PHYS:5905 Homework 10

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1. Problem 1

   (a) The output is as follows.

   Hello World! I am processor 4 of 16 processors. Hello World! I am processor 8 of 16 processors. Hello World! I am processor 9 of 16 processors. Hello World! I am processor 10 of 16 processors. Hello World! I am processor 11 of 16 processors. Hello World! I am processor 12 of 16 processors. Hello World! I am processor 13 of 16 processors. Hello World! I am processor 15 of 16 processors. Hello World! I am processor 0 of 16 processors. Hello World! I am processor 1 of 16 processors. Hello World! I am processor 3 of 16 processors. Hello World! I am processor 5 of 16 processors. Hello World! I am processor 6 of 16 processors. Hello World! I am processor 7 of 16 processors. Hello World! I am processor 14 of 16 processors. Hello World! I am processor 2 of 16 processors.

   (b) My method is to use `MPI_Barrier()` to block $(i+1)^{th}, \cdots, n^{th}$ processors until the i^{th} processor has executed its code.

2. Problem 2

   The plot is shown as follows. I excluded all initialization time in time calculation.

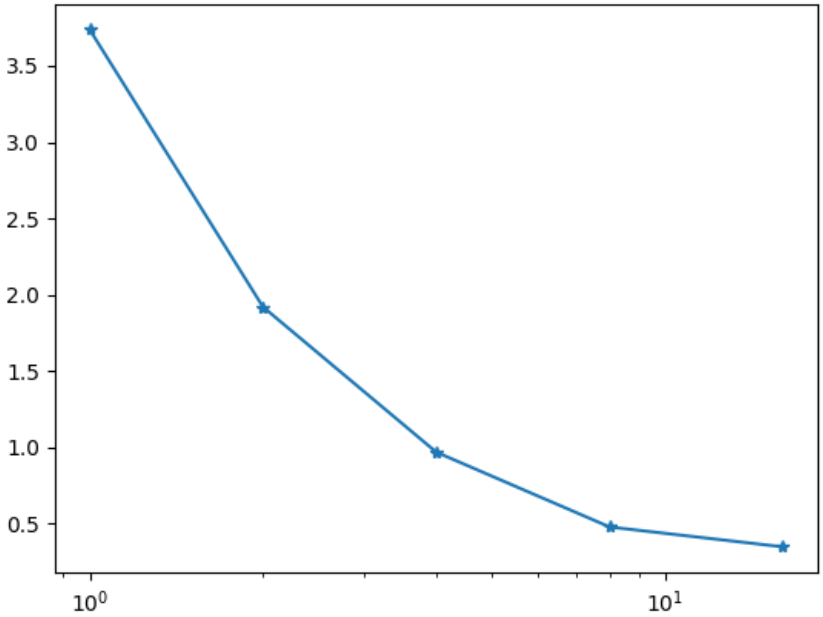

Figure 1: Computation time vs. number of processors.