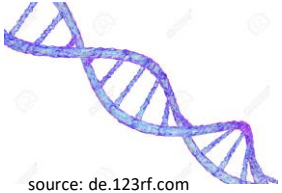
PADERBORN UNIVERSITY

Computer Science Department
Computer Engineering / Databases and Electronic Commerce
Prof. Dr. Marco Platzner / Prof. Dr. Stefan Böttcher

Master's Thesis

FPGA Acceleration of the Compressed Binary Indexed Reversible Transform (CBIRT)



source: de.123rf.com

Searching strings in huge data sets, e.g., genome strings in bioinformatics, relies on suitable data structures that exhibit low storage requirements and allow for efficient operations, such as construction, insertion, indexing, and ranking. CBIRT is a novel and sophisticated data structure for compressed strings and has been developed out of the Burrows Wheeler Transform. The goal of this project is to design and implement an FPGA-accelerated CBIRT version on a high-performance reconfigurable computer.

Type of project

- Study string compression techniques (CBIRT) and FPGA acceleration
- Design and implement a high-performance FPGA accelerator for CBIRT
- Evaluate performance and scalability by comparison to existing software reference

source: xilinx.com

source: intel.com

Prerequisites

- Good programming skills
- First experience with FPGA technology, VHDL/Verilog or HDL

Contact and Supervisors

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