

병렬분산 환경에서의 DEVS형식론의 시뮬레이션

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Abstract

The DEVS(discrete event system specification) formalism describes a discrete event system in a hierarchical, modular form. DEVSIM++ is C++ based general purpose DEVS abstract simulator which can simulate systems to be modeled by the DEVS formalism in a sequential environment. We implement P-DEVSIM++ which is a parallel version of DEVSIM++. In P-DEVSIM++, the external and internal event of models can be processed in parallel. To process in parallel, we introduce a hierarchical distributed simulation technique and some optimistic distributed simulation techniques. But in our algorithm, the rollback of a model is localized itself in contrast to the Time Warp approach.

To evaluate its performance, we simulate a single bus multiprocessor architecture system with an external common memory. Simulation result shows that significant speedup is made possible with our algorithm in a parallel environment.

Key Words : discrete event system modeling, parallel/distributed simulation,
optimistic simulation