Project #3 – MPI Reduce & Broadcast  
Kyle Pontius

# Introduction

The dawn of the transistor, and with it, the computer has brought on arguably the greatest age of innovation and technological growth this world has ever seen. Few lives have remained untouched by this relatively new and extraordinary development. One computer alone holds untold power, yet tethering these machines together helps us reach new heights unachievable with single units. MPI is one of the most powerful, modern tools we have to create such a network of machines. The principle of this project is to flex MPI’s communication muscle to create a meaningful example using vector max reduce & broadcast.

# Methods

Our goal is to create a program which does the following: First, each machine generates a new array of numbers (size n) for each computer. Second, the array takes the two arrays reduced to its position then chooses the one the highest number between the two arrays, at a given position (on the first iteration, this skips directly to sending the array). Third, the array reduces, or in other words, sends it’s now maximized array to the