

Real-Time Java in Control and Automation: A Model Driven Development Approach

Thramboulidis, K., A. Zoupas

Electrical & Computer Engineering, University of Patras, Patras, Greece.

e-mail : thrambo@ee.upatras.gr

Abstract

In this paper an approach for the transparent use of Java in control and automation is described. The proposed approach, which is in the context of the Model Integrated Mechatronics paradigm, exploits the Function Block (FB) construct for the design model and the real-time Java specification for the implementation one. Specific interpreters allow for the automatic generation of FB types' implementation models in terms of real-time Java and the transformation of the application's FB networks to deployment specifications that are next utilized by specific deployment tools to initialize and execute the control application on the proposed execution environment. The proposed approach favors deployment and re-deployment of distributed control applications and exploits the real-time Java specification to meet their stringent non functional requirements.