Societies of Cores and Their Computing Culture

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Abstract

The performance opportunities enabled through multi-core chips and the efficiency potential of heterogeneous ISA and structures is creating a climate for computer architecture, highly parallel processing chips, and HPC systems unprecedented for more than a decade. But with change comes the uncertainty from competition of alternatives. One thing is clear: all systems will be parallel systems and all chips will be highly parallel. If so, then, how will the parallelism be represented and controlled and what will be the roles and responsibilities for managing system wide parallelism? This presentation will address both the exciting opportunities and challenges of highly parallel processing cores on chips and describe one possible path for future parallel ISA cores, ParalleX, which may enable the synthesis of many cores into one single scalable system.

L. Bougé et al. (Eds.): Euro-Par 2007 Workshops, LNCS 4854, p. 7, 2008.