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开放式实时系统的调度理论与方法分析

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Abstract

As the applications of real-time systems are becoming more and more popular, the system scheduling mechanism faces new requirements and challenges because of the coexistence of different kinds of real-time and non-real-time tasks. The open real-time system has been paid attention because of giving a way to solve the problem and also brings new ideas to scheduling theory and approach. Firstly, the basic concepts and theories of open real-time system are described. And then, a hierarchy model for scheduling objects is presented. It adapts to the scheduling environment of open real-time system. Several related scheduling approaches are compared in detail, and their functional features, the applying scope, and some of their common characters are pointed out. The result come out that it is feasible to integrate different kinds of approaches, and this would be a direction. In the integrated scheduling mechanism, the advantages of each approach can be kept, therefore, the application requirements of open real-time system can be met better.

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摘要

随着实时系统应用的日益广泛,多类型实时和非实时任务并存的情况给系统调度机制带来了新的需求和挑战.开放式实时系统的相关研究因为解决这一问题而受到关注,也为调度理论与方法带来了新的思路.在阐述了开放式实时系统的基本概念和理论的基础上,提出了一种调度对象的层次性模型,适用于开放式实时调度环境.对几种有代表性的相关方法进行了详细的比较研究,指出它们各自的功能特征和适用范围及其共同特征.把不同方法进行有机集成是可行的,也是一个发展方向,可以使各方法在集成的调度机制内各施所长,更适合于开放式实时系统的应用环境.

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