Kalray K220-LP™ Smart Storage Accelerator

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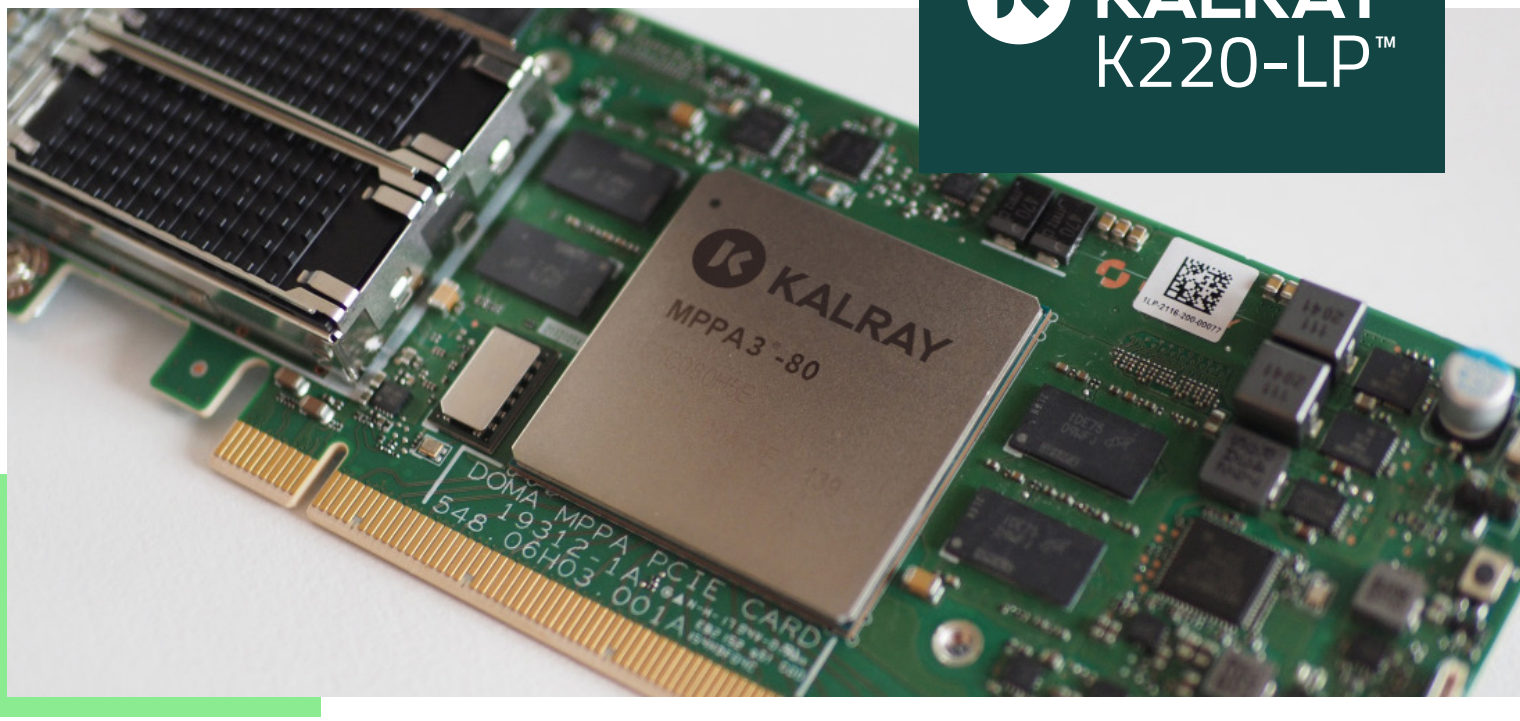

KALRAY K220-LP™ STORAGE ACCELERATION CARD

Brings Storage Offload to the Next Level

- **Transparent**: Seamless virtualization of local SSDs including QLC and future PLC-based models – no system change.
- **Flexible**: Works with any OS and server.
- **Complete**: Delivered with built-in data services such as logical volume management, RAID 0,1,10, 6.
- **Open**: Fully programmable based on an open software environment (SDK / SPDK) for custom storage services.
- **Security Enhanced**: Increased data availability and reliability.

Enhances Server Efficiency

- Offload computationally intensive workloads.
- Low power at 36W – much lower than other SSD offload cards.
- PCIe NVMe virtualization delivers the best possible SSD performance, reliability, and endurance, including for QLC.

Build Best NVMe-based Storage Solutions

The adoption of NVMe storage devices in servers has resulted in huge performance and capacity growth per server. Unfortunately, main server CPUs have not kept pace.

The Kalray Smart Storage Accelerator (SSA) offloads intense storage data services and applications from the main CPU, thereby releasing all the potential of NVMe SSDs in any server with local NVMe devices. The main CPU is freed to perform billable tasks while all storage-related functions and applications are offloaded to the Kalray K220-LP™ Smart Storage Accelerator.

By integrating the K220-LP SSA into data storage servers, data centers can accelerate their transition from traditional storage architectures relying on SAS (Serial Attached SCSI) to high-performance, efficient NVMe-based solutions.

Leveraging Kalray's MPPA® DPU unique capabilities, the K220-LP™ is a low-profile, low-power PCIe card designed for any server and OS. A lightweight daemon configures the desired storage resources and the Kalray card presents standard block-level NVMe targets to the OS. With no software layer between the NVMe devices and host VMs or applications, the full performance efficiency is realized from local TLC and QLC SSDs. Existing device and IO drivers continue to work seamlessly.

INCREASE YOUR STORAGE SERVER EFFICIENCY

Powered by MPPA® DPU

A New Class of Processors, Specialized in Intelligent Data Processing, from Cloud to Edge

Kalray's MPPA3® data processing unit (DPU) is the leading data center infrastructure chip, specialized in intelligent data processing, for storage, compute, and AI acceleration.

Leveraging the patented manycore architecture, the DPU is natively capable of managing massive data flows and multiple workloads with no bottlenecks to enable **smarter, more efficient and energy-wise** data-intensive applications

Kalray's DPU-based solution offers significantly more cost-effective performance than traditional CPU-based architectures, which face reduced performance efficiency due to data processing bottlenecks when running heavy data processing services.

AccessCore® Storage (ACS) SDK

AccessCore® Storage is an SPDK-based open software environment targeting storage applications and storage data services. It provides standard APIs and tool chains along with MPPA® DPU-optimized storage software stacks.

Thanks to ACS SDK, the K220-LP™ Smart Storage Accelerator is fully programmable and can offload custom storage applications or computational storage processing and remove the usual solution bottlenecks of traditional architectures. This enables data centers to leapfrog outdated technologies that are unable to sustain the storage requirements of demanding workloads including HPC, AI/ML, and post-production, and embrace the benefits of modern, scalable, and flexible data solutions with minimal effort.

Example of Use Case

pixitmedia Storage Solution for Media and Entertainment Market

pixitmedia is a solution provider for high-performance, high-availability, scale-out storage and data management, targeting the Media and Entertainment market.

The solution offers consistently high performance and availability of user files in a global namespace, for data-intensive workloads such as post-production and rendering immersive AR 3D environments. Thanks to Kalray's Smart Storage Acceleration Cards and Kalray's DPU, pixitmedia can offer its customers a unique solution in terms of performance, ease of adoption, and overall system costs.

The Kalray SSA steps in to take over the management of NVMe storage node devices and perform data-Intensive tasks such as RAID so the solution can always rely on the full performance of the NVMe storage devices.

TECHNICAL SPECIFICATIONS

Features	K220-LP™ Specifications
Processor	Kalray MPPA®3-80 V1.2 @ 1GHz
SSD Device Support	Western Digital, Micron, Intel, Kioxia, Hynix, Seagate, Samsung, Solidigm
Device Capacity	Up to 24 x 30TB NVMe SSD
Network Interface	2x QSFP28 100Gb Ethernet
Host Interface	X16 PCIe Gen4 (RC and PTP)
Memory	2x DDR4 4GB @ 3200MT/s with ECC 1x 4GB eMMC for MPPA® application code
Format	Low Profile - Half Length
Overall Size	167.65 mm x 68.9 mm x 1 PCIe slot (with passive heat sink)
PCB Thickness	1.6 mm
Power Input	Only PCIe gold finger power input (12V@5.5A + 3.3V@3A)
Power Consumption	36W (typical) 42W (max)
Safety, Regulatory, and Compliance	FCC, UL, VCCI, CE, Canada, RoHS Directive 2002/95/EC, WEEE Directive 2002/96/EC
MTBF	>200,000 hours
Operating Temperature	0C to 50C
Storage Temperature	-40C to 85C
Warranty	2 years (extendable)

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