

Hardware Support for Big Data



Big data workloads requires hardware acceleration through heterogeneous computing systems. The group will focus in developing new hardware architectures specialized for big data workloads.

Summary

Next-generation analytics and big data workloads will require hardware acceleration, including using GPUs, many-core accelerators, FPGAs, neuromorphic computing, and specialized ASICs. This change is driven by a slowdown in Moore's Law and Dennard scaling, which increases the return-on-investment from specialization and tuning. The trend towards accelerators is already visible, as Microsoft is employing FPGAs to accelerate Bing searches, and Intel expects a third of cloud service providers to be using hybrid CPU—FPGA servers by 2020. The group will focus in developing new hardware architectures specialized for big data workloads.

Objectives

- Develop Hardware for Big Data
- HW/SW Codesign for Big Data Kernels

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