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Identification of Promising Infant Clusters to Obtain Improved Block Layout Designs

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Abstract : The layout optimization of building blocks of unequal areas has applications in many disciplines including VLSI floorplanning, macrocell placement, unequal-area facilities layout optimization, and plant or machine layout design. A number of heuristics and some analytical and hybrid techniques have been published to solve this problem. This paper presents an efficient high-quality building-block layout design technique especially suited for solving large-size problems. The higher efficiency and improved quality of optimized solutions are made possible by introducing the concept of Promising Infant Clusters in a constructive placement procedure. The results presented in the paper demonstrate the improved performance of the presented technique for benchmark problems in comparison with published heuristic, analytic, and hybrid techniques.

Keywords : block layout problem, building-block layout design, CAD, optimization, search techniques
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