The 5th Workshop on Java Technologies for Real-Time and Embedded Systems

JTRES 2007

Call for Papers

Institute of Computer Engineering
Vienna University of Technology

26-28 September 2007
Vienna, Austria

http://www.vmars.tuwien.ac.at/jtres2007/

Overview

Over 90 percent of all microprocessors are now used for real-time and embedded applications, and the behavior of many of these applications is constrained by the physical world. Higher-level programming languages and middleware are needed to robustly and productively design, implement, compose, integrate, validate, and enforce real-time constraints along with conventional functional requirements and reusable components.

Designing real-time and embedded systems that implement their required capabilities, are dependable and predictable, and are parsimonious in their use of limited computing resources is hard; building them on time and within budget is even harder. Moreover, due to global competition for marketshare and engineering talent, companies are now also faced with the problem of developing and delivering new products in short time frames. Therefore it is essential that the production of real-time embedded systems take advantage of languages, tools, and methods that enable higher software productivity.

Ideally, developers should use a programming language that shields them from many accidental complexities, such as type errors, memory management, and steep learning curves. The Java programming language has become an attractive choice because of its safety,

productivity, relatively low maintenance costs, and the availability of well trained developers.

Although it has good software engineering characteristics, Java is unsuitable for developing real-time embedded systems, mainly due to under-specification of thread scheduling and the presence of garbage collection. Recently, to address these problems, a number of extensions to Java have been proposed by the Java Community Process Expert Group for the Real-Time Specification for Java (RTSJ) among others. The intent of these specifications is the development of real-time applications by providing several additions such as extending the Java memory model, providing stronger semantics in thread scheduling, and so on.

Interest in real-time Java in both the research community and industry, because of its challenges and its potential impact on the development of embedded and real-time applications, has recently increased, significantly. This interest in the industry comes not only for traditional applications, such as industrial control, but also for business and financial applications. The goal of the proposed workshop is to gather researchers working on real-time and embedded Java to identify the challenging problem that still need to be properly solved in order to assure the success of the of real-time Java as a technology, and to report results and experience gained by researchers.

Submission Requirements

Participants are expected to submit a position paper of at most 10 pages (ACM Conference Format, i.e., two-columns, 10 point font). Accepted papers will be published in the The ACM International Conference Proceedings Series via the ACM Digital Library.

Topics of interest to this workshop include, but are not limited to:

- New real-time programming paradigms and language features
- Industrial experience and practitioner reports
- Real-time design patterns and programming idioms
- Formal models of real-time computation
- Extensions to RTSJ
- Virtual machines and execution environments
- Memory management and real-time garbage collection
- Compiler analysis and implementation techniques
- Distributed real-time Java and Java-based distributed real-time middleware
- Scheduling frameworks, feasibility analysis, and timing analysis
- High-integrity and safety critical system support
- Java-based real-time operating systems and processors
- Exploiting multi-core systems and Java
- Transactional memory and Java

Important Dates

- Paper Submission (HARD DEADLINE): *June 29, 2007*
- Notification of Acceptance: *July 29, 2007*
- Camera Ready Paper Due: *August 20, 2007*

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