Evaluation of a Dynamic Load-Balancing Molecular Dynamics Application using Automated HW/SW Architecture Generation

A comparative study of Molecular Dynamics architectures

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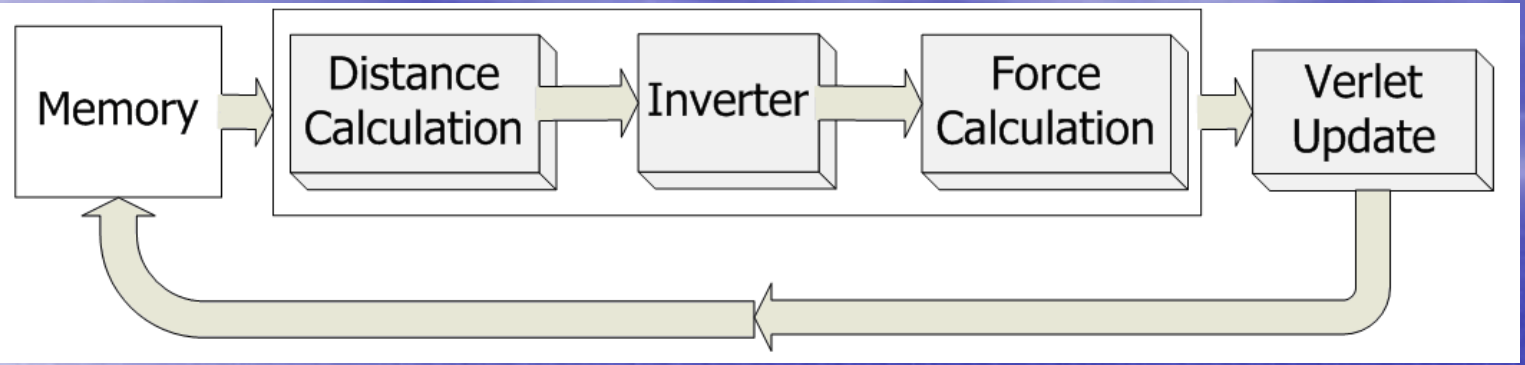
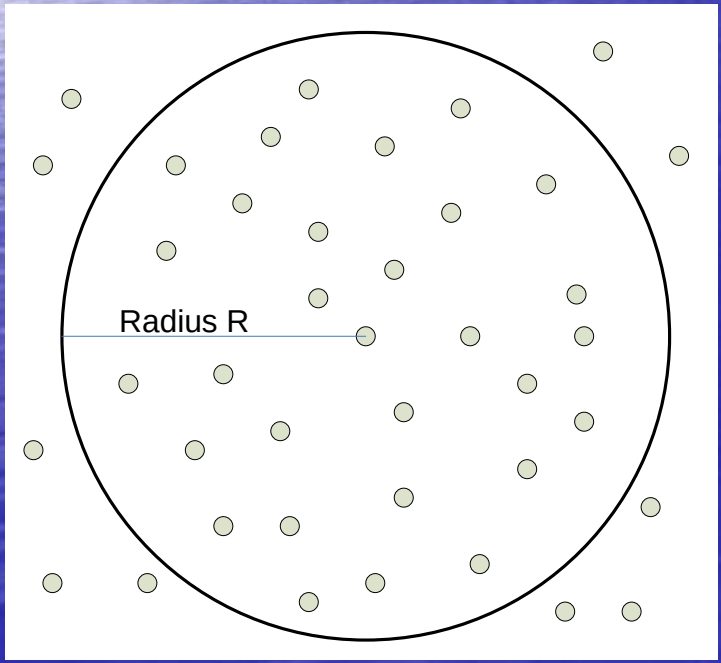
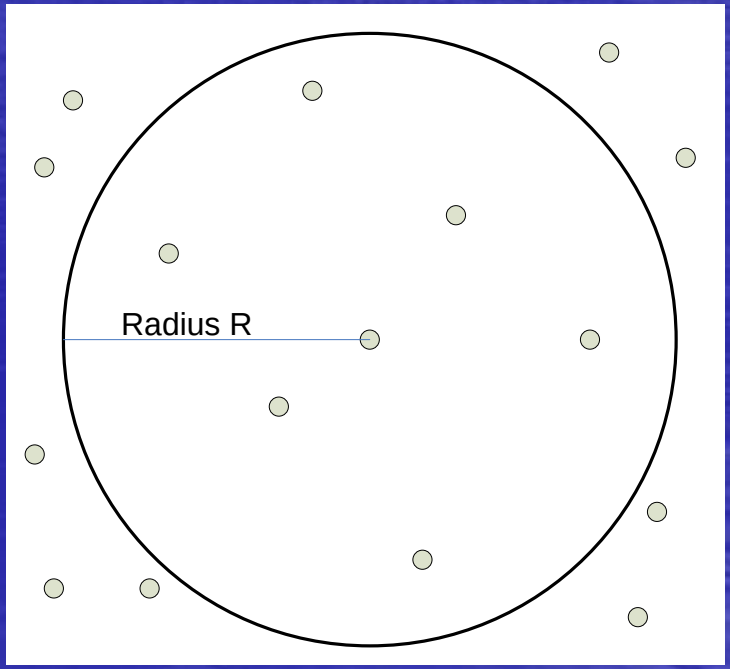
FPGA-Based Architectures for Molecular Dynamics



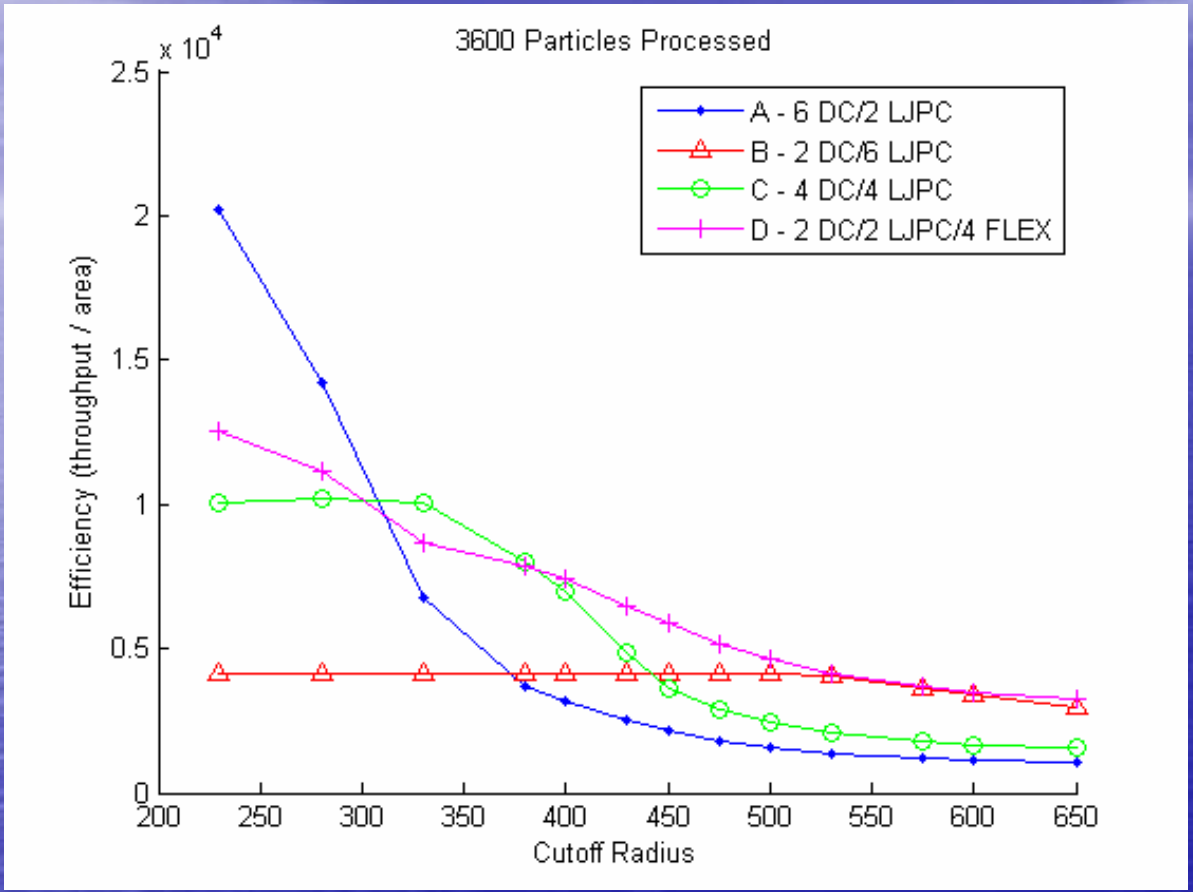
Static and Dynamic Load Imbalance



VS.



Evaluating the Effectiveness of Load Balancing



- Simulation of 3 "statically balanced" architectures and 1 "dynamically balanced"
- Static architectures generated using a design tool (CHARGER)
- Metric: throughput per unit area (= efficiency)
- Dynamically load balanced architecture is the most consistent