

Programming OpenMP

Tasking Introduction

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Tasking Motivation

² rogramming in OpenMP hristian Terboven & Members of the OpenMP Language Committee

Sudoko for Lazy Computer Scientists



Lets solve Sudoku puzzles with brute multi-core force 8 11 15 14 15 11 16 14 15 11 10 3 16 14 15 10 2 13 9 12 15 11 10 12 13 11 10 15 11 10 7 16 7 15 11 16 12 13 16 10 9 13 3 16 16 14 10 15 9 12 13 11 10 11 10 8 12 13 3 16

(1) Search an empty field

- (2) Try all numbers:
 - (2 a) Check Sudoku
 - If invalid: skip
 - If valid: Go to next field

Wait for completion

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Parallel Brute-force Sudoku



	his	s p	a	a	lel	a	lgo	orit	thr	n ·	fin	ds	а	ll v	/al	id solutions
	6						8	11			15	14			16	
15	11				16	14				12			6			(1) Search an empty fie first call contained in a
13		9	12					3	16	14		15	11	10		#pragma omp parallel
2		16		11		15	10	1								#pragma omp single
	15	11	10			16	2	13	8	9	12					(2) Try all numbers:
12	13			4	1	5	6	2	3					11	10	(2 a) Check Sudoku
5		6	1	12		9		15	11	10	7	16			3	
	2				10		11	6		5			13		9	If invalid: skip
10	7	15	11	16				12	13						6	If valid: Go to ne #pragma omp task
9						1			2		16	10			11	needs to work on a new copy
1		4	6	9	13			7		11		3	16			of the Sudoku board
16	14			7		10	15	4	6	1				13	8	
11	10		15				16	9	12	13			1	5	4	\square $M/ait far appendiction$
		12		1	4	6		16				11	10			Vall IOF COmpletion #pragma omp taskwait
		5		8	12	13		10			11	2			14	wait for all child tasks
3	16			10			7			6				12		

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Performance Evaluation





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