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一种可行的容错实时系统可调度性分析

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Abstract
Based on the worst-case response time schedulability analysis for fault-tolerant real-time systems, a new fault-tolerant priority assignment algorithm is proposed. This algorithm can be used, together with the schedulability analysis, to effectively improve system fault resilience when the two traditional fault-tolerant priority assignment policies can't improve system fault resilience. A fault-tolerant priority configuration search algorithm is also presented for the proposed analysis. The effectiveness of the proposed approach is evaluated by simulation.

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摘要
针对容错实时系统中容错优先级两种分配策略存在的不足,通过对容错实时任务进行基于最坏响应时间的可调度性分析,提出了允许容错优先级降低的分配策略以提高系统的容错能力.经过深入的分析和实验证明,这种容错优先级的分配策略能够在以前两种分配策略无法提高系统容错能力的情况下,有效地提高系统的容错能力,设计并实现了改进的最佳容错优先级分配因子的搜索算法,并通过模拟实验进行了验证.

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