

Profile-Guided Compilation of Scilab Algorithms for Multiprocessor Systems

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Abstract. The expression of parallelism in commonly used programming languages is still a large problem when mapping high performance embedded applications to multiprocessor system on chip devices. The Architecture oriented parallelization for high performance embedded Multicore systems using scilAb (ALMA) European project aims to bridge these hurdles through the introduction and exploitation of a Scilab-based toolchain which enables the efficient mapping of applications on multiprocessor platforms from a high level of abstraction. To achieve maximum performance the toolchain supports iterative application parallelization using profile-guided application compilation. In this way, the toolchain will increase the quality and performance of a parallelized application from iteration to iteration. This holistic solution of the toolchain hides the complexity of both, the application and the architecture, which leads to a better acceptance, reduced development cost, and shorter time-to-market.

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