

Performance of MPI Improved Implementation of Trap Rule

Runtimes (ms), n

p	10,000	100,000	1,000,000	10,000,000	100,000,000
1	1.120	10.70	107.00	1070.0	10800
2	0.611	5.61	55.60	557.0	5800
4	0.540	3.24	30.30	301.0	3000
8	0.296	1.79	17.40	173.0	1720
16	0.151	0.94	8.95	88.4	876

Speedups n

p	10,000	100,000	1,000,000	10,000,000	100,000,000
1	1.00	1.00	1.00	1.00	1.00
2	1.83	1.91	1.92	1.92	1.86
4	2.07	3.30	3.53	3.55	3.60
8	3.78	5.98	6.15	6.18	6.28
16	7.42	11.38	11.96	12.10	12.33

Efficiencies n

p	10,000	100,000	1,000,000	10,000,000	100,000,000
1	1.00	1.00	1.00	1.00	1.00
2	0.92	0.95	0.96	0.96	0.93
4	0.52	0.83	0.88	0.89	0.90
8	0.47	0.75	0.77	0.77	0.78
16	0.46	0.71	0.75	0.76	0.77