CDA5125 Homework 1 (3 problems)

Name:

1. Report the sustained FLOPS for the naïve\_mm.c program when it performs the multiplication of two 2048x2048 matrices on linprog.cs.fsu.edu. Briefly describe how you compile, measure, and report the raw time (so that people can reproduce your experiment). Give the raw time and the sustained FLOPS from your experiment.
2. Given the following computation graph CG, what are Work(CG), span(CG), and parallelism of CG? Schedule the computation with any greedy schedule on 2, 3, and 4 processors. What are the speedups with 2, 3, and 4 processors using your schedules?

A:1

C:1

E:2

B:1

D:2

F:1

I:2

H:1

G:4

J:2

K:1

1. Let a program have 20% sequential and 80% parallel components. Make a table to show the strong scaling speedup (Amdahl’s law) and the weak scaling speedup (Gustafson’s law) using 2, 10, 100, and 1000 processors.