Assignment – 3

ASU ID: 1218418357 Name: Vasundhara Venkata Krishna

Execution Times:

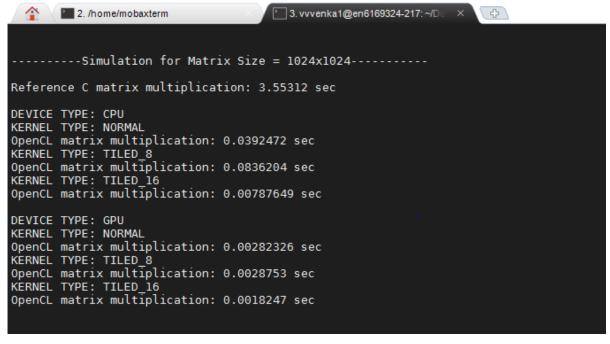
Matrix	Reference	OpenCL on CPU			OpenCL on GPU		
Size	C Implemen tation (Single Thread) (s)	Normal Kernel (Tile Size = 16) (s)	Tiled Kernel (Tile Size = 8) (s)	Tiled Kernel (Tile Size = 16) (s)	Normal Kernel (s)	Tiled Kernel (Tile Size = 8) (s)	Tiled Kernel (Tile Size = 16) (s)
512 X 512	0.211567	0.00152681	0.0187209	0.00169767	0.00036857	0.00037097	0.000243648
1024 X1024	3.55312	0.0392472	0.0836204	0.00787649	0.00282326	0.0028753	0.0018247
2048 X 2048	51.62	0.292979	0.697396	0.079308	0.0229774	0.0229578	0.014518

Device Type and Models:

Device Type	Model Name			
CPU	Intel® Core™ i9-9820X CPU @ 3.30GHz			
GPU	Quadro RTX 5000			

Screenshots of the Result:

```
2. /home/mobaxterm
                                             2 3. vvvenka1@en6169324-217: ~/D○ × ♣
Last login: Sun Apr 26 21:08:29 2020 from 172.31.26.212
vvvenkal@en6169324-217:~$ cd Downloads
vvvenkal@en6169324-217:~/Downloads$ make all
g++ -03 -std=c++11 main.cpp -o matrix_mul -l0penCL
vvvenkal@en6169324-217:~/Downloads$ g++ -03 -std=c++11 main.cpp -o matrix_mul -l0penCL vvvenkal@en6169324-217:~/Downloads$ ./matrix_mul
------Simulation for Matrix Size = 512x512-----
Reference C matrix multiplication: 0.211567 sec
DEVICE TYPE: CPU
KERNEL TYPE: NORMAL
OpenCL matrix multiplication: 0.00152681 sec
KERNEL TYPE: TILED 8
OpenCL matrix multiplication: 0.0187209 sec
KERNEL TYPE: TILED_16
OpenCL matrix multiplication: 0.00169767 sec
DEVICE TYPE: GPU
KERNEL TYPE: NORMAL
OpenCL matrix multiplication: 0.000368576 sec
KERNEL TYPE: TILED_8
OpenCL matrix multiplication: 0.000370976 sec
KERNEL TYPE: TILED_16
OpenCL matrix multiplication: 0.000243648 sec
```



```
------Simulation for Matrix Size = 2048x2048------
Reference C matrix multiplication: 51.62 sec
DEVICE TYPE: CPU
KERNEL TYPE: NORMAL
OpenCL matrix multiplication: 0.292979 sec
KERNEL TYPE: TILED_8
OpenCL matrix multiplication: 0.697396 sec
KERNEL TYPE: TILED_16
OpenCL matrix multiplication: 0.079308 sec
DEVICE TYPE: GPU
KERNEL TYPE: NORMAL
OpenCL matrix multiplication: 0.0229774 sec
KERNEL TYPE: TILED_8
OpenCL matrix multiplication: 0.0229578 sec
KERNEL TYPE: TILED_16
OpenCL matrix multiplication: 0.014518 sec
Press Enter to finish...
```