

European Project on course to develop a leading edge solution for embedded computing

Paris, March 26, 2007 – A consortium of 18 partners, comprised of large companies, universities and small and medium-sized enterprises from six European countries, has presented the first results of a project to develop a cost-effective, embedded computing platform for consumer applications. Based on the innovative concept of dynamically reconfigurable computing systems, the project named MORPHEUS (Multipurpose Dynamically Reconfigurable Platform for Intensive and Heterogeneous Processing) started in January 2006 for a duration of 36 months. The European Commission sponsors it with a contribution of 8.24M €.

The next generation's consumer and professional applications, terminals and networks will be built around flexible multipurpose hardware platforms that should allow high computing performances, low-power consumption and short time-to-market to move from the designer's desk to the shop's shelves. Current solutions based on multiprocessing platforms do not meet these requirements, because they are either specific for only one domain of applications or highly inefficient in terms of performances and power consumption.

The first results and future plans of MORPHEUS were presented to the technical community at the "CASTNESS" workshop, held in Rome and at the ECSI Institute Workshop on Reconfigurable Systems-on-Chip, held in Paris last January.

The architecture of the chip, built around a NOC (Network on Chip) where several heterogeneous reconfigurable units are plugged, has been defined. The architecture model is under construction and the implementation feasibility has been analysed. Selected application test cases have been defined. A toolset first version including optimised compiler, RTOS (Real Time Operating System) and synthesis tools is being integrated.

MORPHEUS' main objective is the implementation of a "Soft-Hardware" platform that will improve computing density, re-use, flexibility and time-to-market of the final applications. This will be achieved through the design, prototyping and demonstration of a flexible platform based upon the usage of reconfigurable architectures, along with the development of a dedicated toolchain for the management of the whole design flow. The project will end with a set of trials, whose target applications are broadband wireless access, network routing, professional video, and homeland security systems.

The MORPHEUS demonstrator will consist of a chipset composed of complementary dynamically reconfigurable building blocks mounted on a modular SoC platform, to address the requirements of different applications. An integrated design flow will complement the hardware blocks, allowing designers to select the optimal mapping on the platform of the final applications, after a rapid and accurate investigation among different implementation alternatives. Through the reconfiguration of hardware blocks, it will be possible to optimize the same platform for different applications. This will provide designers, as well as end-users, with evident advantages in terms of flexibility, computing density and power consumption of the final application.

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“MORPHEUS is a milestone for the development of the next-generation computing platforms for embedded systems, suitable to the consumer and professional domains,” said Gilbert Edelin, MORPHEUS Project Co-ordinator and responsible for the Advanced Computing Solutions at Thales Research & Technology. “The outcome of this project will eventually allow end-users to benefit from a new generation of high-performance, low-power and cost-effective applications.”

The partners in the project MORPHEUS are: Thales Research & Technology, Thomson Germany, INTRACOM Telecom Solutions, Alcatel-Lucent Germany, Thales Optronique, STMicroelectronics, PACT XPP Technologies, M2000, Associated Compiler Experts, Critical Blue, University of Karlsruhe, Delft University of Technology, CEA-LIST, Université de Bretagne Occidentale, Advanced Research Centre on Electronic Systems, ARTTIC, University of Technology Carolo-Wilhelmina zu Braunschweig and University of Technology Chemnitz.

More details and public documentation can be found at www.morpheus-ist.org

About Thales

Thales is a leading international electronics and systems group serving defence, aerospace and security markets worldwide, supported by a comprehensive services offering. The group's civil and military businesses develop in parallel to serve a single objective: the security of people, property and nations. Leveraging a global network of high-level researchers, Thales offers a capability unmatched in Europe to develop and deploy critical information systems. Thales employs 70, 000 people in 50 countries and generated revenues of €10.3 billion in 2006, with a record order book of over € 20 billion.

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