**CUDA Filter**

**ECEN 5593 – Advanced Computer Architecture**

**Name**: Adarsh Anand Kulkarni

Provide the execution time for the Sobel filter (3x3):

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | GPU Execution Time (ms) | CPU Execution Time (ms) | Speedup (ms) |
| lena.bmp | 0.184 | 2.654 | 2.47 |
| dublin.bmp | 2.256 | 63.61 | 61.354 |

Average Filter :

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | GPU Execution Time (ms) | CPU Execution Time (ms) | Speedup (ms) |
| lena.bmp | 0.186 | 1.353 | 1.167 |
| dublin.bmp | 2.317 | 38.470001 | 36.153001 |

Boost Filter :

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | GPU Execution Time (ms) | CPU Execution Time (ms) | Speedup (ms) |
| lena.bmp | 0.243 | 6.926 | 6.683 |
| dublin.bmp | 2.3 | 94.373001 | 92.073001 |

Execution time for the Sobel filter (5x5):

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | GPU Execution Time (ms) | CPU Execution Time (ms) | Speedup (ms) |
| lena.bmp | 0.26 | 6.907 | 6.647 |
| dublin.bmp | 3.23 | 168.251999 | 165.022 |

You must submit your .cu to include a sobel5by5 kernel, and calculate the execution times and speedups:

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | 3x3 GPU Execution Time (ms) | 5x5 GPU Execution Time (ms) | Speedup (ms) |
| lena.bmp | 0.184 | 0.26 | -0.076 |
| dublin.bmp | 2.256 | 3.23 | -0.974 |