

DPU Storage Accelerator Boards

DPU STORAGE ACCELERATOR BOARDS

	Throughput (Gbps)	Form Factor
MxL8807	200	OCP, PCIe
MxL8804	100	OCP, PCIe
MxL8803	75	OCP, PCIe

MARKET REQUIREMENTS

- Faster dataset delivery
- High-performance analytics
- Improve workload accuracy
- Quicker access to larger dataset
- Simple accesses to all dataset levels
- Power data from edge to cloud

PANTHER III PROVIDES

- Fastest response times
- Highest data reduction ratios
- Data temperature transitioning
- Enhanced deduplication hit rates
- Single pass compression / encryption / MaxHash / data protection / RTV
- Complete NSA Suite B Security
- End-to-end data protection
- Real-time verification (RTV)
- Software backup on all operations
- Six 9's Reliability

APPLICATIONS

- Enterprise / hyperscale data center
- Hyperconverged infrastructure
- Converged infrastructure
- Primary storage
- Un/structured storage
- Digital library media
- Block / file / object storage
- Software-Defined Storage (SDS)
- All-flash / hybrid storage
- NVMe SSD storage arrays

Delivers Ultra-Low Latency & Breakthrough Data Reduction



The Need for Data

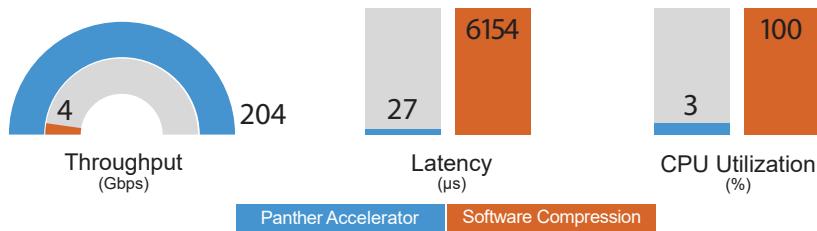
Around the world, there is an ever-increasing demand to securely store larger amounts of data. Additionally, everyone wants instant access to their data. Today's data storage solutions face the challenge of meeting these demands while increasing workload result accuracy, lowering capital expenditures and improving reliability.

The Panther III Solution

Panther III addresses these challenges and more by delivering simultaneous breakthrough data reduction, encryption, data protection and enhanced deduplication enablement with MaxHash. With Panther, storage solutions offer 12:1 data reduction, a full suite of security, and CAPEX cost reduction while providing ultra-reliable data protection.

Panther Accelerator powerful data reduction technology intelligently off-loads the CPU by providing multiple independent parallel data processing unit (DPU) transform engines. Panther opens all tiers of storage, including All-Flash-Array and NVMe, to their full bandwidth potential with no CPU or software limitations.

Panther III vs. Software (Direct CPU Core) Compression



Packet Size 32KB: XP10 Encode, Padding, AES CBC Encryption



Storage Acceleration

Data reduction, security, and data protection solutions that offload the host CPU and guarantee storage capacity optimization

Decompression/Compression Algorithms

- GZIP Level 9
- ZLIB Level 9
- Deflate Level 9
- XP10 Level 11
- LZS/eLZS

Suite B Secret & Top Secret NIST Certified Decryption/Encryption

- AES -CBC, -GCM, -CTR, -ECB (128, 192, or 256 bit keys)
- AES-XTS (256 or 512 bit)

Authentication and Deduplication MaxHash

- SHA-1 (160)
- SHA-2 (224/256/384/512)
- HMAC-SHA-1, HMAC-SHA-2
- AES-GMAC, AES-XCBC-MAC

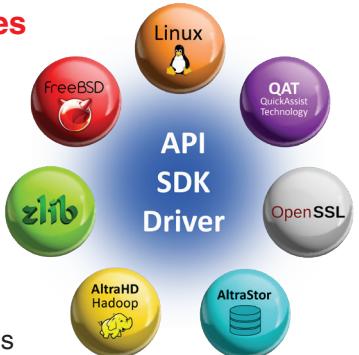
Optimized Acceleration Architecture

Panther is an ideal solution for larger datasets (big data) & fast dataset applications like data warehouse and big table. Its flexible compression algorithms enable simple data temperature transition, optimizing access latency for hot, warm and cold data. When combined with Panther Class of Service, traffic handling can be prioritized for provisioning, enforcing service agreements or ultrafast access to hot data reads.

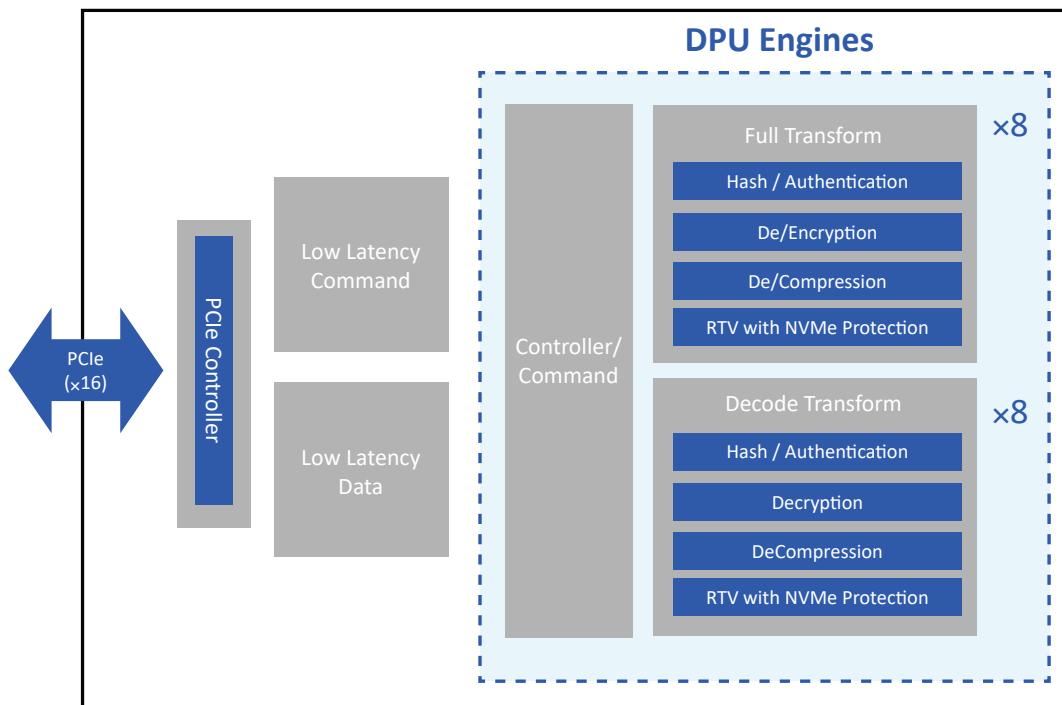
Panther lowers capital storage costs by delivering both improved storage capacity and \$/GB savings. In addition, its single pass execution provides faster dataset delivery enabling high performance analytics with improved workload results. It also offers built-in, end-to-end real-time verification (RTV) of all transforms, assuring data integrity and eliminating data loss.

Rich Software Ecosystem Packages

MaxLinear provides a feature-rich software development kit (SDK) containing API, drivers, and source code for easy incorporation with end-application software and software-defined storage (SDS). Focused on intelligent CPU offloading, reduced overhead for lowest latency and full-feature failover for highest system reliability and zero down time.



- Linux: Multi Distributions & Kernel versions
- FreeBSD 11.x / 12.x / 13.x
- Provide source code for easy incorporation
- Plug & Play packages - No modification required
- Enhanced latency and throughput
- Backward compatibility



Panther III Block Diagram

Panther III Series

Panther III Unleashes the True Power of Data Storage

Panther delivers ultra-low latency, 200Gbps throughput, data reduction and security acceleration for enterprise and hyperscale data centers and results in unprecedented performance, scalability, high availability, resiliency, and capacity optimization.

- Accelerate the Speed of Storage:** Panther delivers simultaneous breakthrough compression performance and security capability that enables 12:1 data compression allowing storage solutions to not only store 1/12th the data, but also allow users to access, process, and transfer data 12 times faster.
- Enable Intelligent Storage:** Panther's 200Gbps throughput and ultra-low latency enable quicker access to big data, allowing higher performance data analysis to deliver better workload accuracy.
- Lower Capital Storage Expenses (CAPEX):** The exclusive MaxHash provides independent hash block size and programmable offset to enhance deduplication hit rates resulting in improved effective storage capacity and \$/GB savings.
- Integrate Faster:** Feature-rich software development kit (SDK) contains API, drivers, and source code for easy incorporation with end application software and software-defined storage (SDS).
- Meet Six 9's Reliability:** Built-in, end-to-end data protection, Real Time Verification (RTV) of all transforms, NVMe protection, and in-line CRCs/parity assures data integrity and eliminates data loss.

Panther III DPU Storage Accelerators Boards

Part Number	Interface	Throughput (Gbps)	Max Cascaded Throughput (Gbps)	Compression	Encryption	Authentication / Hash	Data Protection	Form Factor
MxL8807A-CA-B	PCIe Gen4 16x	200	3,200	▪ Gzip ▪ zlib ▪ Deflate ▪ XP10 ▪ eLZS/LZS	AES Suite B	▪ SHA-1/2 ▪ HMAC-SHA ▪ AES-GMAC, AES-XCBC-MAC	▪ NVMe Protection ▪ T10-DIF ▪ T10-DIX	PCIe HHHL
MxL8804A-CA-B		100	1,600					
MxL8803A-CA-B		75	1,200					
MxL8807A-DA-B		200	3,200					
MxL8807A-EA-B		200	3,200					
MxL8804A-EA-B		100	1,600					
MxL8803A-EA-B		75	1,200					OCP NIC 3.0 Ver 1.1 SFF



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