Dynamic Parallel Memories

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Abstract

Say that a parallel algorithm that uses $p$ processors and $N(>p)$ shared memory locations is given. The problem of simulating this algorithm by $p$ processors and only $p$ shared memory locations without increasing the running time by more than a constant factor is considered. A solution for a family of such parallel algorithms is given. The solution utilizes the idea of dynamically changing locations of the addresses of the algorithm throughout the simulation.