PANEL "3D TECHNOLOGY : WHICH ROAD FOR WHICH DISRUPTIVE ARCHITECTURES ?"

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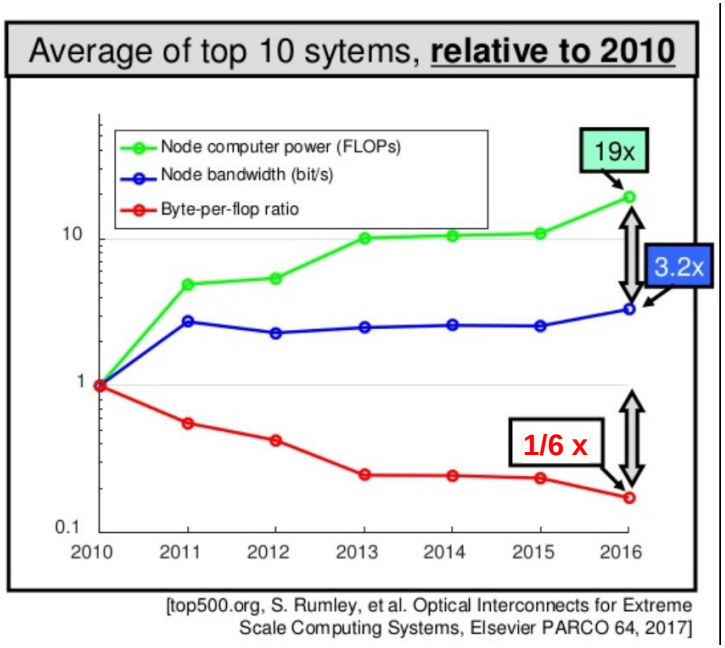
COMPUTING LANDSCAPE



[top500.org, S. Rumley, et al. Optical Interconnects for Extreme Scale Computing Systems, Elsevier PARCO 64, 2017]

- **Data-intensive application workloads require increasing Byte-per-Operation ratio (e.g. Deep Learning).**
- **In recent years, with traditional architectures, Byte-per-Operation ration has been divided by x6.**

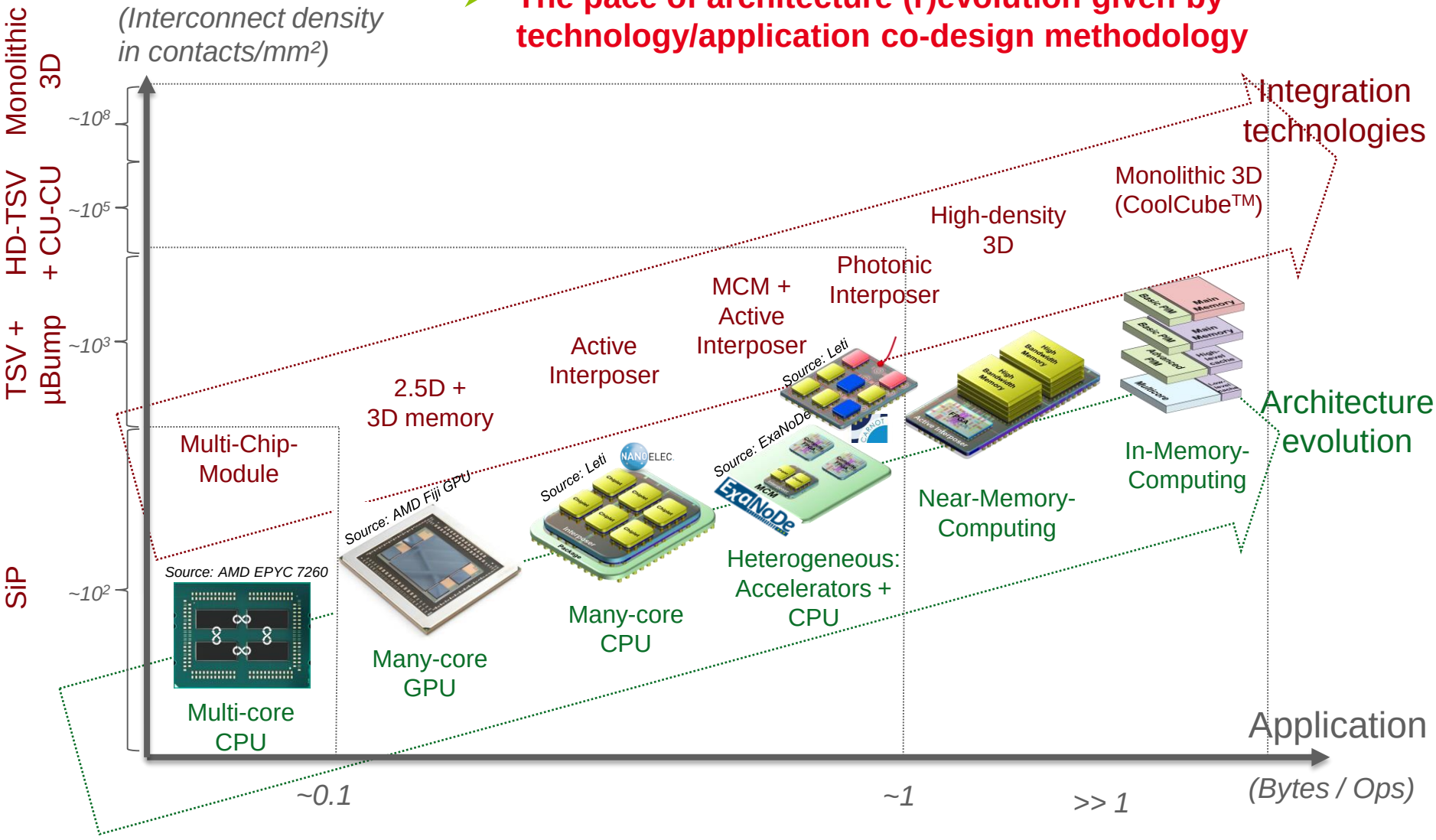
- **Today: Innovative architectures to recover Byte/Ops:**
  - Memory cube (Byte +)
  - Dedicated accelerator with useless Ops removed (Ops -)
  - High speed interconnect and memory I/F (Byte/s +)
- **Tomorrow: Disruptive architectures to improve Byte/Ops (>> 1):**
  - Move operations into memory (Byte +++):
    - Near/In-Memory-Computing

➢ **3D technologies enable such a (r)evolution.**

3D TECHNOLOGY

- **Which road for which disruptive architectures ?**

- **More interconnect density towards In-Memory-Computing**
- **The pace of architecture (r)evolution given by technology/application co-design methodology**



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