

Exercise Sheet 5

Discussion starts from Wednesday, May 29, 2019

5.1 OpenCL - Introduction

Answer the following questions:

- Describe the execution and computation model of OpenCL.
- Which are the components of an OpenCL program?
- How is the portability of the application ensured?
- Describe the memory model of OpenCL.

Useful links:

- <https://software.intel.com/en-us/articles/tutorial-opencl-introduction-for-hpc-programmers>
- <https://en.wikipedia.org/wiki/OpenCL>
- <https://developer.arm.com/solutions/graphics/resources/tutorials/opencl-tutorials>

5.2 OpenCL - Hello World

Work through the official ARM-Mali 'Hello World' tutorial in the SDK. The documentation of the SDK is located in the SVN repository under 'opencl/Mali_OpenCL_SDK_v1.1.0_Documentation.html'. Thereon, answer the following questions:

- Where is the data stored?
- How can the data be accessed?
- Why does the parallelization work, although no loop is used in the kernel?

Please note: You can compile a program by executing 'make' (in the respective folder).

General Information: Further information can be found under <https://ls12-www.cs.tu-dortmund.de/daes/lehre/lehrveranstaltungen/sommersemester-2019/rechnerarchitektur-ss19.html>. Submitting solutions to the exercise sheets is not required.