UNIVERSITÀ DI PISA

Scuola Superiore
Sant'Anna
di Studi Universitari e di Perfezionamento

A Framework for static allocation of parallel OpenMP code on multi-core platforms

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February 28, 2014

Introduction

Context and motivations

OpenMP


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OpenMP - Structure

OpenMP - (Directives & clauses)

OpenMP - (Semantics)

OpenMP - Framework subset

Clang


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Clang - LLVM


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Clang - AST


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Clang - (Structure)

Clang - (Example)

Clang - (Traversing the AST)

Clang - OpenMP

The framework

General Design

Big-graph image

Simple example

Pragma extraction

Intrumentation for profiling

Intrumentation for profiling - Annotated example

Flow graph


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Scheduler


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Scheduler - Search tree

Scheduler - Constraints check

Scheduler - (Cetto & Chetto)

Final execution

Final execution - Intrumentation

Final execution - Run-time

Fianl execution - (thread pool)

Final execution - (multiple job queues)

Final execution - (synchronization)

General structure

General structure -(graph of the test code)

Results


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Results - (some tables and graphs)

Results - (total completion time)

Results - (service time - boxplot)

Results - (Jitter)

Results - Comments


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