CMSE 822 Final Project - 2D Burgers

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1 Introduction

Hyperbolic PDEs are useful for various phyical phenomena.
    Acoustics, electromagnetic, fluid motion, etc.
    Linear vs non linear
    Advection equation
    Burgers' equation
    Use viscous Burgers' equaiton to not worrt about limiters
    Look at 2nd and 4th order using finite difference

2 Methodology

Investigate 2D Burgers' in c++ using OpenMP
    Look at strong and weak scaling, cache blocking
    strong and weak on CPU and GPU
    look at how to configure/optimize omp for GPU
    omp 4.5 and 5.0 have support for optimizing GPUs

3 Future Work

Investgate using Kokkos
    Stepping stone to k-athena