



Energy-efficient FPGA-based Implementations using Partial Dynamic Reconfiguration

The energy consumption of all data centers worldwide increases by 16.7% each year. In 2013, the energy consumption of all IT facilities together approached 10% of the worldwide energy generation, and it will increase further. Processing a search query on Google costs about 0.3 W/h – equivalent of turning on a 60W light bulb for 18 seconds. To counteract this development, more energy-efficient data processing systems must be developed and used. One possibility is to use FPGAs that are dynamically reconfigured at runtime with a dedicated application optimized implementation.

In this work, the energy demand of FPGA-based data processing systems shall be analyzed. Furthermore, it should be investigated whether and how energy can be saved with the help of the partial dynamic reconfiguration. Here also the additional energy expenditure of the reconfiguration should be analyzed.

Prerequisites:
Type of Work:
Supervisor:

Good knowledge in FPGA design
Theory (30%), Conception (40%), Implementation (30%)
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