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Gpu Computing Gems Jade Edition

GPU Computing Gems, Jade Edition, offers hands-on, proven techniques for general purpose GPU programming based on the successful application experiences of leading researchers and developers. One of few resources available that distills the best practices of the community of CUDA programmers, this second edition contains 100% new material of interest across industry, including finance, medicine, imaging, engineering, gaming, environmental science, and green computing. It covers new tools and frameworks for productive GPU computing application development and provides immediate benefit to researchers developing improved programming environments for GPUs. Divided into five sections, this book explains how GPU execution is achieved with algorithm implementation techniques and approaches to data structure layout. More specifically, it considers three general requirements: high level of parallelism, coherent memory access by threads within warps, and coherent control flow within warps. Chapters explore topics such as accelerating database searches; how to leverage the Fermi GPU architecture to further accelerate prefix operations; and GPU implementation of hash tables. There are also discussions on the state of GPU computing in interactive physics and artificial intelligence; programming tools and techniques for GPU computing; and the edge and node parallelism approach for computing graph centrality metrics. In addition, the book proposes an alternative approach that balances computation regardless of node degree variance. Software engineers, programmers, hardware engineers, and advanced students will find this book extremely usefull. For useful source codes discussed throughout the book, the editors invite readers to the following website: …"

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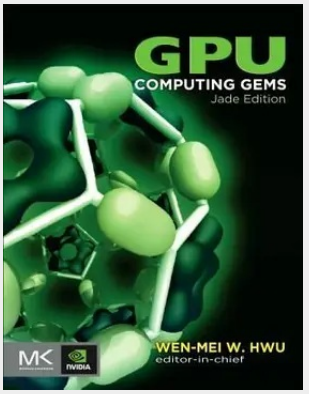

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