

Evaluating Parallel Simulated Evolution Strategies For VLSI Cell Placement

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Summary

Simulated evolution (SimE) is an evolutionary metaheuristic that has produced results comparable to well established stochastic heuristics such as SA, TS and GA, with shorter runtimes. However, for problems with a very large set of elements to optimize, such as in VLSI placement and routing, runtimes can still be very large and parallelization is an attractive option. Compared to other metaheuristics, parallelization of SimE has not been extensively explored. This paper presents a comprehensive set of parallelization approaches for SimE when applied to multiobjective VLSI cell placement problem. Each of these approaches are evaluated with respect to SimE characteristics and the constraints imposed by the problem instance. Conclusions drawn can be extended to parallelization of other SimE based optimization problems.

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