

A Co-Design Approach for Accelerated SQL Query Processing via FPGA-based Data Filtering

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December 07, 2015





Saving Energy in Database processing by combining FPGA and ARM-based Processing

- Problem: Energy efficiency becomes more and more important in modern data processing
 - x86-based systems offer high performance with high power demands
 - ARM-based systems offer low performance with low power demands
 - FPGA-based systems offer high performance with low power for specific operations
- Proposed solution: Smart combination of ARM-CPU and FPGA using SoCs
 - · Smart FPGA-based Filters for data reduction and CPU unloading
 - Low power ARM-based processors for flexibility and performant sequential code execution
 - Up to $9.94 \times$ energy efficiency improvements compared to ARM only
 - Up to 10.13× execution time improvement compared to x86 only

Please find my poster paper in the proceedings of FPT 2015