

Verification of the Java Real-Time Capability for the Application in Time-Critical Systems

Motivation

Real-time programming is an integral part in the development of time-critical systems. The specification of real-time requirements for Java and the respective implementation for compatible real-time capable operating systems enables us to create programs that fulfill strong real-time requirements by using a modern object-oriented language. According run-time libraries are available for the operating systems:

- Solaris 10
- Suse Linux Real Time 10 SP 1
- Red Hat MRG 1.0.

Task

In the scope of a project that examines the applicability of Java for embedded systems in the safety-critical area, your task is to implement a test framework and respectively a test driver on the basis of the RTSJ, JSR-001 & JSR-282 specification, Solaris and a compatible Java virtual machine. Thereupon, you shall verify system requirements in a case study concerning system behavior during high working load on the one hand and/or the execution of multiple JVMs on a system on the other hand. Finally, you are supposed to document your approach, the applied resources as well as your results.

Goal

The goal of this thesis is the verification of the Java real-time capability in order to presume and apply it in the further course of the project.

Fields of Study

- Computer science (Diplom)

Required Knowledge

- Fundamental knowledge in the programming language Java and Java APIs.

Student

- Dominik Franke

Literature

- The Real-Time for Java Expert Group - The Real-Time Specification for Java.
- Java Real-Time auf den Sun Entwicklerseiten.

Tutor

- [Dipl.-Inform. John F. Schommer](#)

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