

Matrix Multiplication

GPUPe Teaching Kit — Accelerated Computing

– Part I:

OBJECTIVE:

Implement a basic dense matrix multiplication routine.

INSTRUCTIONS:

Write the code to perform the following:

- o allocate device memory
- o copy host memory to device
- o initialize thread block and kernel grid dimensions
- o invoke CUDA kernel
- o copy results from device to host
- o deallocate device memory

– Part II:

OBJECTIVE:

Implement a tiled dense matrix multiplication routine using shared memory.

INSTRUCTIONS:

Adapt the code in part I. In particular::

- o _ implement the matrix-matrix multiplication routine using shared memory and tiling
- o _ Evaluate the performance improvements