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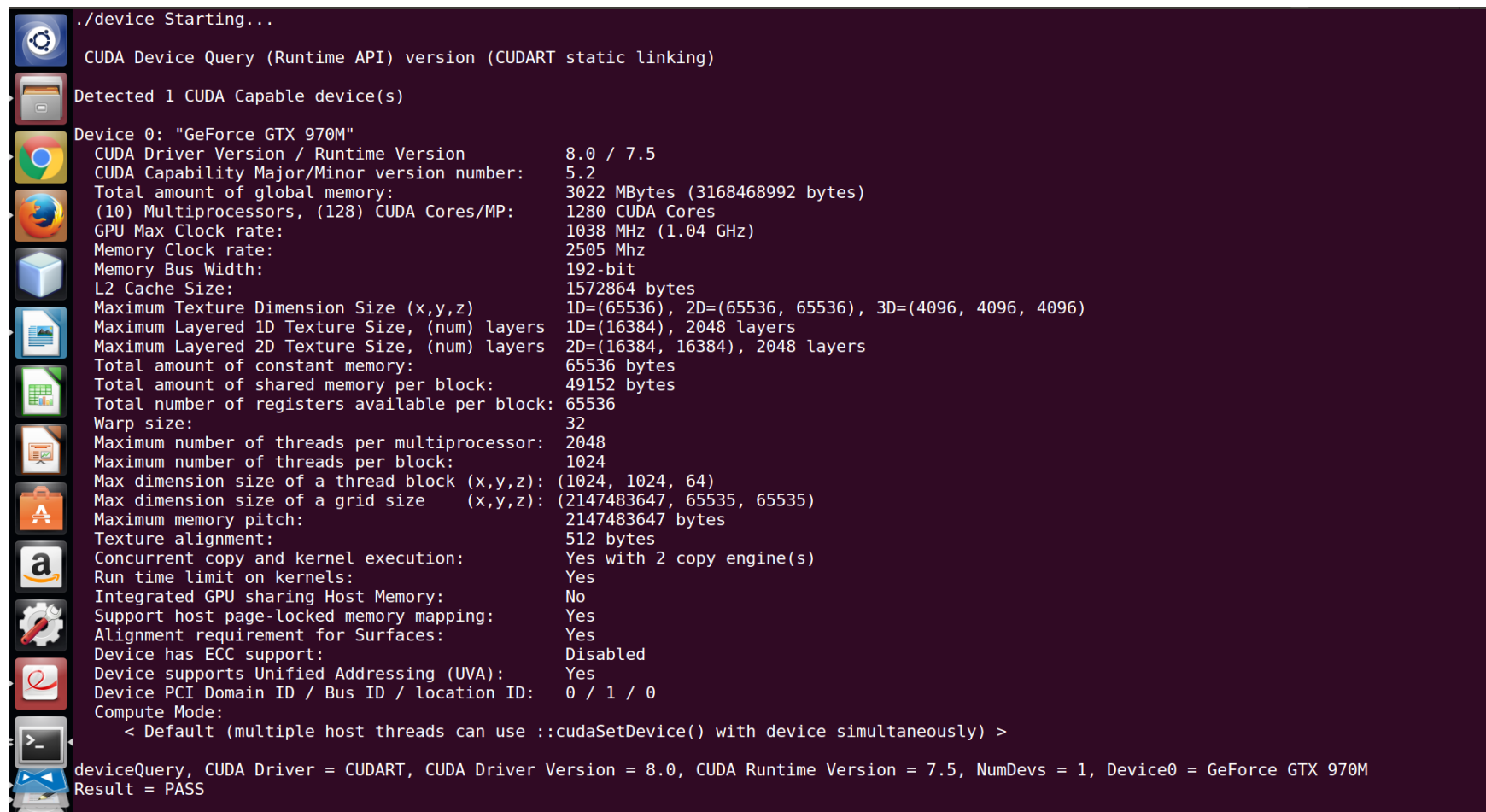
El tiempo puesto en las tablas está en milisegundos y es el tiempo total en cada caso.

La imagen a cargar es una imagen ≥ 20 Mpx $5704 * 3752$ se utilizó el algoritmo de Prewitt

Para compilar se debe poner lo siguiente:

```
nvcc -o image_test edgeDetectorCPU.cu -lopencv_core -lopencv_highgui -lopencv_imgproc -w
```

Características de la computadora (La actividad se realizó en Alienware 17 R3) con OpenCV



```
./device Starting...  
CUDA Device Query (Runtime API) version (CUDA static linking)  
Detected 1 CUDA Capable device(s)  
Device 0: "GeForce GTX 970M"  
  CUDA Driver Version / Runtime Version      8.0 / 7.5  
  CUDA Capability Major/Minor version number: 5.2  
  Total amount of global memory:             3022 MBytes (3168468992 bytes)  
  (10) Multiprocessors, (128) CUDA Cores/MP: 1280 CUDA Cores  
  GPU Max Clock rate:                        1038 MHz (1.04 GHz)  
  Memory Clock rate:                         2505 Mhz  
  Memory Bus Width:                          192-bit  
  L2 Cache Size:                             1572864 bytes  
  Maximum Texture Dimension Size (x,y,z)     1D=(65536), 2D=(65536, 65536), 3D=(4096, 4096, 4096)  
  Maximum Layered 1D Texture Size, (num) layers 1D=(16384), 2048 layers  
  Maximum Layered 2D Texture Size, (num) layers 2D=(16384, 16384), 2048 layers  
  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 multiprocessor: 2048  
  Maximum number of threads per block:        1024  
  Max dimension size of a thread block (x,y,z): (1024, 1024, 64)  
  Max dimension size of a grid size    (x,y,z): (2147483647, 65535, 65535)  
  Maximum memory pitch:                     2147483647 bytes  
  Texture alignment:                         512 bytes  
  Concurrent copy and kernel execution:      Yes with 2 copy engine(s)  
  Run time limit on kernels:                  Yes  
  Integrated GPU sharing Host Memory:         No  
  Support host page-locked memory mapping:    Yes  
  Alignment requirement for Surfaces:         Yes  
  Device has ECC support:                     Disabled  
  Device supports Unified Addressing (UVA):    Yes  
  Device PCI Domain ID / Bus ID / location ID: 0 / 1 / 0  
  Compute Mode:  
    < Default (multiple host threads can use ::cudaSetDevice() with device simultaneously) >  
deviceQuery, CUDA Driver = CUDART, CUDA Driver Version = 8.0, CUDA Runtime Version = 7.5, NumDevs = 1, Device0 = GeForce GTX 970M  
Result = PASS
```

La ejecución para CPU se puede pasar el nombre de la imagen
./image_test megaPixel.jpg

Ejecución en GPU se pasa el nombre de la imagen, seguido por el no. de threads y no. de bloques.

./image_test megaPixel.jpg 992 21574

Las matrices a utilizar en el algoritmo de Prewitt son las siguientes.

$$h_x = \begin{bmatrix} -1 & 0 & 1 \\ -1 & 0 & 1 \\ -1 & 0 & 1 \end{bmatrix}, \quad h_y = \begin{bmatrix} -1 & -1 & -1 \\ 0 & 0 & 0 \\ 1 & 1 & 1 \end{bmatrix}$$

Iteración	CPU	GPU Bloques y Threads
1	2144.136963	7.315904
2	2160.153320	7.396288
Promedio	2152.15	7.36

A continuación vemos la imagen en sus 2 variantes

