We have developed techniques to address fault tolerance aspects during scheduling and design optimization of embedded systems in order to provide efficient design solutions under resource constraints. Errors caused by transient faults have to be tolerated before they crash the system or lead to dramatic quality deterioration. We introduced techniques to address fault tolerance aspects during scheduling and design, which results in a much smaller number of system states. We have developed techniques to address fault tolerance aspects during scheduling and design, which results in a much smaller number of system states.

Fault-Tolerance Policy Assignment

Which fault-tolerance policy should be assigned to which process?

Transparency vs. Performance

Good for debugging and testing but... leads to the reduction in performance.

Utility-based Optimization with Soft and Hard Real-Time Constraints

The quasi-static scheduling generates a set of static schedules that maximize the overall utility for a particular execution and fault scenario while satisfying hard deadlines.

+ Global Optimization of Checkpointing

+ Mapping of Embedded Systems with Performance/Transparency Trade-off

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