Lab (2)

|  |  |  |
| --- | --- | --- |
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## Requirement(1) [Matrix Addition]:

### Kernel (1) Each Thread Produces one output matrix element:

#### Case(1) 3\*4 Matrix

With configuration that kernel size 16\*16 and one thread per element so:

A black background with white text

Description automatically generated

A screen shot of a computer

Description automatically generated

### Kernel(2) Each Thread Produces one output matrix row:

#### Case(1) 3\*4 Matrix

With configuration that kernel size 256 and one thread per rows so:

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Description automatically generated

A screen shot of a computer

Description automatically generated

### Kernel(3) Each Thread Produces one output matrix column:

#### Case(1) 3\*4 Matrix

With configuration that kernel size 256 and one thread per rows so:

A black background with white text

Description automatically generated

A screen shot of a computer screen

Description automatically generated

Comments:

* Case 3\*4 it is clear that the kernel 1 is the fastest regarding computing the addition function and nearly the 3 kernels have near copying time form host to device and vice versa 😊
* We think whatever the matrix size, kernel (1) will be the fastest Are we right ?! 🤔 Let’s see <3

|  |  |  |  |
| --- | --- | --- | --- |
| Matrix Shape | Kernel(1) [element] | Kernel(2) [row] | Kernel(3) [col] |
| 3\*4 |  |  |  |
| 2\*2 |  |  |  |
| 2\*4 |  |  |  |
| 100\*100 |  |  |  |
| 50\*200 |  |  |  |
| 200\*50 |  |  |  |
| 1000\*1000 |  |  |  |
| 1000000\*1 |  |  |  |
| 1\*1000000 |  |  |  |

**Trying Different Configuration for the Block Size:**

Case (1) 16\*16 🡺 Show above

Case (2) 4\*4

Case (3) 32\*48

## Requirement(2) [Matrix Multiplication]: