SGR2021_ PM: Programming models

Description

Our team explores the programming approaches for homogeneous and heterogeneous architectures, including the use of accelerators and distributed clusters. We propose the OmpSs programming model, a task-based approach. OmpSs seeks to improve programmability of applications in such environments, without sacrificing performance. We actively participate in the OpenMP standard committee, and use OmpSs for rapid prototyping of new ideas that can be then considered for OpenMP. Our team also proposes the use of Domain Specific Languages (DSLs) to permit scientists with higher level languages, running on top of OmpSs, to better code their applications.

The main goal of the team is to investigate new and current programming paradigms and the associated runtime system support, at software and hardware level, to provide high performance to parallel applications. The target architectures includes from heterogeneous multicore to heterogeneous distributed-memory systems and cloud systems.

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