

Run-Times of Shared Memory Implementations of the Trapezoidal Rule

CS 220, Intro to Parallel Computing

Fall, 2011

Program	Thread Count			
	1	2	4	8
pth_trap1	5.71	3.32	1.67	0.839
pth_trap	5.75	3.33	1.67	0.844
omp_trap1a	5.71	3.32	1.67	0.850
omp_trap1	5.70	3.31	1.67	0.846
omp_trap_b	5.74	3.33	1.69	0.844
omp_trap	5.76	3.33	1.69	0.858
omp_trap_c	7.21	19.00	25.20	27.500

Notes:

1. Times were taken on a quad-dual core 2.4 GHz Opteron system (grolsch).
2. Running Linux 2.6.21-1.3194.fc7 #1 SMP
3. Compiler gcc 4.1.2
4. Compiled with

```
gcc -g -Wall -O3 [-fopenmp] -o <xxx> <xxx.c> [-lpthread] -lm
```

5. $f(x) = \sin(x)$, $a = 0$, $b = 10$, and $n \approx 10^8$.
6. pth_trap_1: partitions problem into subintegrals
7. pth_trap: partitions for loop among threads
8. omp_trap1a: partitions problem into subintegrals, uses critical directive to compute global sum.
9. omp_trap1: partitions problem into subintegrals, uses reduction clause to compute global sum.

10. `omp_trap_b`: uses parallel for, reduction, my scoping.
11. `omp_trap`: same as `omp_trap_b` except uses static scheduling
12. `omp_trap_c`: same as `omp_trap_b` except uses dynamic scheduling