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Systems; Attached Devices; 2.4.2 Key Features for Performance; Data Locality
Parallel Slack2.4.3 Flynn's Characterization; 2.4.4 Evolution; 2.5 Performance Theory; 2.5.1 Latency and Throughput; 2.5.2 Speedup, Efficiency, and Scalability; 2.5.3 Power; 2.5.4 Amdahl's Law; 2.5.5 Gustafson-Barsis' Law; 2.5.6 Work-Span Model; 2.5.7 Asymptotic Complexity; 2.5.8 Asymptotic Speedup and Efficiency; 2.5.9 Little's Formula; 2.6 Pitfalls; 2.6.1 Race Conditions; 2.6.2 Mutual Exclusion and Locks; 2.6.3 Deadlock; 2.6.4 Strangled Scaling; 2.6.5 Lack of Locality; 2.6.6 Load Imbalance; 2.6.7 Overhead; 2.7 Summary; I Patterns; 3 Patterns; 3.1 Nesting Pattern
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Stencil, Geometric Decomposition, Gather, Scatter

Sommario/riassunto

Programming is now parallel programming. Much as structured programming revolutionized traditional serial programming decades ago, a new kind of structured programming, based on patterns, is relevant to parallel programming today. Parallel computing experts and industry insiders Michael McCool, Arch Robison, and James Reinders describe how to design and implement maintainable and efficient parallel algorithms using a pattern-based approach. They present both theory and practice, and give detailed concrete examples using multiple programming models. Examples are primarily given using two of
