

## 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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