

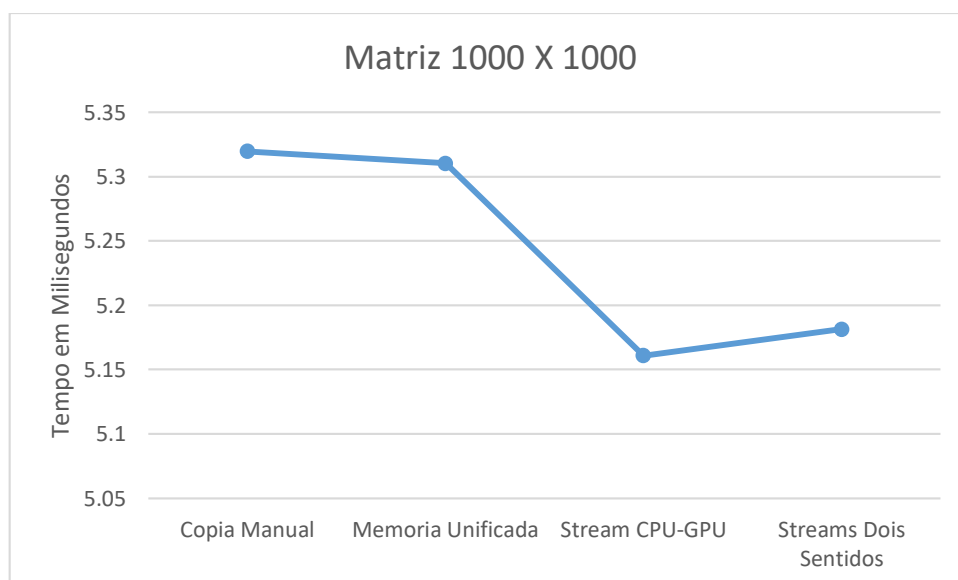
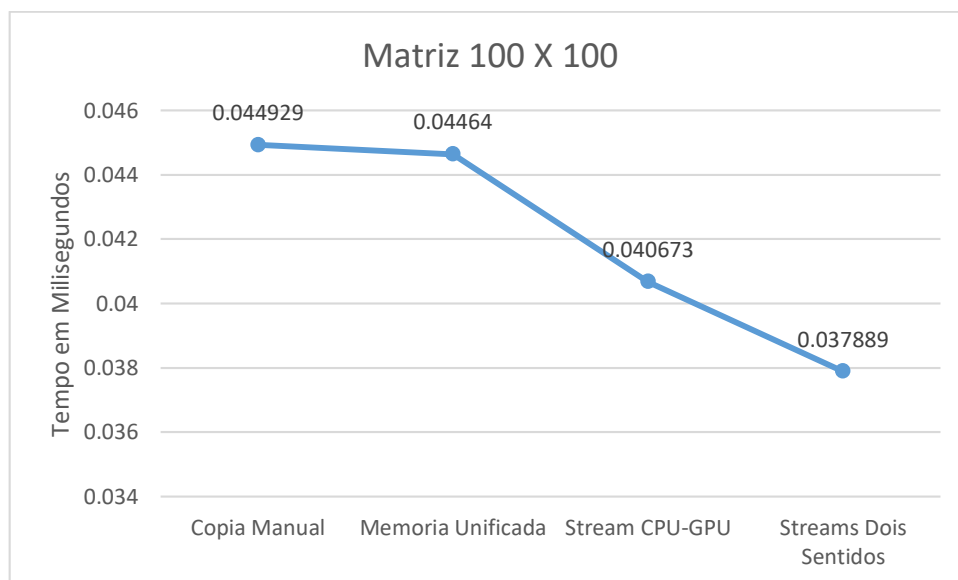
RESULTADOS DOS TESTES

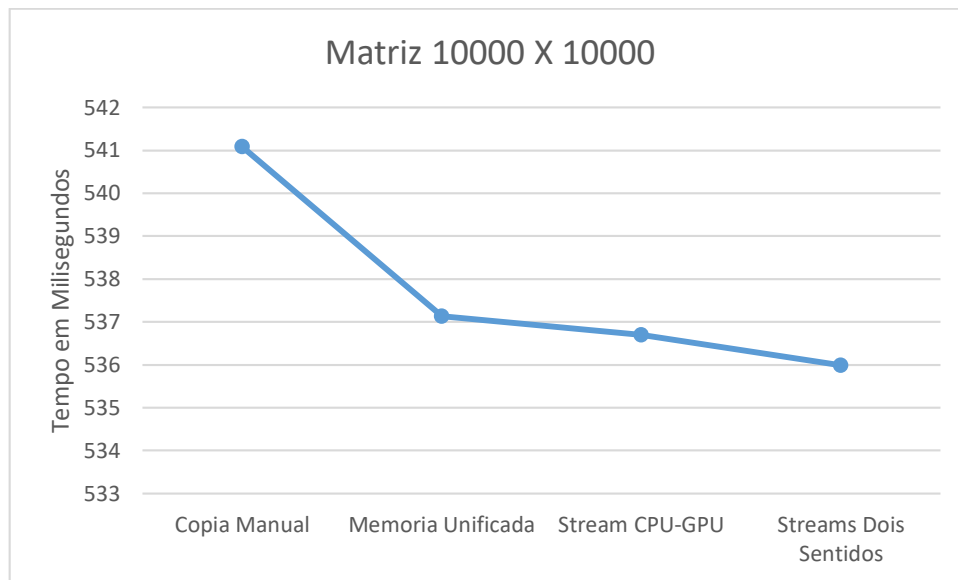
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Disciplina: Arquitetura e Programação de GPUs

RESUMO DOS TESTES (GPU Activities):

	Copia manual	Memoria Unificada	Stream CPU-GPU	Stream Dois Sentidos
Matriz 100 X 100	44.929 us	44.64 us	40.673 us	37.889 us
Matriz 1000 X 1000	5.3197 ms	5.3102 ms	5.1609 ms	5.1813 ms
Matriz 10000 X 10000	541.083 ms	537.128 ms	536.692 ms	535.184 ms





CAPTURAS DE TELA:

- Cópia manual de memória:
 - Matriz 100 x 100:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==32305== NVPROF is profiling process 32305, command: ./mA
==32305== Profiling application: ./mA
==32305== Profiling result:
Type      Time(%)      Time      Calls      Avg      Min      Max      Name
GPU activities: 45.02%  20.225us    1  20.225us  20.225us  20.225us  [CUDA memcpy DtoH]
              41.95%  18.848us    1  18.848us  18.848us  18.848us  [CUDA memcpy HtoD]
              13.03%  5.8560us    1  5.8560us  5.8560us  5.8560us  blur(int*, int*)
API calls: 99.32%  94.690ms    2  47.345ms  5.9200us  94.684ms  cudaMalloc
              0.37%  348.97us   96  3.6350us  165ns   220.91us  cuDeviceGetAttribute
              0.09%  82.782us    1  82.782us  82.782us  82.782us  cuDeviceTotalMem
              0.07%  70.629us    2  35.314us  7.2260us  63.403us  cudaFree
              0.06%  59.761us    2  29.880us  14.147us  45.614us  cudaMemcpy
              0.04%  41.840us    1  41.840us  41.840us  41.840us  cuDeviceGetName
              0.02%  21.282us    1  21.282us  21.282us  21.282us  cudaLaunchKernel
              0.02%  15.692us    1  15.692us  15.692us  15.692us  cudaDeviceSynchronize
              0.01%  5.3830us    1  5.3830us  5.3830us  5.3830us  cuDeviceGetPCIBusId
              0.00%  2.2340us    3    744ns   165ns   1.7530us  cuDeviceGetCount
              0.00%  1.4760us    2    738ns   183ns   1.2930us  cuDeviceGet
              0.00%    305ns     1    305ns   305ns   305ns   cuDeviceGetUuid
```

- Matriz 1000 x 1000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==32524== NVPROF is profiling process 32524, command: ./mA
==32524== Profiling application: ./mA
==32524== Profiling result:
Type Time(%) Time Calls Avg Min Max Name
GPU activities: 44.61% 2.3731ms 1 2.3731ms 2.3731ms 2.3731ms [CUDA memcpy HtoD]
43.72% 2.3256ms 1 2.3256ms 2.3256ms 2.3256ms [CUDA memcpy DtoH]
11.67% 620.99us 1 620.99us 620.99us 620.99us blur(int*, int*)
API calls: 93.29% 104.72ms 2 52.360ms 85.213us 104.63ms cudaMalloc
3.53% 3.9643ms 2 1.9822ms 1.5026ms 2.4617ms cudaMemcpy
1.47% 1.6476ms 1 1.6476ms 1.6476ms 1.6476ms cudaDeviceSynchronize
0.91% 1.0237ms 96 10.663us 497ns 450.04us cuDeviceGetAttribute
0.39% 436.10us 2 218.05us 109.00us 327.10us cudaFree
0.25% 277.55us 1 277.55us 277.55us 277.55us cuDeviceTotalMem
0.13% 143.43us 1 143.43us 143.43us 143.43us cuDeviceGetName
0.02% 26.899us 1 26.899us 26.899us 26.899us cudaLaunchKernel
0.01% 6.3840us 3 2.1280us 528ns 3.7620us cuDeviceGetCount
0.00% 5.1540us 1 5.1540us 5.1540us 5.1540us cuDeviceGetPCIBusId
0.00% 2.9060us 2 1.4530us 797ns 2.1090us cuDeviceGet
0.00% 961ns 1 961ns 961ns 961ns cuDeviceGetUuid
```

- Matriz 10000 x 10000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==320== NVPROF is profiling process 320, command: ./mA
==320== Profiling application: ./mA
==320== Profiling result:
Type Time(%) Time Calls Avg Min Max Name
GPU activities: 44.81% 242.48ms 1 242.48ms 242.48ms 242.48ms [CUDA memcpy HtoD]
43.24% 233.98ms 1 233.98ms 233.98ms 233.98ms [CUDA memcpy DtoH]
11.94% 64.623ms 1 64.623ms 64.623ms 64.623ms blur(int*, int*)
API calls: 70.12% 475.92ms 2 237.96ms 234.07ms 241.85ms cudaMemcpy
15.62% 106.05ms 2 53.023ms 510.54us 105.54ms cudaMalloc
9.65% 65.471ms 1 65.471ms 65.471ms 65.471ms cudaDeviceSynchronize
4.44% 30.125ms 2 15.062ms 398.12us 29.727ms cudaFree
0.12% 786.78us 96 8.1950us 494ns 364.47us cuDeviceGetAttribute
0.04% 252.68us 1 252.68us 252.68us 252.68us cuDeviceTotalMem
0.02% 110.39us 1 110.39us 110.39us 110.39us cuDeviceGetName
0.00% 28.734us 1 28.734us 28.734us 28.734us cudaLaunchKernel
0.00% 5.5370us 3 1.8450us 493ns 4.3080us cuDeviceGetCount
0.00% 3.1510us 1 3.1510us 3.1510us 3.1510us cuDeviceGetPCIBusId
0.00% 3.0250us 2 1.5120us 500ns 2.5250us cuDeviceGet
0.00% 934ns 1 934ns 934ns 934ns cuDeviceGetUuid
```

- Memoria Unificada:
 - Matriz 100 x 100:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==509== NVPROF is profiling process 509, command: ./mA
==509== Profiling application: ./mA
==509== Profiling result:
Type Time(%) Time Calls Avg Min Max Name
GPU activities: 45.45% 20.288us 1 20.288us 20.288us 20.288us [CUDA memcpy DtoH]
41.36% 18.464us 1 18.464us 18.464us 18.464us [CUDA memcpy HtoD]
13.19% 5.8880us 1 5.8880us 5.8880us 5.8880us blur(int*, int*)
API calls: 98.72% 132.25ms 2 66.125ms 50.224us 132.20ms cudaMallocManaged
0.56% 747.26us 96 7.7830us 499ns 334.22us cuDeviceGetAttribute
0.25% 338.93us 2 169.47us 129.34us 209.59us cudaMemcpy
0.17% 233.37us 1 233.37us 233.37us 233.37us cuDeviceTotalMem
0.12% 154.10us 2 77.049us 43.447us 110.65us cudaFree
0.08% 110.23us 1 110.23us 110.23us 110.23us cudaLaunchKernel
0.07% 95.258us 1 95.258us 95.258us 95.258us cuDeviceGetName
0.01% 16.672us 1 16.672us 16.672us 16.672us cudaDeviceSynchronize
0.00% 5.5310us 3 1.8430us 469ns 4.2020us cuDeviceGetCount
0.00% 4.4100us 1 4.4100us 4.4100us 4.4100us cuDeviceGetPCIBusId
0.00% 3.0390us 2 1.5190us 568ns 2.4710us cuDeviceGet
0.00% 918ns 1 918ns 918ns 918ns cuDeviceGetUuid
```

- Matriz 1000 x 1000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==1253== NVPROF is profiling process 1253, command: ./mA
==1253== Profiling application: ./mA
==1253== Profiling result:
Type      Time(%)      Time      Calls      Avg      Min      Max      Name
GPU activities: 44.51%  2.3687ms      1  2.3687ms  2.3687ms  2.3687ms  [CUDA memcpy HtoD]
              43.80%  2.3311ms      1  2.3311ms  2.3311ms  2.3311ms  [CUDA memcpy DtoH]
              11.69%  622.28us      1  622.28us  622.28us  622.28us  blur(int*, int*)
API calls: 94.78%  130.17ms      2  65.087ms  511.38us  129.66ms  cudaMallocManaged
              3.76%  5.1681ms      2  2.5841ms  2.4780ms  2.6901ms  cudaMemcpy
              0.46%  629.42us      1  629.42us  629.42us  629.42us  cudaDeviceSynchronize
              0.34%  468.14us      96  4.8760us  487ns  195.85us  cuDeviceGetAttribute
              0.33%  452.95us      2  226.48us  215.35us  237.60us  cudaFree
              0.22%  296.21us      1  296.21us  296.21us  296.21us  cuDeviceTotalMem
              0.07%  93.152us      1  93.152us  93.152us  93.152us  cuDeviceGetName
              0.03%  43.477us      1  43.477us  43.477us  43.477us  cudaLaunchKernel
              0.00%  5.5120us      3  1.8370us  539ns  4.1990us  cuDeviceGetCount
              0.00%  4.0070us      1  4.0070us  4.0070us  4.0070us  cuDeviceGetPCIBusId
              0.00%  2.7320us      2  1.3660us  597ns  2.1350us  cuDeviceGet
              0.00%  940ns      1  940ns  940ns  940ns  cuDeviceGetUuid
```

- Matriz 10000 x 10000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Clases en
laboratorio/matrizAleatoria$ nvprof ./mA
==971== NVPROF is profiling process 971, command: ./mA
==971== Profiling application: ./mA
==971== Profiling result:
Type      Time(%)      Time      Calls      Avg      Min      Max      Name
GPU activities: 44.39%  238.43ms      1  238.43ms  238.43ms  238.43ms  [CUDA memcpy HtoD]
              43.57%  234.03ms      1  234.03ms  234.03ms  234.03ms  [CUDA memcpy DtoH]
              12.04%  64.668ms      1  64.668ms  64.668ms  64.668ms  blur(int*, int*)
API calls: 59.14%  472.95ms      2  236.47ms  234.14ms  238.81ms  cudaMemcpy
              23.92%  191.30ms      2  95.648ms  28.733ms  162.56ms  cudaMallocManaged
              8.70%  69.609ms      2  34.804ms  32.250ms  37.359ms  cudaFree
              8.09%  64.715ms      1  64.715ms  64.715ms  64.715ms  cudaDeviceSynchronize
              0.10%  784.05us      96  8.1670us  489ns  355.84us  cuDeviceGetAttribute
              0.03%  230.31us      1  230.31us  230.31us  230.31us  cuDeviceTotalMem
              0.01%  91.834us      1  91.834us  91.834us  91.834us  cuDeviceGetName
              0.01%  53.081us      1  53.081us  53.081us  53.081us  cudaLaunchKernel
              0.00%  5.0360us      3  1.6780us  598ns  3.5880us  cuDeviceGetCount
              0.00%  4.6040us      1  4.6040us  4.6040us  4.6040us  cuDeviceGetPCIBusId
              0.00%  2.8520us      2  1.4260us  599ns  2.2530us  cuDeviceGet
              0.00%  901ns      1  901ns  901ns  901ns  cuDeviceGetUuid
```

- Stream para copia de CPU-GPU:

- Matriz 100 x 100:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streCPUGPU
==18915== NVPROF is profiling process 18915, command: ./streCPUGPU
==18915== Profiling application: ./streCPUGPU
==18915== Profiling result:
Type      Time(%)      Time      Calls      Avg      Min      Max      Name
GPU activities: 48.55%  19.745us      1  19.745us  19.745us  19.745us  [CUDA memcpy DtoH]
              29.90%  12.160us      4  3.0400us  2.4960us  4.1600us  blur(int*, int*, int)
              21.56%  8.7680us      4  2.1920us  2.1440us  2.2720us  [CUDA memcpy HtoD]
API calls: 98.38%  115.03ms      2  57.517ms  49.107us  114.98ms  cudaMallocManaged
              0.76%  883.51us      4  220.88us  84.868us  460.67us  cudaMemcpyAsync
              0.29%  343.17us      96  3.5740us  164ns  217.14us  cuDeviceGetAttribute
              0.13%  156.51us      2  78.255us  45.522us  110.99us  cudaFree
              0.12%  135.62us      4  33.905us  18.775us  54.421us  cudaLaunchKernel
              0.11%  122.82us      1  122.82us  122.82us  122.82us  cudaMemcpy
              0.07%  85.986us      1  85.986us  85.986us  85.986us  cuDeviceTotalMem
              0.05%  55.434us      4  13.858us  3.7290us  43.616us  cudaStreamCreate
              0.04%  44.061us      1  44.061us  44.061us  44.061us  cuDeviceGetName
              0.02%  28.161us      1  28.161us  28.161us  28.161us  cudaDeviceSynchronize
              0.02%  26.046us      4  6.5110us  4.4210us  12.231us  cudaStreamDestroy
              0.00%  3.7930us      1  3.7930us  3.7930us  3.7930us  cuDeviceGetPCIBusId
              0.00%  2.3430us      3  781ns  179ns  1.8550us  cuDeviceGetCount
              0.00%  1.1200us      2  560ns  188ns  932ns  cuDeviceGet
              0.00%  293ns      1  293ns  293ns  293ns  cuDeviceGetUuid
```


- Matriz 1000 x 1000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streCPUGPU
==19615== NVPROF is profiling process 19615, command: ./streCPUGPU
==19615== Profiling application: ./streCPUGPU
==19615== Profiling result:
```

Type	Time(%)	Time	Calls	Avg	Min	Max	Name
GPU activities:	47.59%	2.4561ms	16	153.51us	148.64us	165.41us	[CUDA memcpy HtoD]
	45.35%	2.3407ms	1	2.3407ms	2.3407ms	2.3407ms	[CUDA memcpy DtoH]
	7.05%	364.10us	16	22.756us	20.160us	45.345us	blur(int*, int*, int)
API calls:	94.85%	115.93ms	2	57.964ms	503.25us	115.43ms	cudaMallocManaged
	2.04%	2.4899ms	1	2.4899ms	2.4899ms	2.4899ms	cudaMemcpy
	1.76%	2.1548ms	16	134.68us	69.169us	167.48us	cudaMemcpyAsync
	0.36%	434.31us	2	217.15us	214.60us	219.70us	cudaFree
	0.29%	353.99us	96	3.6870us	168ns	225.55us	cuDeviceGetAttribute
	0.26%	316.42us	1	316.42us	316.42us	316.42us	cudaDeviceSynchronize
	0.17%	210.56us	16	13.160us	1.2720us	167.97us	cudaStreamCreate
	0.13%	163.26us	16	10.203us	7.9490us	29.079us	cudaLaunchKernel
	0.07%	86.644us	1	86.644us	86.644us	86.644us	cuDeviceTotalMem
	0.04%	42.867us	1	42.867us	42.867us	42.867us	cuDeviceGetName
	0.02%	28.761us	16	1.7970us	1.5400us	4.6060us	cudaStreamDestroy
	0.00%	4.9970us	1	4.9970us	4.9970us	4.9970us	cuDeviceGetPCIBusId
	0.00%	1.9760us	3	658ns	187ns	1.4470us	cuDeviceGetCount
	0.00%	800ns	2	400ns	178ns	622ns	cuDeviceGet
	0.00%	309ns	1	309ns	309ns	309ns	cuDeviceGetUuid

- Matriz 10000 x 10000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streCPUGPU
==20605== NVPROF is profiling process 20605, command: ./streCPUGPU
==20605== Profiling application: ./streCPUGPU
==20605== Profiling result:
```

Type	Time(%)	Time	Calls	Avg	Min	Max	Name
GPU activities:	44.21%	239.48ms	6	39.913ms	39.741ms	40.071ms	[CUDA memcpy HtoD]
	43.21%	234.08ms	1	234.08ms	234.08ms	234.08ms	[CUDA memcpy DtoH]
	12.58%	68.132ms	6	11.355ms	10.317ms	11.582ms	blur(int*, int*, int)
API calls:	33.13%	238.87ms	6	39.812ms	39.317ms	40.075ms	cudaMemcpyAsync
	32.49%	234.20ms	1	234.20ms	234.20ms	234.20ms	cudaMemcpy
	24.00%	173.05ms	2	86.526ms	28.980ms	144.07ms	cudaMallocManaged
	8.68%	62.549ms	2	31.275ms	31.204ms	31.345ms	cudaFree
	1.55%	11.201ms	1	11.201ms	11.201ms	11.201ms	cudaDeviceSynchronize
	0.07%	474.49us	96	4.9420us	494ns	206.52us	cuDeviceGetAttribute
	0.03%	249.78us	1	249.78us	249.78us	249.78us	cuDeviceTotalMem
	0.02%	143.19us	1	143.19us	143.19us	143.19us	cuDeviceGetName
	0.02%	127.95us	6	21.325us	15.125us	28.534us	cudaLaunchKernel
	0.00%	27.250us	6	4.5410us	1.1280us	20.896us	cudaStreamCreate
	0.00%	15.698us	6	2.6160us	1.6660us	6.9850us	cudaStreamDestroy
	0.00%	6.2390us	3	2.0790us	605ns	3.8030us	cuDeviceGetCount
	0.00%	5.8290us	1	5.8290us	5.8290us	5.8290us	cuDeviceGetPCIBusId
	0.00%	2.9550us	2	1.4770us	701ns	2.2540us	cuDeviceGet
	0.00%	890ns	1	890ns	890ns	890ns	cuDeviceGetUuid

- Streams para os dois sentidos de copias:
 - Matriz 100 x 100:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streDois
==20940== NVPROF is profiling process 20940, command: ./streDois
==20940== Profiling application: ./streDois
==20940== Profiling result:
```

Type	Time(%)	Time	Calls	Avg	Min	Max	Name
GPU activities:	40.37%	15.296us	6	2.5490us	2.2720us	3.3600us	blur(int*, int*, int)
	31.93%	12.097us	6	2.0160us	1.7600us	2.4640us	[CUDA memcpy DtoH]
	27.70%	10.496us	6	1.7490us	1.7280us	1.8240us	[CUDA memcpy HtoD]
API calls:	98.52%	119.73ms	2	59.863ms	50.483us	119.67ms	cudaMallocManaged
	0.46%	554.47us	12	46.206us	28.157us	126.71us	cudaMemcpyAsync
	0.38%	463.76us	96	4.8300us	493ns	193.65us	cuDeviceGetAttribute
	0.20%	239.47us	1	239.47us	239.47us	239.47us	cuDeviceTotalMem
	0.14%	172.66us	6	28.775us	21.602us	55.765us	cudaLaunchKernel
	0.13%	154.12us	2	77.057us	43.025us	111.09us	cudaFree
	0.07%	80.606us	1	80.606us	80.606us	80.606us	cuDeviceGetName
	0.05%	54.811us	6	9.1350us	3.5250us	35.615us	cudaStreamCreate
	0.03%	32.662us	6	5.4430us	4.2720us	10.589us	cudaStreamDestroy
	0.02%	27.969us	1	27.969us	27.969us	27.969us	cudaDeviceSynchronize
	0.01%	6.6170us	3	2.2050us	479ns	3.8830us	cuDeviceGetCount
	0.00%	4.5370us	1	4.5370us	4.5370us	4.5370us	cuDeviceGetPCIBusId
	0.00%	2.9770us	2	1.4880us	704ns	2.2730us	cuDeviceGet
	0.00%	906ns	1	906ns	906ns	906ns	cuDeviceGetUuid

- Matriz 1000 x 1000:

```
(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streDois
==21905== NVPROF is profiling process 21905, command: ./streDois
==21905== Profiling application: ./streDois
==21905== Profiling result:
```

Type	Time(%)	Time	Calls	Avg	Min	Max	Name
GPU activities:	46.14%	2.3905ms	6	398.42us	390.98us	405.19us	[CUDA memcpy HtoD]
	44.64%	2.3127ms	6	385.45us	384.55us	388.55us	[CUDA memcpy DtoH]
	9.22%	477.51us	6	79.584us	77.536us	81.377us	blur(int*, int*, int)
API calls:	93.89%	114.94ms	2	57.471ms	390.48us	114.55ms	cudaMallocManaged
	5.25%	6.4225ms	12	535.21us	68.624us	980.99us	cudaMemcpyAsync
	0.38%	466.81us	2	233.41us	233.40us	233.41us	cudaFree
	0.27%	335.36us	96	3.4930us	143ns	215.17us	cuDeviceGetAttribute
	0.07%	80.157us	6	13.359us	8.7570us	30.977us	cudaLaunchKernel
	0.06%	75.335us	1	75.335us	75.335us	75.335us	cuDeviceTotalMem
	0.03%	39.376us	1	39.376us	39.376us	39.376us	cuDeviceGetName
	0.02%	29.334us	6	4.8890us	1.1680us	22.895us	cudaStreamCreate
	0.01%	12.392us	6	2.0650us	1.5250us	4.4030us	cudaStreamDestroy
	0.01%	11.747us	1	11.747us	11.747us	11.747us	cudaDeviceSynchronize
	0.00%	4.2450us	1	4.2450us	4.2450us	4.2450us	cuDeviceGetPCIBusId
	0.00%	2.2090us	3	736ns	151ns	1.5170us	cuDeviceGetCount
	0.00%	824ns	2	412ns	210ns	614ns	cuDeviceGet
	0.00%	285ns	1	285ns	285ns	285ns	cuDeviceGetUuid

- Matriz 10000 x 10000:

```

(base) roger@spacex:/media/roger/Nuevo vol/02. Mestrado Computação UFF/Programacao de GPUs/Trabajill
/MatrizAleatoria$ nvprof ./streDois
==22124== NVPROF is profiling process 22124, command: ./streDois
==22124== Profiling application: ./streDois
==22124== Profiling result:

```

Type	Time(%)	Time	Calls	Avg	Min	Max	Name
GPU activities:	45.20%	244.17ms	6	40.695ms	39.791ms	44.805ms	[CUDA memcpy HtoD]
	43.31%	233.97ms	6	38.995ms	38.976ms	39.029ms	[CUDA memcpy DtoH]
	11.49%	62.044ms	6	10.341ms	10.323ms	10.357ms	blur(int*, int*, int)
API calls:	67.93%	541.80ms	12	45.150ms	39.046ms	50.379ms	cudaMemcpyAsync
	23.17%	184.75ms	2	92.377ms	28.689ms	156.06ms	cudaMallocManaged
	8.75%	69.752ms	2	34.876ms	32.398ms	37.354ms	cudaFree
	0.07%	597.49us	96	6.2230us	505ns	273.29us	cuDeviceGetAttribute
	0.04%	300.02us	1	300.02us	300.02us	300.02us	cuDeviceTotalMem
	0.02%	163.54us	6	27.256us	18.633us	43.977us	cudaLaunchKernel
	0.01%	93.871us	1	93.871us	93.871us	93.871us	cuDeviceGetName
	0.00%	24.546us	6	4.0910us	1.1330us	18.319us	cudaStreamCreate
	0.00%	14.524us	1	14.524us	14.524us	14.524us	cudaDeviceSynchronize
	0.00%	14.164us	6	2.3600us	1.5670us	5.7770us	cudaStreamDestroy
	0.00%	9.7400us	3	3.2460us	594ns	4.6370us	cuDeviceGetCount
	0.00%	5.4040us	2	2.7020us	2.2650us	3.1390us	cuDeviceGet
	0.00%	3.0260us	1	3.0260us	3.0260us	3.0260us	cuDeviceGetPCIBusId
	0.00%	1.0100us	1	1.0100us	1.0100us	1.0100us	cuDeviceGetUuid