pliops AccelKV, Best-In-Class Line-Rate Data Shaping

AccelKV's Dispersive-Hash-Table is a cutting-edge hybrid data structure that offers the advantages of KV stores with minimal DRAM use. It achieves near-perfect hash table efficiency for both static and dynamic data and is fully offloaded to XDP hardware, reducing CPU usage. AccelKV enhances performance across the board, including tasks like sampling, shuffling, file parsing, and accelerated data operations.

Est. **3X** GPU LLM/RAG Accelerated	Est. **4X** VectorDB Accelerated
Up to **10X** RocksDB Accelerated	Up to **6X** MongoDB Accelerated
Up to **6X** More Capacity	Up to **5X** Faster RAID Rebuild

Specifications

Performance*	RR:30M IOPS, RW:15M IOPS, SR:56GB/s, SW:56 GB/s
Capacity	2PB RAW/Physical disk capacity
RAID support	Pliops XDP-RAIDplus
Compression	Hardware accelerated ZSTD
SSD Vendors	All drive vendors including Samsung, WD, Micron, Solidigm, Kioxia, Hynix, Dapustor, Seagate
SSD Support	Interface: PCIe Gen 3/4/5 NVMe & NVMe-oF, SAS, SATA Types: TLC SSD, QLC SSD, ZNS SSD
Supported Servers	All standard servers including Dell, HPE, Lenovo, Supermicro, Quanta, Wiwynn, Inspur, Sugon, Fujitsu, Hitachi, Tyan, MiTac, Intel, Cisco, AIC
OS Support	All Linux variants including RHEL, Ubuntu and Debian
Host API	Standard block device – plus - KV Library API, XDP-Rocks (RocksDB compatible API), XDP-WiredTiger (for MongoDB)
Physical Dimensions	Low Profile HHHL-single slot (6.6" X 2.536")
Host Bus Type	16-lane, PCIe Gen 5 Compliant*
Power Fail Protection	All data is protected from sudden power failure using onboard Supercapacitors
Operating Temp.	50°C @ 500LFM (inlet), 40°C @ 350 LFM (inlet)
Storage Temp.	5°C to 35°C, < 65% non-condensing
Power	Typical 60W*, Max TBD**
Operating Voltage	+12V dc from ATX as primary, +12V dc from PCIe slot as secondary.
Warranty	3 years, free advanced technical support, advanced replacement option
Regulatory Certifications	AS/NZS CISPR 22, ICES -003, Class B, EN55022/EN55024, VCCI V-3, RRA no 2013-24 & 25, RoHS compliant, EN/ IEC/UL 60950, CNS 13438, FCC 47 CFR part 15 Subpart B, class B, WEEE
MTBF	Up to 4.5M* Hours

* Up to 15 MIOPS read/write for a typical system w/ x6 Gen5 SSDs, up to 64 Xeon Gold CPU cores, up to 512GB DRAM memory

** Preliminary, subject to additional validation/approval
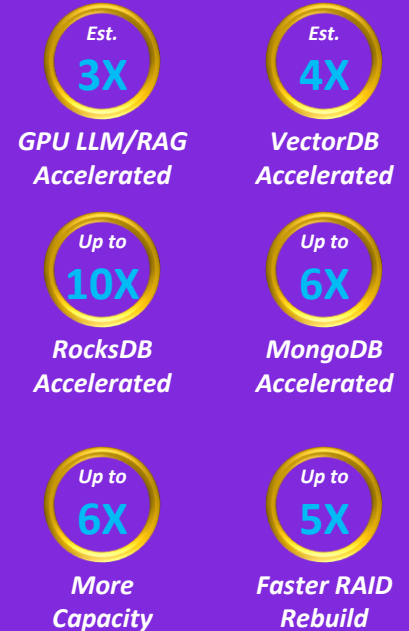
XDP SSD Enhancements:

- 6x more capacity than traditional RAID allows for data growth challenges
- Rapid Recovery - Enable strict availability SLAs
- Extend SSD useful life beyond hardware refresh cycles
- Greater Resiliency with protection against 2 sequential single drive failures
- Eliminate need for dedicated hot spare with built in Virtual Hot Capacity feature
- Significant write amplification reduction
- Ultra fast rebuild rate for large capacity drives
- Full data & metadata protection in the event of sudden power down