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基于UML的软硬件协同设计的模型分析方法

陈思功, 秦 晓, 章恒羽中

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陈思功, 秦 晓, 章恒羽中 (中国科学院 软件研究所, 北京 100080)

第一作者: 陈思功(1978—), 男, 福建福州人, 硕士, 主要研究领域为嵌入式系统设计, 软件工程.

联系人: 陈思功 Telephone: 86-10-62570007 ext 626, E-mail: pchen@islil.com

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Abstract

In this paper, a UML approach applied in the CBC (constraint-based codesign) of embedded systems, which is presented by Chonlameth Arpikanondt, is analyzed. Some deficiencies of the method when it is applied in the complicated embedded systems codesign are proposed. According to these deficiencies, the meaning of constraint is extended, and a solution is proposed to improve the efficiency in hardware/software codesign and is explained in detail with the example of mart phone system, which is developed by the Institute of Software, the Chinese Academy of Sciences.

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摘要

详细分析了Chonlameth Arpikanondt提出的基于UML约束的嵌入式系统的软、硬件协同设计方法(CBC/UML),并指出了它运用于复杂的嵌入式系统设计时的不足.针对这些不足,扩展了约束的概念,提出了一套相应的改善方法.并利用中国科学院软件研究所研制智能电话机的例子具体阐述了该解决方法.

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References:

- [1] o'Nilj M. Hardware/Software Partitioning of Telecommunication Systems. 1996. <http://www.ele.kth.se/ESD/doc/ar96/mattias/thesis.pdf>.
- [2] o'Nilj M. Communication in Hardware/Software Embedded Systems. 1997. <http://www.ele.kth.se/ESD/doc/ar97/mattias/matt.pdf>.
- [3] Gong J, Gajski DD, Bakshi S. Model refinement for hardware-software codesign. ACM Transactions on Design Automation of Electronic Systems, 1997,2(1):22~41.
- [4] Arpikanodt C, Madisetti VK. Constraint-Based codesign of embedded systems: the UML approach. Technical Report, #:YES-TR-99-01, Center for Signal and Image Processing, School of Electrical and Computer Engineering, Georgia Institute of Technology, 1999.
- [5] Priestley M. Practical Object-Oriented Design with UML. Beijing: Tsinghua University Press, 2000.

[6] Liu C, Zhang L. Object-Oriented Visualized Modeling. Beijing: Beijing University of Aeronautics and Astronautics Press, 1999 (in Chinese).

[7] Knudsen PV, Madsen J. Integrating communication protocol selection with hardware/software codesign. IEEE Transactions on CAD of Integrated Circuits and Systems, 1999,18(8):1077~1095.

附中文参考文献:

[6] 刘超,张莉.可视化面向对象建模技术.北京:北京航空航天大学出版社,1999.