

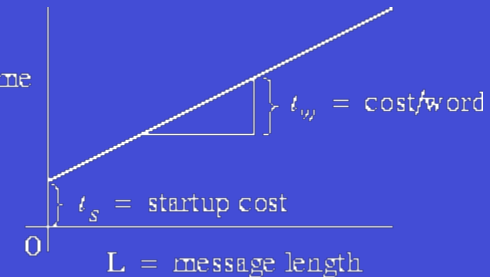
HW5: Performance models

1. Go back to the MPI homework now and complete the LATENCY task

- In your Fortran MPI ping pong code, put a loop around your ping-pong message bouncing.
- Put timers around your loop
- Iterate around this loop a large number of times to get accurate timings
- Run a bunch of cases with different data amounts.
- Plot your timing results per message against data size to confirm the linear model of data transfer and calculate t_s and t_w

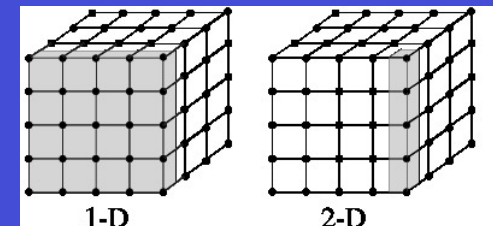
$$T_{msg} = t_s + t_w L$$

T = time



2. Redo the finite-difference performance model for a 2D data decomposition in the horizontal directions

- Derive an analytical model for the execution time, the efficiency and the isoefficiency.
- What do you learn by comparing the isoefficiency you derived with the one we derived for the 1D data decomposition in class?



Submit to Canvas as a single PDF (your timing results, and your performance model and answers)