

## گام (۱)

کار اجرای کد بر روی google colab انجام شده است و نتیجه خروجی آن به صورت زیر می باشد.

```

./deviceQuery.cu: In function 'int main(int, char**)':
./deviceQuery.cu:73:96: warning: format '%u' expects argument of type 'unsigned int', but argument 2 has type 'size_t {aka long unsigned int}' [-Wformat=]

./deviceQuery.cu:81:95: warning: format '%u' expects argument of type 'unsigned int', but argument 2 has type 'size_t {aka long unsigned int}' [-Wformat=]

./deviceQuery.cu:83:99: warning: format '%u' expects argument of type 'unsigned int', but argument 2 has type 'size_t {aka long unsigned int}' [-Wformat=]

./deviceQuery.cu:99:90: warning: format '%u' expects argument of type 'unsigned int', but argument 2 has type 'size_t {aka long unsigned int}' [-Wformat=]

./deviceQuery.cu:101:98: warning: format '%u' expects argument of type 'unsigned int', but argument 2 has type 'size_t {aka long unsigned int}' [-Wformat=]

There is 1 device supporting CUDA

Device 0: "Tesla T4"
Major revision number:      7
Minor revision number:      5
Total amount of global memory: 2958819328 bytes
Number of multiprocessors:  40
Number of cores:            320
Total amount of constant memory: 65536 bytes
Total amount of shared memory per block: 49152 bytes
Total number of registers available per block: 65536
Warp size:                  32
Maximum number of threads per block: 1024
Maximum sizes of each dimension of a block: 1024 x 1024 x 64
Maximum sizes of each dimension of a grid: 2147483647 x 65535 x 65535
Maximum memory pitch:       2147483647 bytes
Texture alignment:          512 bytes
Clock rate:                  1.59 GHz
Concurrent copy and execution: Yes

TEST PASSED

```

## گام (۲)

نتایج اجرا برای حالت cpu و gpu به صورت زیر می باشد.

```

[22] !nvcc -gencode arch=compute_37,code=sm_37 ./vectorAdd.cu -o kernel
!chmod +x ./kernel
!./kernel

nvcc warning : The 'compute_35', 'compute_37', 'compute_50', 'sm_35', 'sm_37' and 'sm_50' architectures are deprecated, and may be removed in a future release (Use -Wno-deprecated-gpu-targets to
[-] Vector elements: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88,
elapsed_time : 0.004800

!nvcc -gencode arch=compute_37,code=sm_37 ./vectorAddGpu.cu -o kernel
!chmod +x ./kernel
!./kernel

nvcc warning : The 'compute_35', 'compute_37', 'compute_50', 'sm_35', 'sm_37' and 'sm_50' architectures are deprecated, and may be removed in a future release (Use -Wno-deprecated-gpu-targets to
elapsed_time : 0.003232[-] Vector elements: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76,

```

همان طور که دیده می شود. در حالت gpu زمان اجرا اندکی کمتر است و علت این اختلاف اندک کم بودن حجم کلی محاسبات و سربار انتقال کارها به gpu می باشد.