

جدول راه حل دو: (زمان و Speedup)

```

[-] Block Size = 4
[-] Grid Size = 64
Tile Width: 32
MatrixA(256,256), MatrixB(256,256)
Computing result using CUDA Kernel...
CUDA elapsed time in msec = 2.202656
All is right with the world.
Serial time difference = 18 ms
All is right with the world.
Speed up: 8.17195

[-] Block Size = 8
[-] Grid Size = 32
Tile Width: 32
MatrixA(256,256), MatrixB(256,256)
Computing result using CUDA Kernel...
CUDA elapsed time in msec = 1.615232
All is right with the world.
Serial time difference = 19 ms
All is right with the world.
Speed up: 11.763

```

روش سوم به صورت پیش فرض به خطا برمی‌خورد و باید با تغییر دادن تنظیمات tdr از قسمت nsight monitor آن را به کار انداخت

```

[-] Block Size = 32
[-] Grid Size = 128
Tile Width: 32
MatrixA(4096,4096), MatrixB(4096,4096)
Computing result using CUDA Kernel...
CUDA elapsed time in msec = 5940.917480
All is right with the world.
Serial time difference = 404784 ms
All is right with the world.
Speed up: 68.1349

```

جدول راه حل دو: (Occupancy ها با استفاده از nsight):

| Configuration | |
|--------------------------------------|---------------------|
| Grid Dimensions | {64, 64, 1} 4096 |
| Block Dimensions | {4, 4, 1} 16 |
| Occupancy | 50.00% |
| Registers per Thread | 16 |
| Static Shared Memory per Block | 0 bytes |
| Dynamic Shared Memory per Block | 0 bytes |
| Shared Memory Configuration Executed | FOUR_BYTE_BANK_SIZE |
| Local Memory per Thread | 0 bytes |
| Local Memory | 3,670,016 bytes |
| Cache Configuration Requested | PREFER_NONE |
| Cache Configuration Executed | PREFER_SHARED |
| Cache Configuration Changed | False |
| Dynamic Parallelism | |

| Configuration | |
|--------------------------------------|---------------------|
| Grid Dimensions | {32, 32, 1} 1024 |
| Block Dimensions | {8, 8, 1} 64 |
| Occupancy | 100.00% |
| Registers per Thread | 16 |
| Static Shared Memory per Block | 0 bytes |
| Dynamic Shared Memory per Block | 0 bytes |
| Shared Memory Configuration Executed | FOUR_BYTE_BANK_SIZE |
| Local Memory per Thread | 0 bytes |
| Local Memory | 3,670,016 bytes |
| Cache Configuration Requested | PREFER_NONE |
| Cache Configuration Executed | PREFER_SHARED |
| Cache Configuration Changed | False |

| Configuration | |
|--------------------------------------|---------------------|
| Grid Dimensions | {128, 128, 1} 16384 |
| Block Dimensions | {32, 32, 1} 1024 |
| Occupancy | 100.00% |
| Registers per Thread | 32 |
| Static Shared Memory per Block | 0 bytes |
| Dynamic Shared Memory per Block | 0 bytes |
| Shared Memory Configuration Executed | FOUR_BYTE_BANK_SIZE |
| Local Memory per Thread | 0 bytes |
| Local Memory | 3,670,016 bytes |
| Cache Configuration Requested | PREFER_NONE |
| Cache Configuration Executed | PREFER_SHARED |
| Cache Configuration Changed | False |

| | 4*4, 64*64 | 8*8, 32*32 | 32*32, 128*128 |
|--------------|------------|------------|----------------|
| Elapsed Time | 2.202 | 1.615 | 5941 |
| Speedup | 8.1719 | 11.763 | 68.14 |
| Occupancy | 50% | 100% | 100% |

گام سوم.

زمان‌های cuBLAS:

```

[-] N = 32
MatrixA(32,32), MatrixB(32,32)
Elapsed time in msec = 0.02208
[-] N = 128
MatrixA(128,128), MatrixB(128,128)
Elapsed time in msec = 0.026464
[-] N = 256
MatrixA(256,256), MatrixB(256,256)
Elapsed time in msec = 0.100576
[-] N = 512
MatrixA(512,512), MatrixB(512,512)
Elapsed time in msec = 0.708352

```

زمان‌های روش دوم:

```

[-] N = 32
Tile Width: 32
MatrixA(32,32), MatrixB(32,32)
Computing result using CUDA Kernel...
Elapsed time in msec = 0.014688
All is right with the world.

[-] N = 128
Tile Width: 32
MatrixA(128,128), MatrixB(128,128)
Computing result using CUDA Kernel...
Elapsed time in msec = 0.145344
All is right with the world.

[-] N = 256
Tile Width: 32
MatrixA(256,256), MatrixB(256,256)
Computing result using CUDA Kernel...
Elapsed time in msec = 1.084096
All is right with the world.

[-] N = 512
Tile Width: 32
MatrixA(512,512), MatrixB(512,512)
Computing result using CUDA Kernel...
Elapsed time in msec = 10.172320
All is right with the world.

```

| | 32 | 128 | 256 | 512 |
|---------|-------|-------|-------|--------|
| گام دوم | 0.014 | 0.145 | 1.08 | 10.17 |
| cuBLAS | 0.022 | 0.026 | 0.1 | 0.708 |
| Speedup | 1.571 | 5.577 | 10.81 | 14.364 |