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BoW Progress Report

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BoW Progress Report

- **Completed and moved BoW Specification rev 0.7 to Github:**
    - **https://github.com/opencomputeproject/ODSA-BoW**

- **The review committee planned weekly meetings and participants inputs on Spec 0.7 boiled down to ~20 distinct issues**

- **Major Step: Successfully finalized and reached a consensus on the BoW Interface Objectives**

BoW High-Level Objectives
(Based on industry surveys)

- **A set of backward compatible die-to-die parallel interfaces that provides the flexibility to trade off the following key factors:**
  - → **Throughput per die edge**
  - → **Design Complexity**
  - → **Packaging Technology Cost**

Backward Compatibility Definition: Each future version of this interface is expected to be compatible with at least two previous significant versions.

BoW Interface Objectives

- **High Energy Efficiency Target <1 pJ/bit**

- **Beachfront Bandwidth (aggregate Transmit + Receive):**
  - **>100Gbps/mm with all packaging options**
  - **>1Tbps/mm with preferred packaging option**

- **Trace length ranges on laminate substrate:**
  - **Unterminated reach   <10mm**
  - **Terminated reach   <50mm**

- **Latency & BER Target Requirements:**
  - **Low-latency mode (w/o FEC) :   Latency <5ns   & BER < 1E-15**
    - **Latency <5ns required for high-performance compute applications**
  - **Ultra-low BER mode (w/ FEC):   Latency <15ns & BER < 1E-25**

Latency Definition: Delay from the source PCS parallel interface to destination PCS parallel interface

BoW Interface Objectives (Cont.)

- **Portable across wide process nodes ranging from 28nm to 5nm**
  - A necessity for heterogenous integration with wide range of chiplets

- **Single supply core supporting Vdds compatible with CMOS process nodes from 28nm to 5nm**
- **Support Conventional & Advanced Packaging Technologies**
  - Low-Cost Organic Substrates (bump pitch 100u-130um)
  - Advanced 2.5D Interposer (bump pitch 30u-55um)

- **Be unencumbered by Patent Licensing Fees/Royalties**

BoW Next Step

- **The next goal is to release BoW Spec 0.9 by March 2020**
- **In preparation to release rev 0.9, the committee is planning to close the following key 6 issues:**
  - **Reference Bump Maps**
  - **Clocking Requirements**
  - **Test and Testability**
  - **Calibration Mode**
  - **Initialization**
  - **Interoperability**

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