

Homework #3

cpe 512

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# Part 1 Serial Test

## Code

* See Appendix A for the source code

## Output

uahcls01@dmcvlogin1:Hw3> ./mm\_mult\_serial 4 6 3

A matrix =

48.3962 65.3245 15.0385 72.383 25.8898 46.0265

15.4881 50.6507 6.74602 71.0055 12.2209 77.5441

61.5452 31.5127 46.8515 89.4849 70.0342 57.3195

75.4144 83.5553 91.7832 7.74197 40.0845 11.1709

B matrix =

26.5416 83.9488 86.5328

51.0444 65.3442 85.2683

76.9977 49.0015 46.6826

12.2581 99.9706 40.1026

58.6347 47.2069 4.06732

37.0919 22.9082 82.6622

C matrix =

9889.42 18581 17272.7

7979.16 14392.3 15281.2

14179 23086.6 18811.4

16193.3 19210.5 19332

time=1e-06 seconds

# Part 2 Parallel Test

## Code

* See Appendix B for the source code

## Output NP = 2

uahcls01@dmcvlogin2:Hw3> mpirun -np 2 ./mm\_mult\_mpi 4 6 3

A matrix =

48.3962 65.3245 15.0385 72.383 25.8898 46.0265

15.4881 50.6507 6.74602 71.0055 12.2209 77.5441

61.5452 31.5127 46.8515 89.4849 70.0342 57.3195

75.4144 83.5553 91.7832 7.74197 40.0845 11.1709

B matrix =

26.5416 83.9488 86.5328

51.0444 65.3442 85.2683

76.9977 49.0015 46.6826

12.2581 99.9706 40.1026

58.6347 47.2069 4.06732

37.0919 22.9082 82.6622

C matrix =

9889.42 18581 17272.7

7979.16 14392.3 15281.2

14179 23086.6 18811.4

16193.3 19210.5 19332

time=9.9e-05 seconds

## Output NP = 4

uahcls01@dmcvlogin2:Hw3> mpirun -np 4 ./mm\_mult\_mpi 4 6 3

A matrix =

48.3962 65.3245 15.0385 72.383 25.8898 46.0265

15.4881 50.6507 6.74602 71.0055 12.2209 77.5441

61.5452 31.5127 46.8515 89.4849 70.0342 57.3195

75.4144 83.5553 91.7832 7.74197 40.0845 11.1709

B matrix =

26.5416 83.9488 86.5328

51.0444 65.3442 85.2683

76.9977 49.0015 46.6826

12.2581 99.9706 40.1026

58.6347 47.2069 4.06732

37.0919 22.9082 82.6622

C matrix =

9889.42 18581 17272.7

7979.16 14392.3 15281.2

14179 23086.6 18811.4

16193.3 19210.5 19332

time=0.00015 seconds

## Output NP = 8

uahcls01@dmcvlogin2:Hw3> mpirun -np 8 ./mm\_mult\_mpi 4 6 3

A matrix =

48.3962 65.3245 15.0385 72.383 25.8898 46.0265

15.4881 50.6507 6.74602 71.0055 12.2209 77.5441

61.5452 31.5127 46.8515 89.4849 70.0342 57.3195

75.4144 83.5553 91.7832 7.74197 40.0845 11.1709

B matrix =

26.5416 83.9488 86.5328

51.0444 65.3442 85.2683

76.9977 49.0015 46.6826

12.2581 99.9706 40.1026

58.6347 47.2069 4.06732

37.0919 22.9082 82.6622

C matrix =

9889.42 18581 17272.7

7979.16 14392.3 15281.2

14179 23086.6 18811.4

16193.3 19210.5 19332

time=0.000227 seconds

# Part 3 Timing Analysis

## Serial

## Parallel

Add the source code for program here.

# Appendix

Add anything else that might be pertinent to the assignment.