

Summary Of the testing device

HWiNFO® 64 v8.22-5670 @ ASUS - System Summary

CPU

Intel Core i5-12400 Intel 7

Stepping H0 TDP 65 W

Codename Alder Lake-S 601 MCU 23

SSPEC SRL5Y Prod. Unit

CPU #0 Platform Socket V (LGA1700)

Core 6 / 12 Cache L1 6x32 + 6x48 L2 6x1.25M L3 18M

Features

MMX	3DNow!	3DNow!-2	SSE	SSE-2	SSE-3	SSSE-3
SSE4A	SSE4.1	SSE4.2	AVX	AVX2	AVX-512	AVX10
BM12	ABM	TBM	FMA	ADX	XOP	AMX
DEP	VMX	SMX	SMEP	SMAP	TSX	MPX
EM64T	EIST	TM1	TM2	HTT	Turbo	SST
AES-NI	RDRAND	RDSEED	SHA	SGX	TME	APX

Operating Point

	Clock	Ratio	Bus	VID
LFM (Min)	800.0 MHz	x8.00	100.0 MHz	-
Base Clock (BFM)	2500.0 MHz	x25.00	100.0 MHz	-
Turbo Max	4400.0 MHz	x44.00	100.0 MHz	-
Avg. Active Clock	4223.0 MHz	x42.33	99.8 MHz	1.0692 V
Avg. Effective Clock	414.5 MHz	x4.16	-	-
Ring/LLC Max	4000.0 MHz	x40.00	100.0 MHz	-
Ring/LLC Clock	3990.2 MHz	x40.00	99.8 MHz	-

Motherboard

ASUS TUF GAMING B660M-E D4

Chipset Intel B660 (Alder Lake-S PCH)

BIOS Date 08/12/2022 Version 1620 UEFI

Memory

Size 16 GB Type DDR4 SDRAM

Clock 1496.3 MHz = 15.00 x 99.8 MHz

Mode Dual-Channel CR 2T

Timing 16 - 18 - 18 - 36 IRC 54 IRFC 525

Memory Modules

#0 [BANK 0/Controller0-ChannelA-DIMM0]: Kingston KF3200C16C

Size 8 GB Clock 1600 MHz ECC No

Type DDR4-3200 / PC4-25600 DDR4 SDRAM UDIMM

Clock	tCL	tRCD	tRP	tRAS	RC	Ext.	V
1600	16	18	18	36	74	XMP	1.35
1467	15	17	17	33	68	XMP	1.35
1333	14	15	15	30	61	XMP	1.35
1200	12	14	14	27	55	XMP	1.35
1067	11	12	12	24	49	XMP	1.35
933.3	10	11	11	21	43	XMP	1.35
1200	17	17	17	39	55	-	1.20
1067	15	15	15	35	49	-	1.20
933.3	13	13	13	30	43	-	1.20
800.0	11	11	11	26	37	-	1.20

GPU

NVIDIA GeForce RTX 3060 (GA104) [PNV Technologie]

NVIDIA GeForce RTX 3060

GA104

PCIe v4.0 x16 (16.0 GT/s) @ x16 (2.5 GT/s)

GPU #0 12 GB GDDR6 SDRAM 192-bit

ROPs / TMUs 64 / 112 SH/RT/TC 3584 / 28 / 112

Current Clocks (MHz)

GPU 210.0 Memory 101.2 Video 555.0

Operating System UEFI Boot Secure Boot TPM HVCI

Microsoft Windows 11 Enterprise (x64) Build 26100.3476 (24H2)

Drives

Interface	Model [Capacity]
SATA 6 Gb/s @ 6Gb/s	TOSHIBA DT01ACA100 [1 TB]
NVMe x4 8.0 GT/s	Samsung SSD 980 500GB [500 GB]

Testing the CPU performance

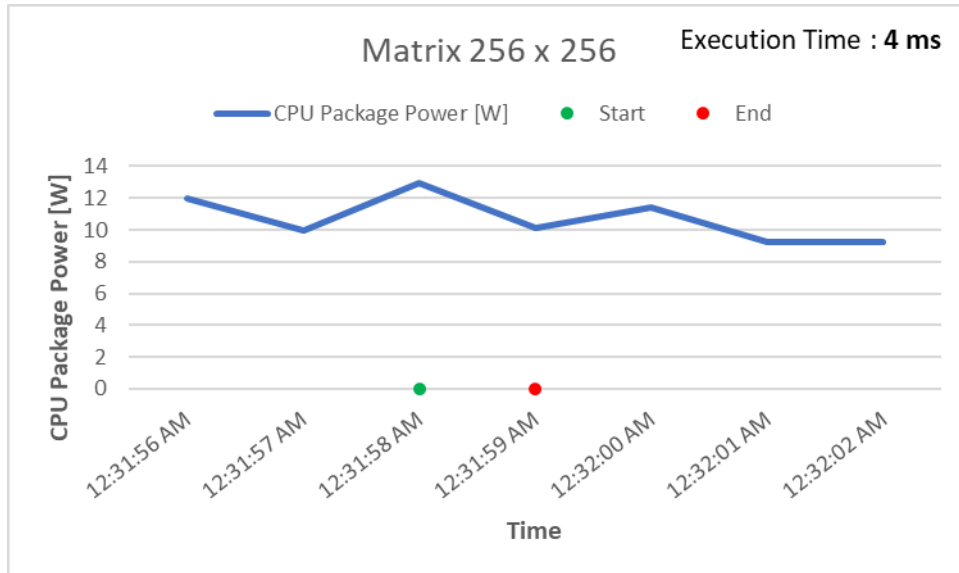
Idle

HWiNFO® 64 v8.22-5670 Sensor Status [242 values hidden]				
Sensor	Current	Minimum	Maximum	Average
CPU [#0]: Intel Core i5-12400: Enhanced				
CPU Package Power	12.135 W	8.484 W	28.147 W	11.786 W
IA Cores Power	5.272 W	1.772 W	20.612 W	4.907 W
System Agent Power	5.105 W	4.933 W	6.093 W	5.142 W
Rest-of-Chip Power	0.760 W	0.704 W	0.841 W	0.737 W
PL1 Power Limit (Static)	202.0 W	202.0 W	202.0 W	202.0 W
PL2 Power Limit (Static)	241.0 W	241.0 W	241.0 W	241.0 W
VR VCC Power (SVID POUT)	24.000 W	16.000 W	56.000 W	19.944 W

CPU_256

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CAO/CPU-vs-GPU/Code/CPU (main)
$ ./cpu_matrix_mult.exe 256
CPU Time: 0.004 seconds
```

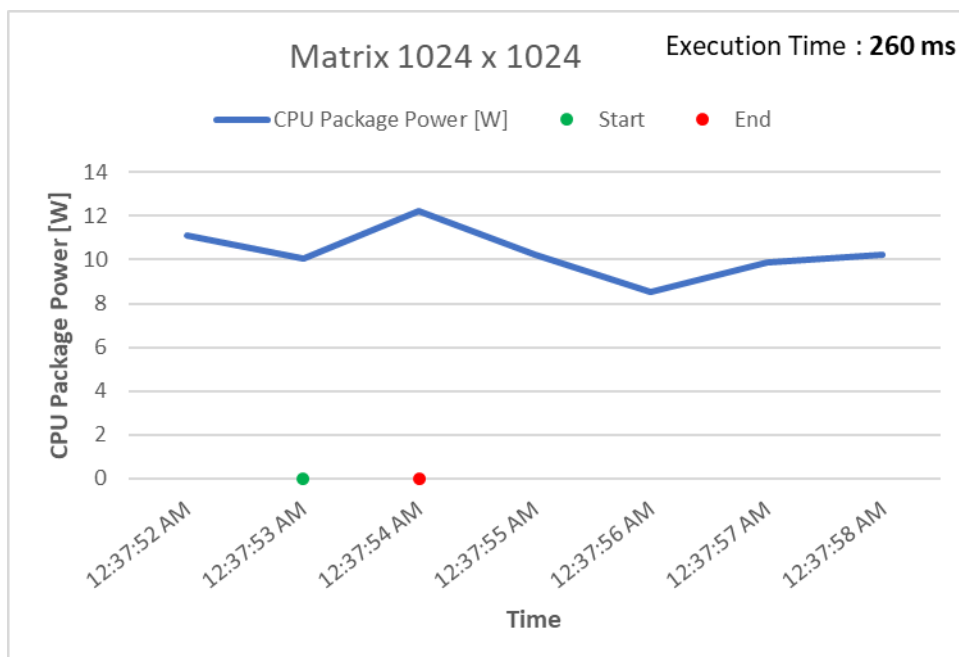
CPU Time: 0.004 seconds



CPU_1024

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CAO/CPU-vs-GPU/Code/CPU (main)
$ ./cpu_matrix_mult.exe 1024
CPU Time: 0.260 seconds
```

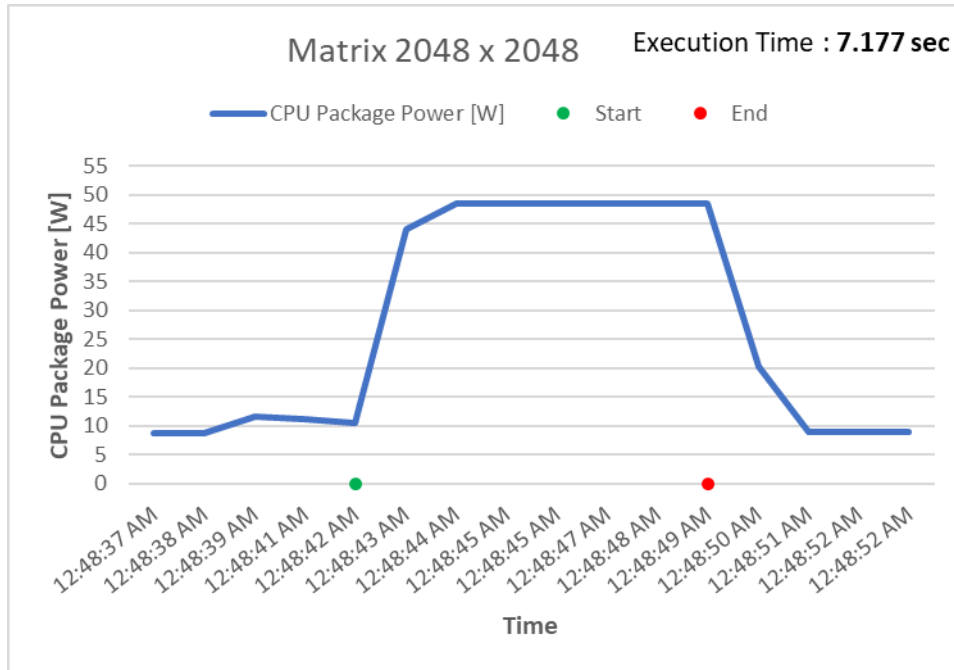
CPU Time: 0.260 seconds



CPU_2048

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/CPU (main)
$ ./cpu_matrix_mult.exe 2048
CPU Time: 7.177 seconds
```

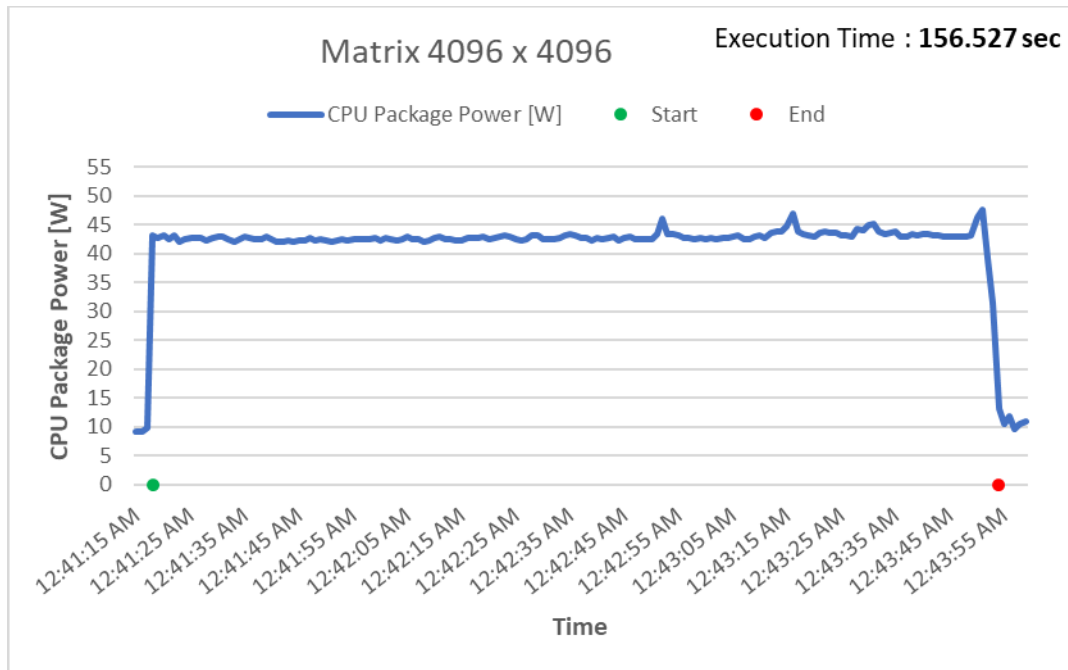
CPU Time: 7.177 seconds



CPU_ 4096

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/CPU (main)
$ ./cpu_matrix_mult.exe 4096
CPU Time: 156.527 seconds
```

CPU Time: 156.527 seconds



Testing the GPU performance

Idle

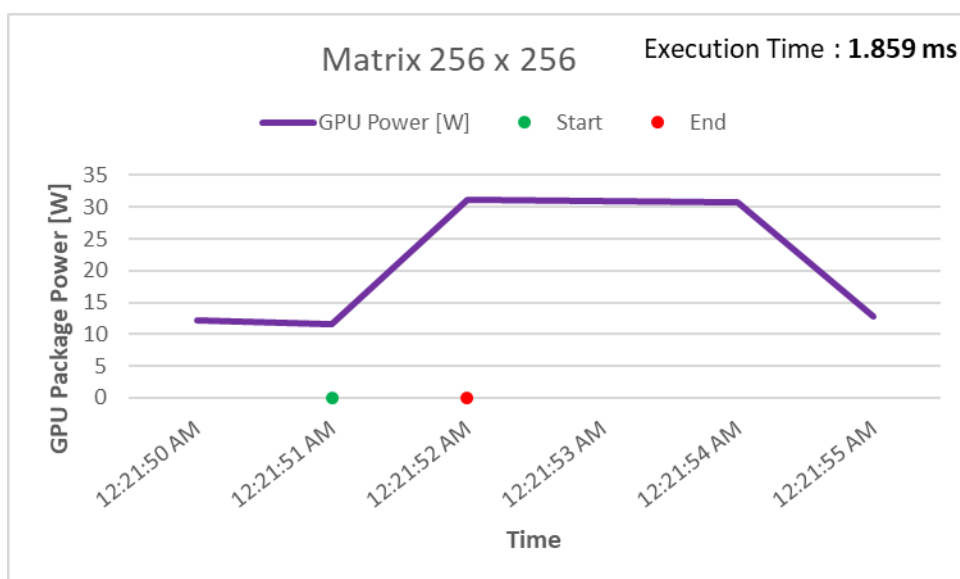
HWiNFO® 64 v8.22-5670 Sensor Status [322 values hidden]				
Sensor	Current	Minimum	Maximum	Average
GPU [#0]: NVIDIA GeForce RTX 3060				
GPU Power	14.502 W	13.297 W	16.659 W	14.422 W
GPU Rail Powers		1.091 W	13.128 W	
GPU Core Load	1.0 %	0.0 %	30.0 %	6.3 %
GPU Memory Controller Load	4.0 %	4.0 %	34.0 %	15.9 %
GPU Video Engine Load	0.0 %	0.0 %	0.0 %	0.0 %
GPU Bus Load	0.0 %	0.0 %	1.0 %	0.0 %
GPU Memory Usage	9.8 %	9.8 %	9.9 %	9.8 %
GPU D3D Usages		0.0 %	9.5 %	

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/GPU (main)
$ nvcc -O3 -arch=sm_86 gpu_matrix_mult.cu -o gpu_matrix_mult.exe
gpu_matrix_mult.cu
tmpxft_00003e58_00000000-10_gpu_matrix_mult.cudafe1.cpp
  Creating library gpu_matrix_mult.lib and object gpu_matrix_mult.exp
```

GPU_256

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/GPU (main)
$ ./gpu_matrix_mult.exe 256
GPU Time: 1.859 ms
```

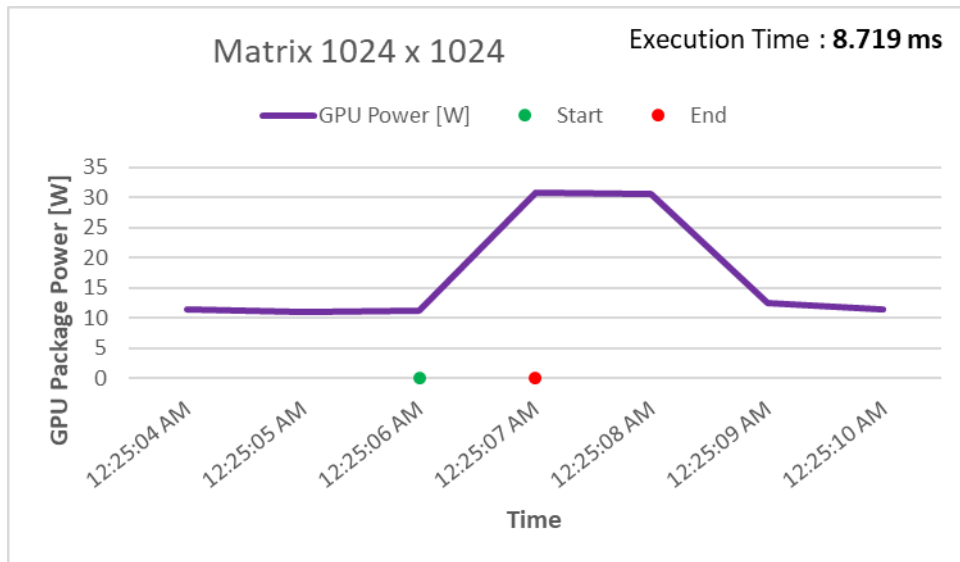
GPU Time: 1.859 ms



GPU_1024

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/GPU (main)
$ ./gpu_matrix_mult.exe 1024
GPU Time: 8.719 ms
```

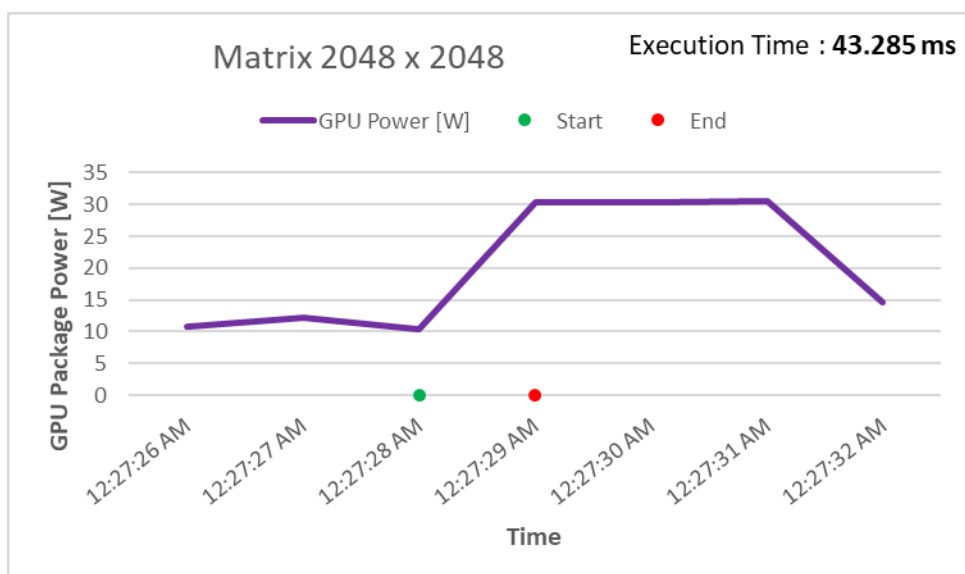
GPU Time: 8.719 ms



GPU_2048

```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/GPU (main)
$ ./gpu_matrix_mult.exe 2048
GPU Time: 43.285 ms
```

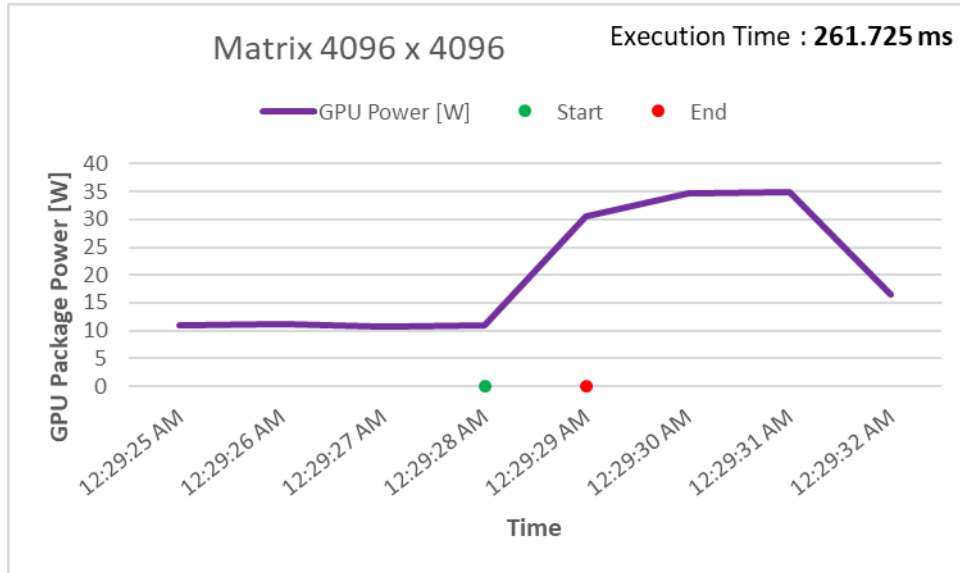
GPU Time: 43.285 ms



GPU_ 4096

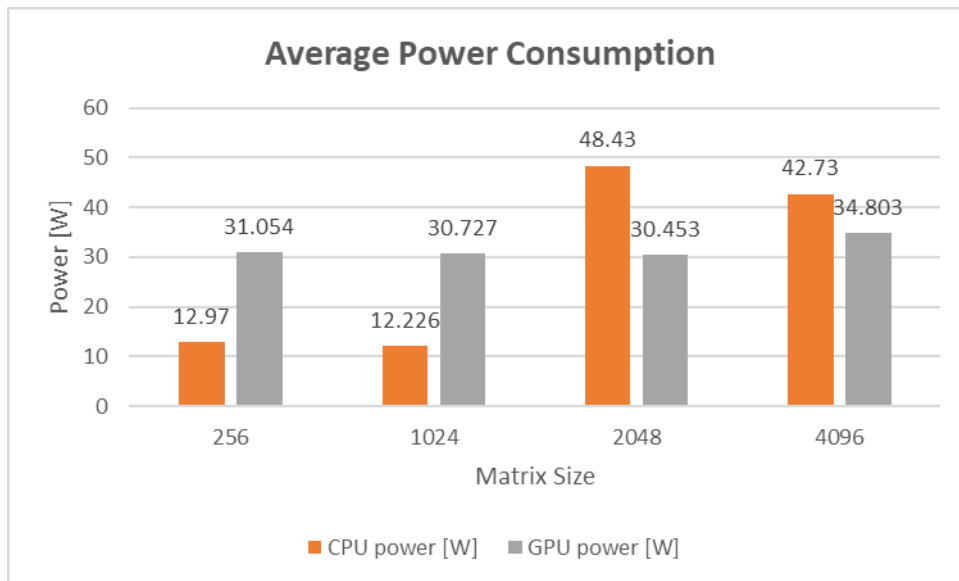
```
User@DESKTOP-JOJO MINGW64 /h/!Current/CA0/CPU-vs-GPU/Code/GPU (main)
$ ./gpu_matrix_mult.exe 4096
GPU Time: 261.725 ms
```

GPU Time: 261.725 ms



Overall Comparison

Power



Time

