

A Formal Model For Real-Time Parallel Computation

TID 2013

Drahoslav Záh (izan@fit.vutbr.cz)

October 13, 2013

In computer science, real-time computing refers to a system that is subject to a real-time constraint – it must response to an event within specified time (deadline). Many real-time applications require high performance computing environment such as multinode cluster-computing system in order to meet their constraint.

This presentation deals with the concept of consistent parallel timing system and formal verification of it's timing properties. This timing properties of the system are modeled with a set of timed automata (specifically, timed Büchi automata and timed variant of standard finite automata) so their definition will be provided. Presented concepts will be demonstrated on a case study and in the end of presentation empirical result showing that the system operate under specified timing constraint will be given. This presentation is based on article written by Hui and Chikkagoudar [1].

References

- [1] Hui, P., Chikkagoudar, S.: A Formal Model For Real-Time Parallel Computation. FTSCS 2012, EPTCS 105, 39–55 (2012)