Question 1:
nvcc -arch=sm_60 matrix_vector.cu -Xcompiler -fopenmp

Prince hpc gpu: –gres=gpu:1

Results:
CPU Bandwidth = 2.759124 GB/s
GPU Bandwidth = 2.412129 GB/s
error = 0.000000

Question 2:

nvcc -arch=sm_60 jacobi2D.cu -Xcompiler -fopenmp

Matrix size:
4096

Results:
openmp time: 751.817
cuda time: 5.89205

Question 3:

Parallel SGD
We implemented the parallel SGD using openmp for the MNIST dataset with multinomial logistic regression and proved working well. But it is too slow. So our next step is to implement the CUDA version.