

HPC Project

Submitted by:

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Open MP

The time with milliseconds

1- Fixed array size

Array size 20

Array = [1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20]

Serial time of this array in one core = 40012.00

Cores	Parallel Time	Speed up=serial/parallel	Efficiency=speedup/num_processes
2	17792.00	2.25	1.125
4	5382.00	7.43	1.85
8	3687.00	10.85	1.356
16	3081.00	12.97	0.81

2- fixed number of cores

Using 5 cores:

Any array starts from 1 to the size of it.

Array Size	Serial time	Parallel Time	Speed up=serial/parallel	Efficiency=speedup/num_processes
5	4720.00	2970.00	1.58	0.316
10	15338.00	3592.00	4.27	0.854
20	5156.00	3425.00	1.5	0.3
40	4870.00	2790.00	1.7	0.34
80	6444.00	3679.00	1.75	0.35

MPI

The time with milliseconds

1- Fixed array size

Array size 20

Array = [1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20]

Serial time of this array in one core = 891.00

Cores	Parallel Time	Speed up=serial/parallel	Efficiency=speedup/num_processes
2	254.00	3.5	1.75
4	1808.00	0.492	0.123
8	20973.00	0.0428	0.00531
16	21716.00	0.0410296	0.00256

2- fixed number of cores

Using 5 cores:

Any array starts from 1 to the size of it.

Array Size	Serial time	Parallel Time	Speed up=serial/parallel	Efficiency=speedup/num_processes
5	204.00	12640.00	0.016	0.00322
10	358.00	19237.00	0.01860	0.00372
20	348.00	10697.00	0.325	0.006506
40	349.00	13531.00	0.02579	0.005158
80	309.00	13041.00	010236	0.0047

