

Programming Assignment 7

CSCE 313-503

4/29/2018

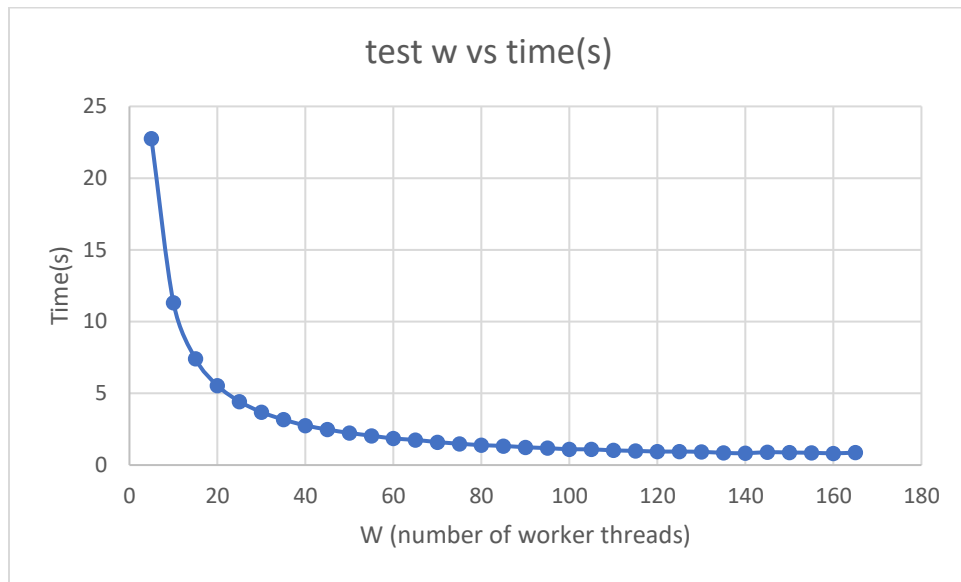
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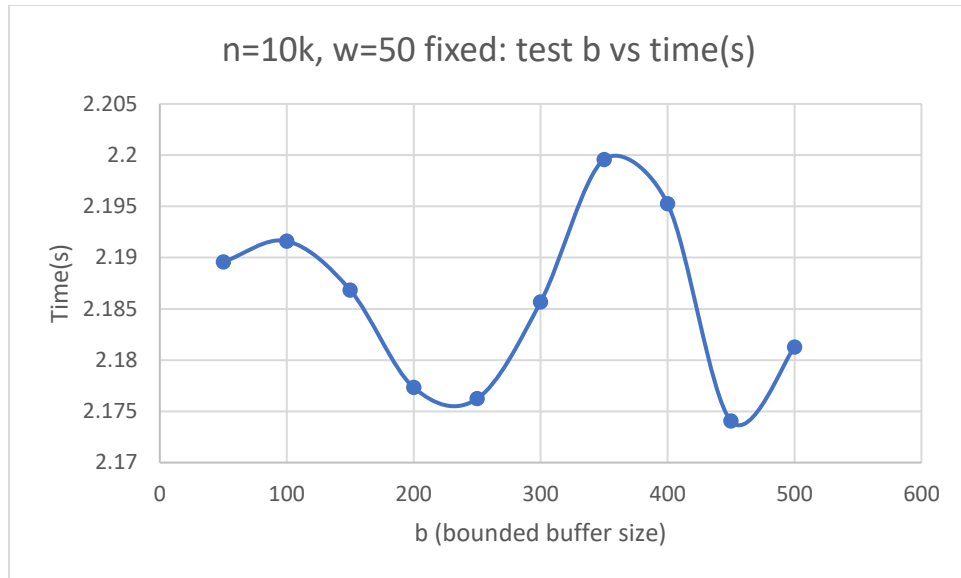
Data from PA7:

| w | time(s) |
|-----|----------|
| 5 | 22.75645 |
| 10 | 11.32004 |
| 15 | 7.414087 |
| 20 | 5.544416 |
| 25 | 4.434669 |
| 30 | 3.690163 |
| 35 | 3.170341 |
| 40 | 2.76145 |
| 45 | 2.479789 |
| 50 | 2.236257 |
| 55 | 2.047141 |
| 60 | 1.85279 |
| 65 | 1.754723 |
| 70 | 1.601174 |
| 75 | 1.489657 |
| 80 | 1.389523 |
| 85 | 1.335108 |
| 90 | 1.243575 |
| 95 | 1.181427 |
| 100 | 1.104438 |
| 105 | 1.097207 |
| 110 | 1.02455 |
| 115 | 0.991234 |
| 120 | 0.943746 |
| 125 | 0.943839 |
| 130 | 0.921146 |
| 135 | 0.854286 |
| 140 | 0.824986 |
| 145 | 0.900494 |
| 150 | 0.874778 |
| 155 | 0.859284 |
| 160 | 0.820979 |
| 165 | 0.871381 |



To test the program, I ran the test cases with $n=10000$ fixed and increase w . I was able to run up to 165 worker threads. As the number of threads increases, the performance increases. Notice the significant improvement in performance when w increases from 5 to about 60. After the threads have been increasing for more than 100, the change is not much significant. With that characteristic, we can determine the best number of worker threads for the program that meets our needs in both terms of performance and resource consumption.

I also noticed that the graph is identical to the graphs from PA3, PA4 and PA5. It can be concluded that TCP/IP method is as effective as other IPC methods like pipe, message queue and shared memory.



I ran the second test with $n=10000$ and $w=50$ fixed and increased the buffer size. The graph looks not very consistent due to fact that only few data points were tested. However, the results were very close to 2.19s, regardless the significant increase of buffer size. Therefore, it can be said that the size of buffer doesn't have noticeable impact on the performance.