Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

System Construction Course 2016,

Assignment 12

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Exploring Engines

Introduction

The goal of this exercise is to explore possibilities of hardware-components ("engines") at the example of a simple run length encoder.

Preparation

1. Update your repository.
2. Open a console in directory assignments/assignment12
3. Extract the contained file `source.zip` in the same directory.
4. Linux users extract file `linux.zip` in the same directory and `chmod +x oberon`.
5. Windows users extract file `win.zip` in the same directory.
6. In this exercise you will use the A2 GUI. Start it using command `./oberon run a2`.

File Application/SpeedTest.Mdf contains simple setups for driving a run-length encoder on an FPGA. The tool file Assignment12.Tool (automatically being opened when a2 starts) contains commands to load the hardware library and to compile the source code and build the hardware.

Task

Compare the execution speed of `RunLengthEncoderTRM` and the `RunLengthEncoder` engine for two different setups

- Send uniform data (zeros, for example) - maximal compression.
- Send heterogeneous data (loop index, for example) - minimal compression.

Explain your findings.

Documents

- Active Cells papers in directory documents/ActiveCells.
- Slides from the lecture homepage.