ICODES

Interface- and COmmunication based Design of Embedded Systems


Introduction

ICODES is the development of new modelling and synthesis technologies for embedded hardware/software systems. ICODES complements the work begun in the ODETTE (http://odette.offis.de/) IST-FP5 project by focussing on the design and implementation of components distributed between hardware and software and the communication between them.

Objectives

Technically, ICODES’ main target is to provide a design technology for embedded systems with many communicating components in hardware and software.

A methodology to model, evaluate and implement embedded hardware/software systems from the specification at Electronic System Level (ESL) to a standard industrial back-end design flow will be developed. Therefore, ICODES will define a system specification language based on SystemC 2.0. It will enable a holistic view on the design as it provides a single formalism to model hardware, software, and communication objects. Techniques like communication based design and object-orientation will be integrated into a seamless design flow for embedded systems.

It will support analysis and optimisation of the systems communication properties. The design methodology will be implemented by a suite of ESL tools based on the SystemC language. The tool set will include analysis, simulation, optimisation, and synthesis tools supporting interactive design decisions as well as the automatic translation and optimisation of high level SystemC models into HDL and C/C++ based implementations. A development environment (IDE) will ensure the integration of these tools and the seamless of the design flow.
Expected Results

ICODES will produce research results and prototypes of Electronic System Design Automation tools, which will enable the European electronic system industry to reduce their design time and cost of the next generation of embedded intelligent devices. These devices will enable new powerful services as well as innovative products.

Partners and their roles

In order to ensure a wide applicability of the methodology and a successful path to commercial exploitation, the project is industry driven.

The industrial partners from three strong European industrial sectors, namely Automotive (Bosch), Telecom (Siemens Mobile Communications), and Wireless (Thales Communications), define the requirements and evaluate the results of the research partners OFFIS and Politecnico di Milano.

The commercial exploitation will be performed by a European ESL SME, namely Prosilog, while ECSI will be in charge of the dissemination activities. Beneath OFFIS’ role as a research partner, OFFIS is responsible for the project management and co-ordination.

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**CONTRACT NUMBER**
IST – 004452

**FULL NAME**
Interface- and Communication based Design of Embedded Systems

**TYPE OF PROJECT**
Specific Targeted Research Project

**PROJECT PARTICIPANTS**
Bosch (Germany)
ECSI (France)
OFFIS (Germany)
Politecnico di Milano (Italy)
Prosilog (France)
Siemens MC (Italy)
Thales (France)

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**PROJECT WEBSITE**
http://www.ecsi-association.org/ecsi/projects/ICODES/default.htm

**BUDGET**
Total cost: 4.4 M€
Funding: 2.9 M€

**TIMETABLE**
Starting date: 1. August 2004
Duration: 36 months

This project is part of the portfolio of the
Embedded Systems Unit – G3
Directorate General Information Society & Media

For more information please check: