SOME AREA-TIME TRADEOFFS FOR VLSI

RICHARD P. BRENT AND LESLIE M. GOLDSCHLAGER

Abstract

Area-time bounds on VLSI circuits for context-free language recognition, for the evaluation of propositional calculus formulae and for set equality and disjointness questions, are considered. In all cases, a lower bound $AT^{2\alpha} = \Omega(n^{1+\alpha})$ is proved, where A is the chip area, T the execution time, and $0 \le \alpha \le 1$. Similar results were known for computations with $\Omega(n)$-bit outputs, but the computations considered here have only 1-bit outputs. Upper bounds are also discussed.

Comments

Only the Abstract is given here. The full paper appeared as [2]. For related work on problems with $\Omega(n)$-bit outputs, see [1]. Upper bounds on the context-free language recognition problem are given in [3].

References

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