**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 7: CUDA**

**Lesson 6: CUDA Atomic Functions**

**Exercise Instructions for Students**

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•Exercise 1: Run the given program for atomic addition and analyze the output of with and without atomic function

•Exercise 2:

•Write a CUDA program to find the max value in a list using atomicMax

•Create a list of size 900,000 and set the values from 1 to 900,000

•Write a CUDA kernel to find max from the list using simple comparison

•Eg. Let max = 0, if val> max, max = val

•Write a CUDA kernel to find max from the list using atomicMax

•Eg. Let max = 0, atomicMax(max,val)

•Check your output to ensure that atomicMax finds the correct max, that is 900,000