M2-BIG DATA
GPGPU - Chapter 12

Exercice 2

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Objectives

Optimize the convolution kernel obtained from chapter 8.

Instructions

- Profile your code from Chapter 8 with tiled convolution kernel using a kernel with k = 2 on the 4k image

- Create a new version of the code using pinned host memory. Profile this new version. What are the changes in throughput for the copies ?

- Adapt the algorithm to handle the entire image with streams. Explain your strategy. Profile the new version and report the total execution time from start of the first copy to end of last copy.

  Indication : Start with an overlapping of the result copy to host and the kernel execution

- Use the Occupancy calculator and the occupancy analysis of the profiler to adjust tile_width, grid and blocks threads dimensions. What is the gain in execution time for your code ?

La fin.