WHAT IS A DPU?

A new class of programmable processor specialized in running datacenter infrastructure services

The 3rd socket in data centers alongside the CPU and GPU

Accelerate Software-Defined Datacenter Infrastructure Services

Networking
NFV, vSwitch, NAT, ...

Storage
NVMe-oF, compression, deduplication, encryption, computational storage...

Security
Firewall, encryption, IPsec, ...
WHAT IS A DPU?
Key Features

- **FULLY PROGRAMMABLE**
  Management plane control plane and data plane

- **HIGH PERFORMANCE NETWORK INTERFACES**
  - Packet parsing / matching / dispatching
  - RDMA support
  - TCP acceleration (RSS, LRO, checksums, ...)

- **HIGH PERFORMANCE PCIe INTERFACE**
  SR-IOV for virtualization support

- **TIGHTLY COUPLED INLINE ACCELERATORS**
  - Crypto accelerators (IPsec, TLS)
  - Compression (storage)
  - Erasure Coding

- **SECURITY**
  Root of trust, secure boot, secure firmware upgrades
Kalray’s MPPA®3 Coolidge™

80 highly efficient VLIW independent CPU cores, gathered into 5 clusters, running at 1GHz

Power efficiency
20W Typ

High Speed I/O
2x100Gbps Eth, PCIe Gen4,DDR4

Tightly Coupled Accelerators
10 Crypto accelerators, Erasure coding acceleration, advanced programmable DMAs

Security
Root of trust, secure boot, secure vault

Fully programmable
Control & Mgmt Plane: 16 cores SMP CPU running Linux
Data Plane: 64 cores running SPDK
MPPA®3 Coolidge™ Storage SDK
Complete Open Software Solution – SPDK as Never Been so Fast …

- Support standard SPDK on both Control plane Cluster and Dataplane clusters for easy storage service addition
- Linux on Control plane cluster, proprietary lightweight OS on dataplane clusters

Provided with rich catalogue of SPDEK vBDEVs:
- Logical volume with thin provisioning, snapshots and clones
- RAID 0, 1, 5 and 6
- Smart Storage Controllers high-availability
- Encryption
- Dedup, zero detection, compression
Thank You
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