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

**Unit 4: OpenMP**

**Lesson 9: Sieve of Eratosthenes**

**Sample Assessment**

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For the following code, analyze the nested loop, and describe all loop carried dependencies. How would you implement parallelization for this problem?

#define N 100

int main(int argc, char \*\* argv) {

int it;

int ix;

double x[N];

double y[N];

x[0]=0;

x[N-1]=10;

for(it = 0;it<10;it++) {

for(ix=1;ix<N-1;ix++) {

y[ix]=0.5\*(x[ix-1]+x[ix+1]);

}

for(ix=1;ix<N-1;ix++) {

x[ix]=0.5\*(y[ix-1]+y[ix+1]);

}

}

}