OpenCL in Action: How to Accelerate Graphics and Computations

Matthew Scarpino
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BibTeX

SUMMARY: OpenCL in Action is a thorough, hands-on presentation of OpenCL, with an eye toward showing developers how to build high-performance applications of their own. It begins by presenting the core concepts behind OpenCL, including vector computing, parallel programming, and multi-threaded operations, and then guides you step-by-step from simple data structures to complex functions. ABOUT THE TECHNOLOGY: Whatever system you have, it probably has more raw processing power than you’re using. OpenCL is a high-performance programming language that maximizes computational power by executing on CPUs, graphics processors, and other number-crunching devices. It’s perfect for speed-sensitive tasks like vector computing, matrix operations, and graphics acceleration. ABOUT THIS BOOK: OpenCL in Action blends the theory of parallel computing with the practical reality of building high-performance applications using OpenCL. It first guides you through the fundamental data structures in an intuitive manner. Then, it explains techniques for high-speed sorting, image processing, matrix operations, and fast Fourier transform. The book concludes with a deep look at the all-important subject of graphics acceleration. Numerous challenging examples give you different ways to experiment with working code. A background in C or C++ is helpful, but no prior exposure to OpenCL is needed. WHAT’S INSIDE: Learn OpenCL step by step; Tons of annotated code; Tested algorithms for maximum performance.

Tags: Book, Computer science, OpenCL, Programming techniques, Tutorial

December 26, 2011 by hgpu

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Recent source codes

- ThunderGBM: Fast GBDTs and Random Forests on GPUs
- High-performance implementations for counting collisions among objects in 3D space
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- OpenDwarfs: a benchmark suite consisting of different computation/communication idioms
- Tango: A Deep Neural Network Benchmark Suite for Various Accelerators
- MapD Core database
- BitCracker: the first open source password cracking tool for memory units encrypted with BitLocker
- caffe-android-opencl-fp16: Optimised Caffe with OpenCL supporting for less powerful devices such as smartphones and tablets.
as mobile phones
HG-Caffe: Mobile and Embedded Neural Network GPU (OpenCL) Inference Engine with FP16 Supporting

ADMM-NN: An Algorithm-Hardware Co-Design Framework of DNNs Using Alternating Direction Method of Multipliers
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