Project #0

Simple OpenMP Experiment

By Michael Rose

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Oregon State University

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# What I did

I ran this project on 3 machines to get a feel for how my older linux boxes stacked up to eachother and to flip. One of my machines is running an Intel Core 2. The other machine is running a first or second generation i5. I ran the program with an array size of 1,000,000 and used 1000 cycles to calculate the average. I ran the programs with less cycles as well to see if my local machines were just overheating, but the results were similar to the results listed below.

## Intel Core 2

Running a single thread, I got 100/78. Running with 4 threads, I got 158.85. Running with 8 threads I got 156.94.

I think that there is only about a 60% increase because the processor is limiting the improvement of the multithreading.

## Local i5

Running with a single thread, I got an average of 270.02 MegaMults/Sec. Running with 4 threads, I got an average of 587.69 MegaMults/Sec. Running with 8 threads, I got a decrease in performance with only 467.07 MegaMults/Sec and a peak of 584.98 MegaMults/Sec.

Having results that cap off at around 3 times the value of a single thread makes me think that my local machine is also hitting a processes limit.

## Flip

On flip, a single thread got an average of 196.24 MegaMults/Sec. 4 threads got an average of 656.17 MegaMults/Sec and 8 threads got 1539.18 MegaMults/Sec.

These results make the most sense as the threading is basically increasing the efficiency by the number of threads. For the 4 thread count, the peak performance is 811.68 which is more like 4 times the value for a single thread.

When I ran this code, I got the following values for uptime.

Before running: .09, .04, .05

After running: .27, .11, .07

## Summary

|  |  |  |  |
| --- | --- | --- | --- |
| Core | 1 Thread (MegaMults/Sec) | 4 Threads (MegaMults/Sec) | 8 Threads (MegaMults/Sec) |
| Intel Core 2 | 103.65 | 158.85 | 156.94 |
| I5 | 270.02 | 587.69 | 467.07 |
| Flip | 196.24 | 656.17 | 1539.18 |