



Efficient and Correct Execution of Parallel Programs That Share Memory (Classic Reprint) (Paperback)

By Professor of Computer Science Dennis Shasha

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Efficient and Correct Execution of Parallel Programs That Share Memory In this paper, we consider an optimization problem that arises in the execution of parallel programs on shared memory multiple-instruction stream multiple-data stream (MIMD) computers. A program on such a machine consists of many program segments each executed sequentially by a single processor. The processors have access to shared memory, and can execute standard memory access operations on this shared memory. This memory is distributed among many separate memory modules. A network connects processors to memory modules. Delays on this network are stochastic. Thus, operations issued by a processor to distinct memory modules may not be executed as memory requests on those modules in the order they were issued. For performance reasons, we want to allow one operation to begin before a previous one in the same instruction. Our analysis gives a method for determining which operations in a stream may be issued concurrently without changing the semantics of the execution. We also consider code where blocks of operations have to be executed atomically. This...

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