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论文

基于知识(规则)的高层次工艺映射方法

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摘要
该文研究高级综合结果与后端工艺的衔接问题。提出一种基于知识的高层次工艺映射方法。深入研究其中知识表示、知识运用和知识获取等各个重要环节。包括:(1)提出一种表达电路结构知识的扩充产生式表示;(2)提出基于超高速硬件描述语言(VHDL)的工艺映射知识获取方法;(3)给出知识运用的求解控制策略和算法;(4)提出一种能查出冗余性和矛盾性的半自动知识库维护方法;(5)提出将算法嵌入知识系统,降低知识库复杂度的实用化方法。所实现的系统已完成与三种工艺衔接,验证了本文工作。

关键词 高级综合 工艺映射 超高速硬件描述语言(VHDL) 高层次工艺映射 知识库 知识表示

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A METHODOLOGY OF HIGH-LEVEL TECHNOLOGY MAPPING BASED ON KNOWLEDGE

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Abstract
This Paper is focused on the research of connecting the HLS(high level synthesis) result to the technology of IC. A knowledge-based high level technology mapping methodology is proposed, based on the traditional technology mapping theory. The method is discussed from the views of knowledge representation, knowledge acquirement and knowledge utilization, including: (1) initiating an expanded production representation approach for the knowledge of circuit structure; (2) presenting a technology mapping knowledge acquirement technique based on VHDL; (3) giving the controlling tactics and algorithms in knowledge utilization; (4) presenting a half-automatic method for KB(knowledge base) maintenance, with which, the contradictory and the redundancy in KB can be found; (5) raising a practical method that embeds the algorithms into the knowledge-based system, in order to reduce the complexity of
the KB. This system has been connected to 3 kinds of IC production line, and this verifies the theory and method of the paper.

Key words High level synthesis Technology mapping VHDL High level technology mapping Knowledge base Knowledge representation

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