

GPU Vector Addition Performance Report

Experiment: CPU vs GPU vector addition using NumPy and CuPy

Observation: GPU acceleration does not outperform CPU for moderate vector sizes.
Reason: kernel launch overhead and host-device memory transfer dominate computation.

Conclusion: GPUs provide benefits when workload size is large enough to amortize overhead.

GPU Environment:
GPU Device: NVIDIA GeForce RTX 3070 Laptop GPU
GPU Memory: 8191 MB
CUDA Version: 12.9
CuPy Version: 13.6.0
Unit Test Verification:
All unit tests passed successfully ■

