Assignment 6

Sequential Program: 1583574812 nanoseconds

True Sharing:

|  |  |  |  |
| --- | --- | --- | --- |
| Threads | Running Time (nanoseconds) | Speedup | Value of Pi |
| 1 | 1599239393 | 0.99 |  |
| 2 | 800651255 | 1.9778 |  |
| 4 | 400125765 | 3.9577 |  |
| 8 | 200094674 | 7.9131 | 3.14159265138563892350 |

Atomic Instruction:

|  |  |  |  |
| --- | --- | --- | --- |
| Threads | Running Time (nanoseconds) | Speedup | Value of Pi |
| 1 | 1595465391 | 0.992 |  |
| 2 | 798659444 | 1.9828 |  |
| 4 | 399393288 | 3.965 |  |
| 8 | 199687364 | 7.93 | 3.14159265138563936759 |

Global Array (False-Sharing):

|  |  |  |  |
| --- | --- | --- | --- |
| Threads | Running Time (nanoseconds) | Speedup | Value of Pi |
| 1 | 1648263833 | 0.96075 |  |
| 2 | 2553742802 | 0.6201 |  |
| 4 | 2741123185 | 0.57771 |  |
| 8 | 2665836061 | 0.594026 | 3.14159265138563936759 |

Global Array (Eliminating Both True-Sharing and False-Sharing):

|  |  |  |  |
| --- | --- | --- | --- |
| Threads | Running Time (nanoseconds) | Speedup | Value of Pi |
| 1 | 1597368188 | 0.991365 |  |
| 2 | 799441880 | 1.98085 |  |
| 4 | 399749696 | 3.961416 |  |
| 8 | 199940055 | 7.920248 | 3.14159265138563936759 |

Overlaying each part on a single Graph