Poster Abstract: an optimizing framework for real-time scheduling

Sakthivel Manikandan Sundharam, Sebastian Altmeyer, Nicolas Navet

POSTER ABSTRACT – An Optimizing Framework for Real-time Scheduling

Sakthivel Manikandan Sundharam, Sebastian Altmeyer, Nicolas Navet

University of Luxembourg

{firstname.lastname}@uni.lu

Scheduling is crucial in real-time applications. For any real-time system, the desired scheduling policy can be selected based on the scheduling problem itself and the underlying system constraints. This work targets a novel optimization framework which automates the selection and configuration of the scheduling policy. The framework selects the best suited scheduling configuration for a partially specified task set and the given constraints. Our aim is to develop this framework such that the system designer only focuses on the high-level timing behavior of the system, where the implementation choices of the low level timing behavior are taken care of by the framework. The framework fits in the early design phases as a device to automate system synthesis and hide away from the designer the complexity of the underlying runtime environments. In the framework, the system synthesis step involving both analysis and optimization then generates a scheduling solution which at run-time is enforced by the execution environment. This work is a contribution towards a more automated design process building on the wide set of techniques and results developed within the real-time system community.