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EU-FUNDED PROJECT TO SUPPORT MULTICORE SYSTEM PROGRAMMING

Courtesy of EE Times Europe

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PARIS — A consortium of 9 industrial partners and research institutions has received a 4 million euro subsidy to conduct a three-year research project aiming to simplify parallel programming by developing integrated Transactional Memory (TM) systems for multicore computers.

The Velox project comes in response to the adoption of multicore chips as the architecture of choice for mainstream computing. Programs must be rewritten in a parallel way for computers with multiple processing cores, and coordination techniques such as fine grained locking tend to be no longer applicable. A successor could well be the TM programming paradigm, stated the Velox project's initiators.

Partners claimed that combining sequences of concurrent operations into atomic transactions "promises a great reduction in the complexity of both programming and verification", by making parts of the code appear to be sequential without the need to program fine-grained locks.

Project members said TM systems need the right hardware and software support to provide scalability in terms of cores, code size and complexity.

The Velox project, they added, aims to understand how to provide such support by developing an integrated TM stack that would span a system from the underlying hardware to the high end application. The TM stack would consist of components such as CPU, operating system, runtime, libraries, compilers, programming languages and application environments.

Eventually, partners said they expect that the integrated TM systems will help understand TM designs and encourage the adoption of the TM paradigm by the European software industry.

Coordinated by the Barcelona Supercomputing Center, the Velox consortium gathers research and system integration organizations such as the University of Neuchtel, the Technische Universitt Dresden, Ecole Politechnique Fdrale de Lausanne, Tel Aviv University, Chalmers University of Technology as well as integrators from the IT industry such as AMD, Red Hat and VirtualLogix SAS.