OCLAcc
OpenCL™ for FPGA-Accelerators

Project

- General Purpose Processors are more and more supported by accelerators with different programming environments. OpenCL tackles the divergence by offering a uniform, device-independent platform model to the user, leaving the mapping to physical devices to the OpenCL driver, often delivered by the device’s vendor.

- OCLAcc tries to make FPGAs comparably easy to use to GPGPUs by developing an Open-Source OpenCL Driver for FPGA-based accelerators from different vendors.

Applications

- Scientific computing (e.g., Stencil Codes) on Altera Stratix, Xilinx Virtex via PCIe

- Embedded signal and image processing on Altera SoC, Xilinx SoC

OpenCL-Mapping

- One or more kernel engines process work items in parallel
- Number of kernel engines depends on kernel complexity and FPGA resources

Overview

Our LLVM target machine transforms SPIR to a hardware description

Transformations

Work Item Scheduling

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