Kalray K300 Acceleration Card

KALRAY K300™

Kalray K300™ acceleration card

Leveraging the Massively Parallel Processor Array (MPPA®) Coolidge v2 processor, based on Kalray patented ground-breaking manycore technology

Multi-purpose programmable card for a large variety of applications requiring efficient acceleration of heterogeneous tasks in parallel

- AI Inference
- Compute Acceleration
- 5G RAN Acceleration
- Cryptography Acceleration
- Data & Storage Acceleration

Power Efficient Accelerator for Edge, Communications, and Datacenter Applications

The Kalray K300 delivers a versatile range of capabilities in a single PCIe card, combining hardware acceleration, programmable computing, and AI inference in one powerful solution.

Designed around Kalray's powerful MPPA® (Massively Parallel Processor Array) architecture, the K300 offers unparalleled processing power and efficiency, making it an ideal solution for data centers, cloud providers, communications service providers, and organizations handling intensive applications requiring acceleration of heterogeneous tasks.

Specifications	
Processor	1x MPPA® Coolidge v2 @ 1GHz
Number of cores	80 independent 64-bit VLIW cores 80 tensor accelerators
Memory	16GB DDR4 SDRAM @ 3200MT/s 40MB on chip memory
I/O	PCIe Gen4 16-lanes
Ethernet	4x 10/25G SFP28 interfaces
Synchronization	IEEE 1588 PTP and SyncE support PPS In / PPS Out
AI & Compute	INT8: 45 TOPS FP16: 22.5 TFLOPS
FEC	5G FEC Hardware Accelerator CRC, LDPC, Rate Matching, HARQ Performance: decode @12Gbps / encode @52Gbps
Cryptography	Cryptographic Accelerator AES-128/192/256 (ECB/CBC/ICM/CTR/GCM/GMAC/CCM/XTS), MD5/SHA-1, SHA-2, SHA-3, SNOW3G, ZUC, KASUMI Performance: encrypt @104Gbps / decrypt @115Gbps
Storage & Data	Data Compression Accelerator (zlib, deflate, gzip) Up to 100Gbps compress and 100Gbps decompress
Form Factor	Full Height Full Length Dual Slot
TDP	20W – 60W (depends on use cases)
Thermal	Heatsink with optional fan

Powered by Kalray MPPA® Coolidge v2™

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

Coolidge v2™ is the third generation of Kalray's MPPA® ("Massively Parallel Processor Array") Intelligent Data Processors. Coolidge v2™ is natively capable of managing multiple workloads in parallel with no bottlenecks to enable smarter, more efficient, and energy-wise data-intensive applications.

Taking full advantage of Kalray's patented MPPA® architecture, Coolidge v2™ is a scalable 80-core processor designed for intelligent data processing. It offers a unique alternative to GPU, DSP, ASIC or FPGA, bringing unique value to multiple applications from Data Centers to the Edge.

Kalray's MPPA offers a cost-efficient, high-performance solution to accelerate heavy data processing services for CPU-based architectures.

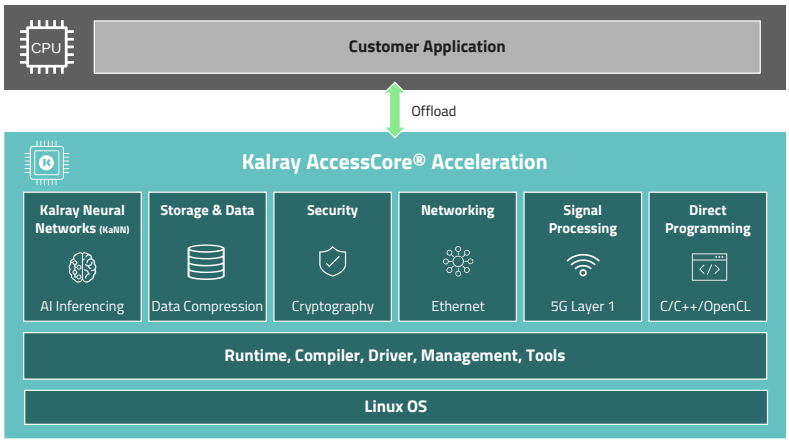
AccessCore® SDK

AccessCore® is the Kalray software environment enabling to leverage the performance capabilities of Kalray's MPPA® processor.

AccessCore® offers libraries and tools to support parallel programming on Kalray's MPPA® architecture as well as AI acceleration capabilities, allowing developers to build the most advanced applications with Kalray K300 card.

Kalray AccessCore® SDK offers a comprehensive, standard-based software environment for the development, testing, and deployment of acceleration capabilities on the Kalray K300 card. It includes:

- Kalray Neural Networks (KaNN®), a powerful AI inference engine that supports a wide range of models and leading frameworks. KaNN enables rapid deployment of high-performance AI workloads on the Kalray K300 card.
- A DPDK implementation (Data Plane Development Kit) that enables offloading of compute intensive workloads such as Forward Error Correction (FEC) for Radio Access Networks via BBDev, cryptographic operations through CryptoDev, and data compression using CompressDev.
- Direct programming support with OpenCL and standard C/C++ models, empowering developers to create custom accelerated functions on Kalray MPPA cores.
- A complete toolchain, built on open-source components, for code compilation, execution, debugging, performance analysis, and full management of the Kalray K300 card.



contact@kalrayinc.com
kalrayinc.com

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