



## High-Performance Scientific Computing

By Michael W. Berry

Springer-Verlag GmbH Jan 2012, 2012. Buch. Condition: Neu. Neuware - Advances in the development of parallel algorithms and system software now enable the ever-increasing power of scalable high-performance computers to be harnessed for scientific computing applications at fidelities that rival and in many cases exceed experimental methodologies. This comprehensive text/reference, inspired by the visionary work of Prof. Ahmed H. Sameh, represents the state of the art in parallel numerical algorithms, applications, architectures, and system software. Articles in this collection address various challenges arising from concurrency, scale, energy efficiency, and programmability, and associated solutions that have shaped the current high-performance computing landscape. These solutions are discussed in the context of diverse applications, ranging from scientific simulations to large-scale data analysis and mining. Topics and features: includes contributions from an international selection of world-class authorities, inspired by the work of Prof. Ahmed H. Sameh and his involvement in parallel numerical algorithm design since Illiac IV and the University of Illinois Cedar multiprocessor; examines various aspects of parallel algorithm-architecture interaction through articles on computational capacity-based codesign and automatic restructuring of programs using compilation techniques; reviews emerging applications of numerical methods in information retrieval and data mining; discusses the latest issues in dense and sparse...



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