Arrows for Parallel Computation

Supplementary Material

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Abstract

This is supplementary material to our paper 'Arrows for parallel computation'. It shows the speedup and mean overhead plots for all benchmarks.

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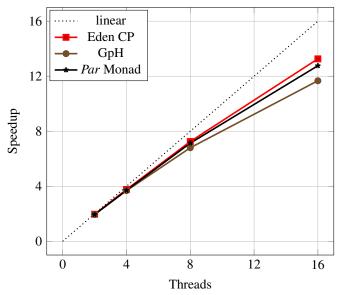
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1 Shared-Memory Plots

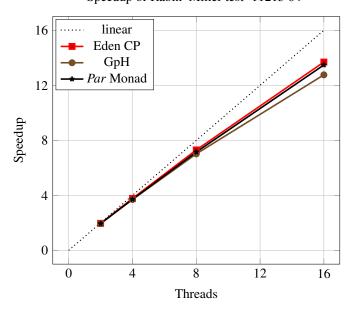
1.1 Rabin-Miller test

1.1.1 Speedup

Speedup of Rabin–Miller test '11213 32'

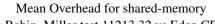


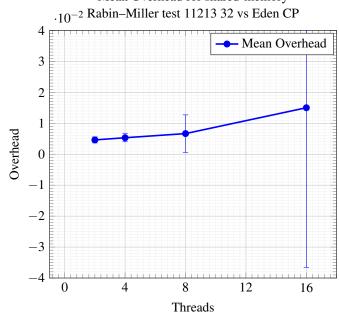
Speedup of Rabin-Miller test '11213 64'



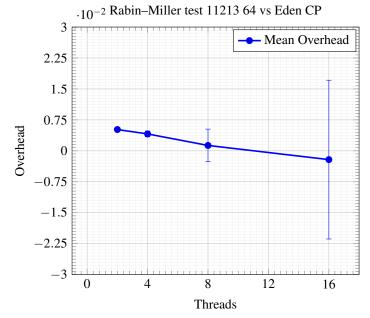
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1.1.2 Overhead



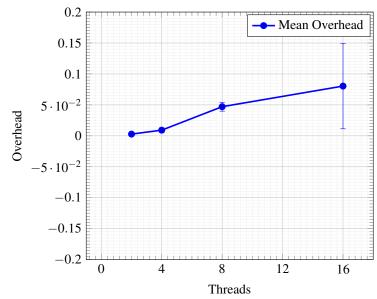


Mean Overhead for shared-memory

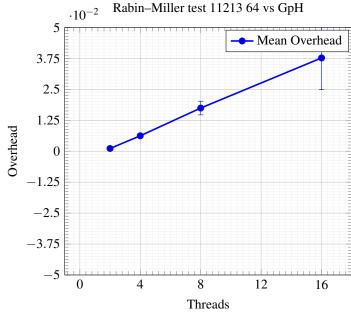


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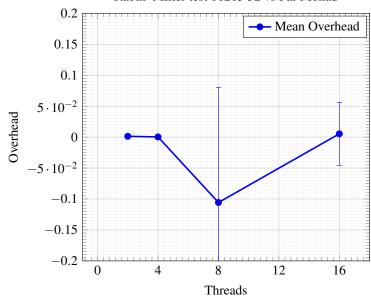
Mean Overhead for shared-memory Rabin–Miller test 11213 32 vs GpH



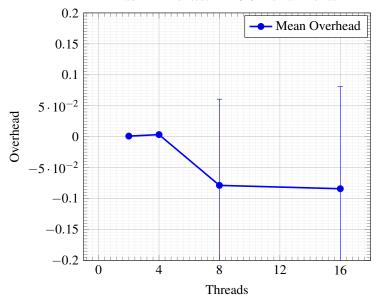
Mean Overhead for shared-memory



Mean Overhead for shared-memory Rabin-Miller test 11213 32 vs Par Monad



Mean Overhead for shared-memory Rabin-Miller test 11213 64 vs Par Monad



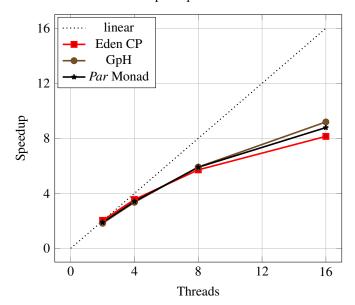
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1.2 Sudoku

1.2.1 Speedup

Parallel speedup of Sudoku '1000'



1.2.2 Overhead

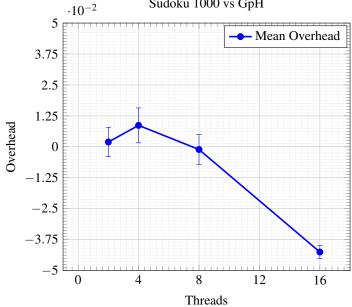
Mean Overhead for shared-memory

Sudoku 1000 vs Eden CP $\cdot 10^{-2}$ 5 Mean Overhead 3.75 2.5 1.25 Overhead 0 -1.25-2.5-3.75-58 12 4 16

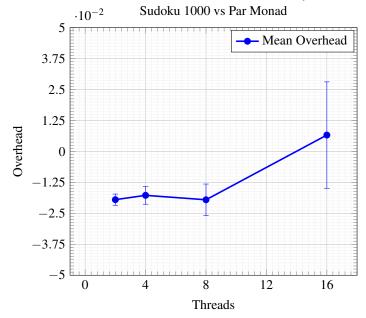
Threads

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Mean Overhead for shared-memory Sudoku 1000 vs GpH



Mean Overhead for shared-memory

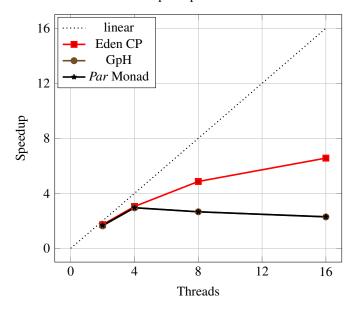


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1.3 Gentleman

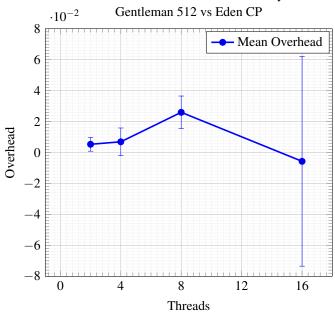
1.3.1 Speedup

Parallel speedup of Sudoku '512'



1.3.2 Overhead

Mean Overhead for shared-memory



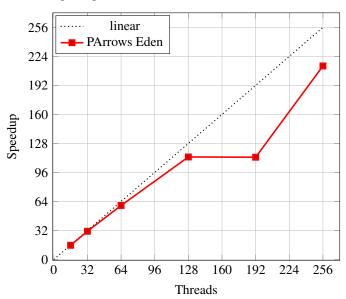
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2 Distributed Plots

2.1 Rabin-Miller test

2.1.1 Speedup

Speedup of distributed Rabin-Miller test '44497 256'



2.1.2 Overhead

Mean Overhead for distributed Rabin-Miller test 44497 256 $\cdot 10^{-2}$ - Mean Overhead 3 2 1 Overhead 0 -2-3224 32 192 0 64 96 128 160 Threads

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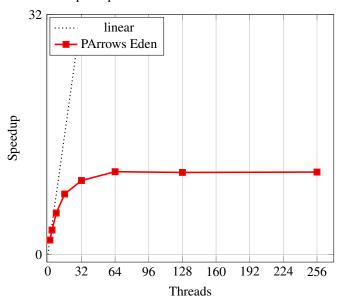
main

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2.2 Jacobi sum test

2.2.1 Speedup

Speedup of distributed Jacobi sum test '3217'



2.2.2 Overhead

Mean Overhead for distributed Jacobi sum test 3217 $\cdot 10^{-2}$ - Mean Overhead 3 2 Overhead -2224 32 64 96 128 160 192 Threads

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2.3 Gentleman

Mean Overhead for distributed $\cdot 10^{-2}$ Gentleman 4096 4 Mean Overhead 3 2 1 Overhead 0 -2-3192 224 0 32 64 96 128 160 Threads

2.3.1 Speedup

Speedup of distributed Gentleman '4096'

