Hands On OpenCL

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V 1.2 – Nov 2014

Agenda

Lectures	Exercises
Setting up OpenCL Platforms	Set up OpenCL
An overview of OpenCL	Run the platform info command
Important OpenCL concepts	Running the Vadd kernel
Overview of OpenCL APIs	Chaining Vadd kernels
A hosts view of working with kernels	The D = A+B+C problem
Introduction to OpenCL kernel programming	Matrix Multiplication
Understanding the OpenCL memory hierarchy	Optimize matrix multiplication
Synchronization in OpenCL	The Pi program
Heterogeneous computing with OpenCL	Run kernels on multiple devices
Optimizing OpenCL performance	Profile a program
Enabling portable performance via OpenCL	Optimize matrix multiplication for cross-platform
Debugging OpenCL	
Porting CUDA to OpenCL	Port CUDA code to OpenCL
Appendices	

Course materials

In addition to these slides, C++ API header files, a set of exercises, and solutions, it is useful to have:

OpenCL 1.1 Reference Card

This card will help you keep track of the API as you do the exercises:

https://www.khronos.org/files/opencl-1-1-quick-reference-card.pdf

The v1.1 spec is also very readable and recommended to have on-hand:

https://www.khronos.org/registry/cl/specs/opencl-1.1.pdf