

VLSI 电路的复杂网络特性研究

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摘要: 针对电路集成快速发展所带来的电路集成密度大、结构复杂的问题, 基于 IBM-HB+Benchmark 研究集成电路的复杂网络特性. 实验结果表明, IBM-HB+Benchmark 网络的累积度分布满足高斯分布, 属于单一规模网络; IBM-HB+Benchmark 网络同样具有小世界特性, 其平均集聚系数是同等规模随机网络的 28.51 倍.

关键词: 超大规模集成电路; 复杂网络; 小世界特性; 累积度分布

The Research of VLSI Circuit Complex Network Property

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Abstract: The VLSI (Very Large-Scale Integration) circuit is becoming complicated and dense than ever before due to the rapid development. In the paper, we study the complex network characteristics of the integrated circuits based on IBM-HB+ Benchmark suits. The experimental results show that the cumulative degree distribution of IBM-HB + Benchmark follows Gaussian distribution which indicates the network belongs to single-scale network. In the same time, the network has a small-world property because its clustering coefficient is averagely 28.51 times of the same scale random network.

Key words: very large scale integration circuit; complex network; small-world characteristics; cumulative degree distribution

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