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

**Unit 7: CUDA**

**Lesson 11: Branching and GPGPU Efficiency (profiling and debugging)**

**Sample Assessment**

*Developed by David A. Joiner for the Shodor Education Foundation, Inc.*

Define “warp” in the context of CUDA programming.

Consider the following two kernels. Determine whether you think one will run faster than the other, or if both will take approximately the same time. Explain your answer.

\_\_global\_\_ void branching1(int n)

{

int threadMod = threadIdx.x%threadsPerBlock;

if ( threadMod%32 < 16) {

//do some stuff

} else {

// do some other stuff

}

}

\_\_global\_\_ void branching2(int n)

{

int threadMod = threadIdx.x%threadsPerBlock;

if ( threadMod%64 < 32) {

//do some stuff

} else {

// do some other stuff

}

}



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