Programowanie Równoległe na Architekturach Wielordzeniowych

Parallel programming for multi-core architectures

2024/2025

L1

Task:

Implement solution which calculates the average value over integer numbers within array of length N. Numbers should be randomly generated, before calculations, within defined range <A;B>.

Implementation should be written in CUDA. Prepare two versions:

1. without shared memory
2. with shared memory (realizing faster computations)

During task presentation both codes should be implemented and code execution should be compared using *ncu* tool.

Compilation of sample codes:

nvcc raw.cu -o raw

nvcc shared.cu -o shared

sample usage of ncu

ncu ./raw

ncu ./shared

Additional sources:

https://developer.nvidia.com/blog/using-shared-memory-cuda-cc/

https://docs.nvidia.com/cuda/cuda-c-programming-guide/index.html#memory-hierarchy

https://docs.nvidia.com/nsight-compute/NsightComputeCli/index.html