OCP – ODSA Project

Commercialization Use Case

Corigine & Netronome

Fourth Generation SmartNIC Architectural Imperatives

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Motivation to use OCP/ODSA philosophy and standards

- Netronome and Corigine are building Fourth Generation SmartNICs which have several specific requirements including:
  - **Flexibility** – ability to integrate specialized subsystems components from different vendors e.g. I/O chiplet, datapath processors, management plane processors, crypto, ML/AI cores
  - **Composability** – heterogeneous elements from 3rd parties and different foundry nodes
  - **Open standards** – not just interface standards, but also open instruction set (RiscV)
  - **Scalability** – link speeds scaling from 25G to nX100Gbps, processing and bandwidth to assure line rate without blocking or dropped packets (including very large packets)
  - **Power-Performance-Area** – Denard Scaling and Moore’s Law dictate that a chiplet based implementation is vastly superior to a monolithic implementation from PPA, yield and cost perspectives

- Netronome has been involved with ODSA
  - Since inception in 2019
  - Early evangelists / proselytizers
ODSA Use Case at Corigine & Netronome

Product intersection with ODSA specifications

1. Implementing multiple interfaces using D2D controller with BOW phy supporting non-blocking line rate up to 20 X 100Gbps serdes

2. Scalable datapath processors (>1000+ core MIMD configurations)

3. Target process is advanced TSMC node/ product availability 2023; early access on Corigine MIMIC™ emulation platform
What is Next for ODSA at Corigine & Netronome

- Roadmap using (truly) open standards to offer a range of SmartNICs from 2x25G to 800Gbps
  - Propagate chiplet methodology to adjacent markets e.g. SDWAN etc.
- Composable Architecture that enables the integration of 3rd party chiplets with domain specific capabilities e.g. ML, photonic I/O chiplet etc.
- Demonstrable solutions based on heterogeneous technology (different process nodes, different foundries, different vendors)
- Early Ecosystem enablement through MIMIC™ emulation platform of different chiplets
- Practical establishment of a chiplet marketplace through pragmatic demonstrable implementations (substrate modelling, packaging, test etc.)
- Provide Technical Leadership for the APAC ecosystem, establishing a regional chapter under the auspices of the OCP/ODSA leadership
Questions