Abstract

In this paper, we propose a fault-tolerant scheduling real-time embedded system. This scheduling algorithm is dedicated to multi-bus heterogeneous architectures, which take as input a given system description and a given fault hypothesis. It is based on a data fragmentation and passive redundancy, which allow fast fault detection/retransmission and efficient use of buses. This scheduling approach consists of a list scheduling heuristic based on a Failure Rate Pressure. In order to maximize the reliability of the system, the scheduling of each fragmented data is depend on Failure Rate Pressure. Data fragmentation allows reliable communication and maximizes the reliability of the system. Finally, simulation results show the performance of our approach when using data fragmentation.
References


Index Terms

Computer Science

Algorithms

Keywords

Embedded systems  real-time systems  fault tolerance  reliability  passive redundancy  data fragmentation  scheduling algorithm