CS5220 Project 2: Shallow Water Equations

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1 Introduction

This could probably be just a paragraph summarizing the assignment

2 The Algorithm

The general process:

1. Used MPI
2. Transfer Boundary information to left and right neighbors, the top and bottom (transferring the corners to top and bottom)
3. Transfer boundary information every τ steps
4. Transfer time step information every τ steps as well (This is what is being used in the model anyway)

The model

1. Four different contributions to batches of time steps
2. Give predictions for how strong scaling, weak scaling, and optimal time batching look like.

3 Scaling and Profiling Results

Figure this out!

4 Conclusion

What we would add for next time:

1. More careful cache performance
2. Tuning number of ghost cells to block size
3. Different sized domains/initial conditions
4. Deal with the fact that not all processors are the same
5. Think about the tradeoff between a conservative time step and communicating every step (how uneven are the time steps really?)