***Sys Net Project 3 Results and Analysis***

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| MAX PRIME | 2,000,000 |
| **Threads/Run** | **1** | **2** | **3** | **4** | **5** | **6** |
| 1 | 11.00013186 | 11.04923676 | 11.02227549 | 11.14994074 | 11.30922987 | 10.83601286 |
| 2 | 5.925100057 | 5.686341096 | 5.960494067 | 5.568602305 | 5.668828094 | 5.590605337 |
| 3 | 3.982810437 | 3.841380096 | 3.819603434 | 3.78001383 | 4.10490686 | 3.909232613 |
| 4 | 2.897401388 | 3.039787138 | 3.032136737 | 2.945557517 | 2.990540091 | 2.925905042 |
| 5 | 2.871418122 | 2.935118934 | 3.054267817 | 2.995077382 | 2.91352501 | 2.937570707 |
| 6 | 2.934777008 | 2.934290791 | 2.905958767 | 3.049604913 | 2.914149044 | 2.940783366 |
| 7 | 2.890448049 | 3.025854525 | 3.044773055 | 2.97292659 | 3.166814534 | 3.011383741 |
| 8 | 3.189312411 | 2.986725913 | 2.867213026 | 3.10547216 | 2.997201116 | 3.384022544 |
| 9 | 2.862653363 | 3.084988769 | 2.908356366 | 2.900293536 | 2.935055526 | 2.952725778 |
| 10 | 3.012308533 | 3.039065344 | 3.00146609 | 2.967859873 | 2.91827727 | 2.784260961 |
| 11 | 3.045562312 | 3.004989419 | 3.007215853 | 2.984892746 | 2.884441025 | 3.013205161 |
| 12 | 2.93314947 | 3.030497283 | 3.005081431 | 3.010600668 | 2.979615006 | 2.942869005 |
| 13 | 2.915419969 | 2.979230087 | 2.900306744 | 3.15794056 | 3.031111329 | 3.095122804 |
| 14 | 2.940473329 | 2.932320792 | 3.02160532 | 2.895839157 | 3.050488734 | 2.996122271 |
| 15 | 3.041070941 | 2.850175644 | 2.956123788 | 3.031464571 | 3.105133173 | 2.958350277 |
| 16 | 3.032661134 | 2.995513838 | 2.973951399 | 2.961670247 | 3.019016681 | 3.055568524 |
| 17 | 2.863415059 | 2.833221057 | 2.934063187 | 2.864350129 | 2.993699856 | 3.095699546 |
| 18 | 3.018704505 | 2.969866811 | 2.933122019 | 2.982827728 | 2.933774509 | 2.976111361 |
| 19 | 2.92765175 | 3.065063533 | 3.001832338 | 3.037399688 | 2.949780187 | 3.031696023 |
| 20 | 2.965852588 | 2.943148826 | 3.071246803 | 3.046641751 | 2.968441059 | 2.999915703 |
| 21 | 2.921617561 | 2.998439513 | 3.108089872 | 2.877901517 | 2.865977537 | 2.958849613 |
| 22 | 3.006615712 | 2.989880012 | 2.973229939 | 2.959090217 | 2.947256714 | 2.932542643 |
| 23 | 2.94626277 | 3.01126613 | 2.888295037 | 2.899701467 | 2.979945063 | 3.045921861 |
| 24 | 3.168412377 | 2.993420934 | 2.955918401 | 3.078202651 | 3.089759532 | 2.9804587 |
| 25 | 3.008846037 | 2.954256116 | 2.97204631 | 3.081032726 | 2.815196607 | 2.930098306 |
| 26 | 3.169583697 | 2.969318355 | 2.959046923 | 3.090199478 | 2.952557572 | 2.921620374 |
| 27 | 3.001272228 | 2.962213852 | 2.922366119 | 2.834857271 | 2.817260872 | 2.903545954 |
| 28 | 3.024212077 | 2.917622575 | 2.969865098 | 3.013956588 | 2.843358212 | 3.011260654 |
| 29 | 2.933580291 | 3.038696453 | 2.965990837 | 2.982735891 | 2.993125131 | 2.933872491 |
| 30 | 3.034511049 | 2.910585143 | 2.923757134 | 2.99671876 | 2.982424135 | 2.964466095 |

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| **Threads/Run** | **7** | **8** | **9** | **10** | **Average Time** |
| 1 | 10.96209707 | 10.91071008 | 11.42086346 | 11.24941622 | 11.09099144 |
| 2 | 5.770547196 | 5.804910888 | 5.915636796 | 5.876080145 | 5.776714598 |
| 3 | 3.712401956 | 3.898004316 | 4.035758056 | 3.92283691 | 3.900694851 |
| 4 | 2.842848157 | 2.941639941 | 2.977258103 | 2.924139059 | 2.951721317 |
| 5 | 3.09366696 | 3.066241919 | 3.166654759 | 3.011176349 | 3.004471796 |
| 6 | 3.003386678 | 3.062477911 | 3.029450225 | 2.931159037 | 2.970603774 |
| 7 | 2.988901708 | 3.033343717 | 3.082639444 | 3.204349188 | 3.042143455 |
| 8 | 3.150316114 | 3.081161136 | 2.92128377 | 3.084330753 | 3.076703894 |
| 9 | 3.091921747 | 2.929250132 | 2.977829948 | 2.904275808 | 2.954735097 |
| 10 | 3.062978669 | 3.013027596 | 2.985966049 | 3.047722512 | 2.98329329 |
| 11 | 3.152047393 | 3.050404414 | 3.030045492 | 2.972236634 | 3.014504045 |
| 12 | 2.973626719 | 2.907820909 | 2.943689774 | 3.05244847 | 2.977939874 |
| 13 | 2.998103338 | 2.991405513 | 2.965086722 | 2.934119508 | 2.996784657 |
| 14 | 3.10017274 | 2.879322256 | 3.004441584 | 2.831282809 | 2.965206899 |
| 15 | 3.060016485 | 2.95226353 | 3.095844101 | 3.012656162 | 3.006309867 |
| 16 | 3.104635152 | 2.917504035 | 3.100555291 | 2.937958522 | 3.009903482 |
| 17 | 2.977461477 | 2.948914329 | 3.021632374 | 3.015909603 | 2.954836662 |
| 18 | 3.042047167 | 3.038922586 | 3.138440612 | 3.085159536 | 3.011897683 |
| 19 | 2.942163259 | 3.012469398 | 3.015276623 | 3.058688302 | 3.00420211 |
| 20 | 3.024612093 | 3.030486172 | 3.047570548 | 2.902214135 | 3.000012968 |
| 21 | 3.114542847 | 2.903688237 | 3.098662607 | 2.939841285 | 2.978761059 |
| 22 | 3.075353024 | 2.964005384 | 3.016615141 | 3.043614191 | 2.990820298 |
| 23 | 2.986270876 | 3.038472835 | 3.070654745 | 3.033880744 | 2.990067153 |
| 24 | 2.868153558 | 2.987578323 | 3.133614256 | 2.95201102 | 3.020752975 |
| 25 | 2.937380981 | 2.953377826 | 2.950094946 | 3.067245449 | 2.96695753 |
| 26 | 2.968661662 | 3.019507086 | 3.125658169 | 2.986642324 | 3.016279564 |
| 27 | 3.155600734 | 2.946420345 | 2.97710105 | 2.843211172 | 2.93638496 |
| 28 | 2.955158179 | 3.029851655 | 3.045838691 | 2.889612185 | 2.970073591 |
| 29 | 2.914517213 | 2.920444107 | 3.12059401 | 2.900005586 | 2.970356201 |
| 30 | 2.903179878 | 3.122308907 | 3.086608072 | 2.962157033 | 2.988671621 |

**Analysis of Primality Program**

The above results shows our primality program calculating the prime numbers from 1 to 2,000,000 for 1 to 30 threads with an average of 10 runs for each thread. As the chart above indicates, running from 1 to 4 threads decreased the amount of times required to calculate the prime numbers. Threads from 5 to 30 ran in about the same amount of time as running 4 threads. This result is from the limited ability of the computer that we used, in that it could only run up to 4 threads in parallel. Each core on the computer can run one thread in parallel with the other cores. Therefore to decrease the difference in time to calculate primality from 4 to 5 threads and so on, the program would have to be run on a computer with more than 4 processing cores.