Atividade Prática 5

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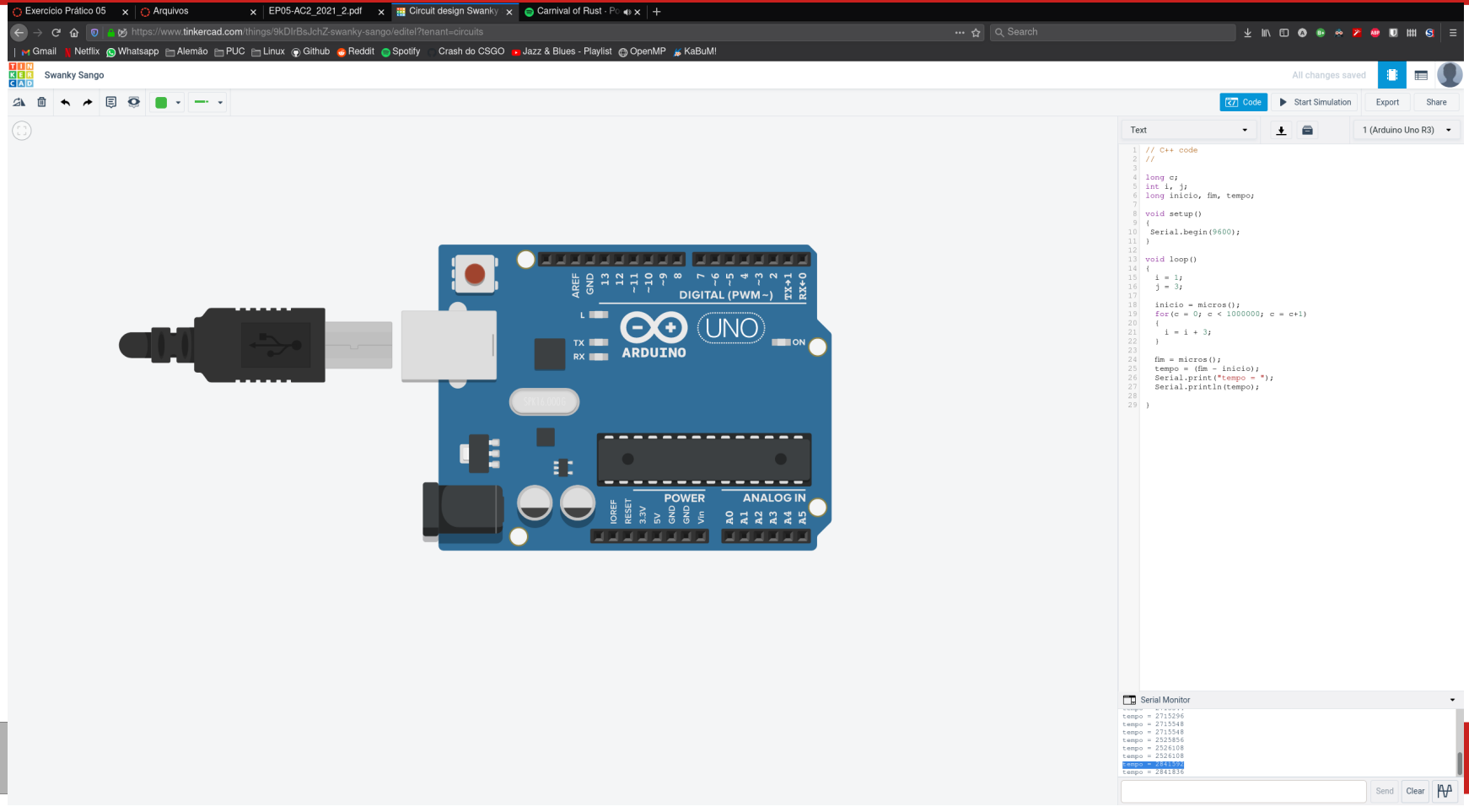
Parte 1 – Print Arduino



Parte 1 – Tabela Arduino

		i = i op 3			i = i op j		
Tipo	Tempo Base	Soma	Or	Mult	Soma	Or	Mult
Byte	tempo = 2462956	tempo = 2525856	tempo = 2399808	tempo = 2652400	tempo = 2652396	tempo = 2841836	tempo = 2841836
Int	tempo = 2715292	tempo= 3473284	tempo = 2589004	tempo = 3031276	tempo = 3094424	tempo = 3220468	tempo = 3599592
Float	tempo = 3220712	tempo = 12437600	N/A	tempo = 10356164	tempo = 12690432	N/A	tempo = 10609000
* Int	tempo = 2715296	tempo= 4231044	tempo= 3473284	tempo= 4357336	tempo= 4862512	tempo = 3788788	tempo= 5367676

Parte 1 – Tabela Arduino

MIPS (ATM328P)						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Byte	~15.898251 MIPS	~15.835814 MIPS	~5.278605 MIPS	~5.278716 MIPS	~2.639358 MIPS	~2.639358 MIPS
Int	~7.917656 MIPS	~7.918409 MIPS	~3.164717 MIPS	~2.637604 MIPS	~1.979508 MIPS	~1.130838 MIPS
* Int	~7.902390 MIPS	~7.917907 MIPS	~3.164677 MIPS	~0.465714 MIPS	~0.931539 MIPS	~0.377019 MIPS

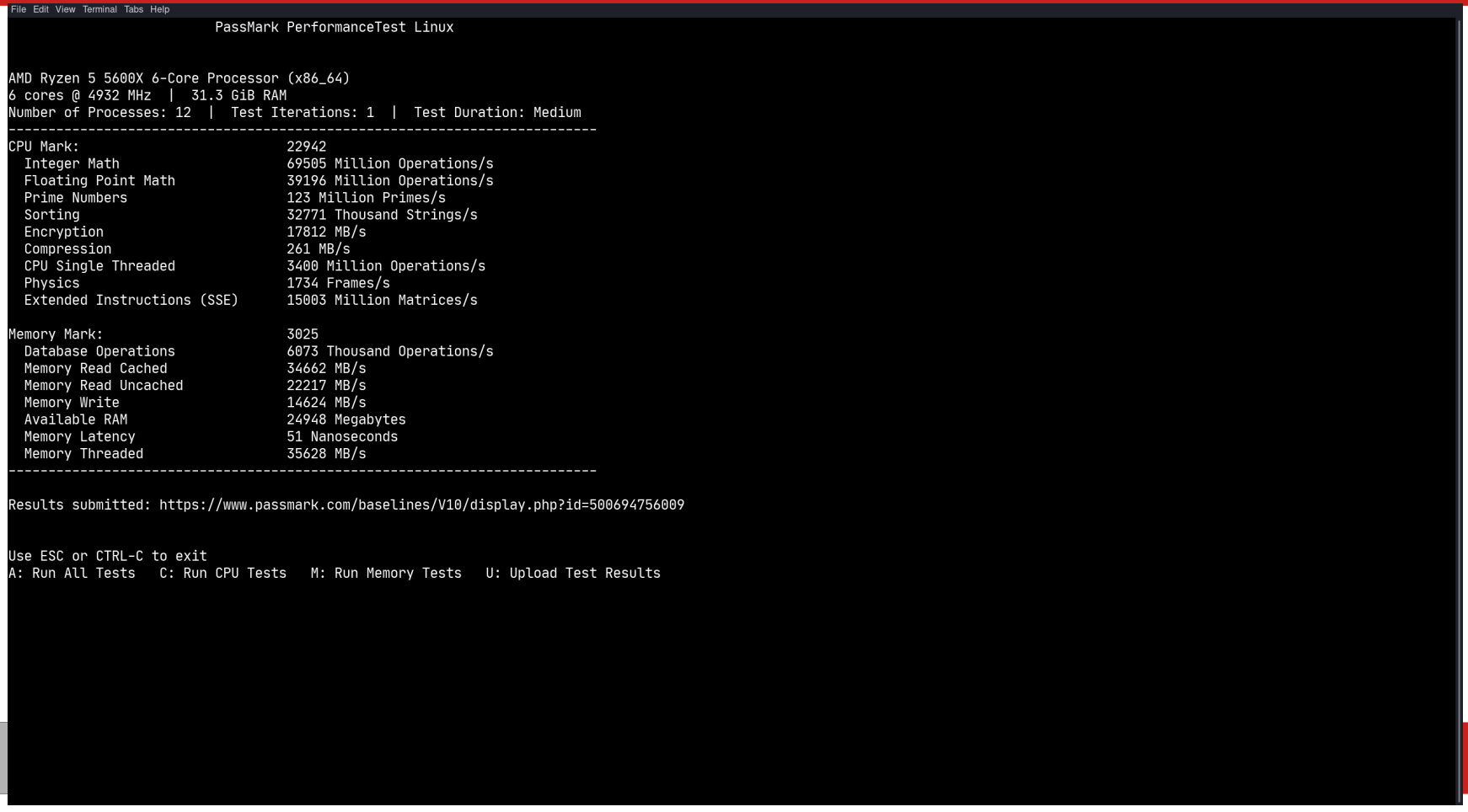
Parte 1 – Tabela Arduino

MFLOPS (ATM328P)						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Float	~0.108496 MFLOPS	N/A	~0.140145 MFLOPS	~0.105600 MFLOPS	N/A	~0.135349 MFLOPS

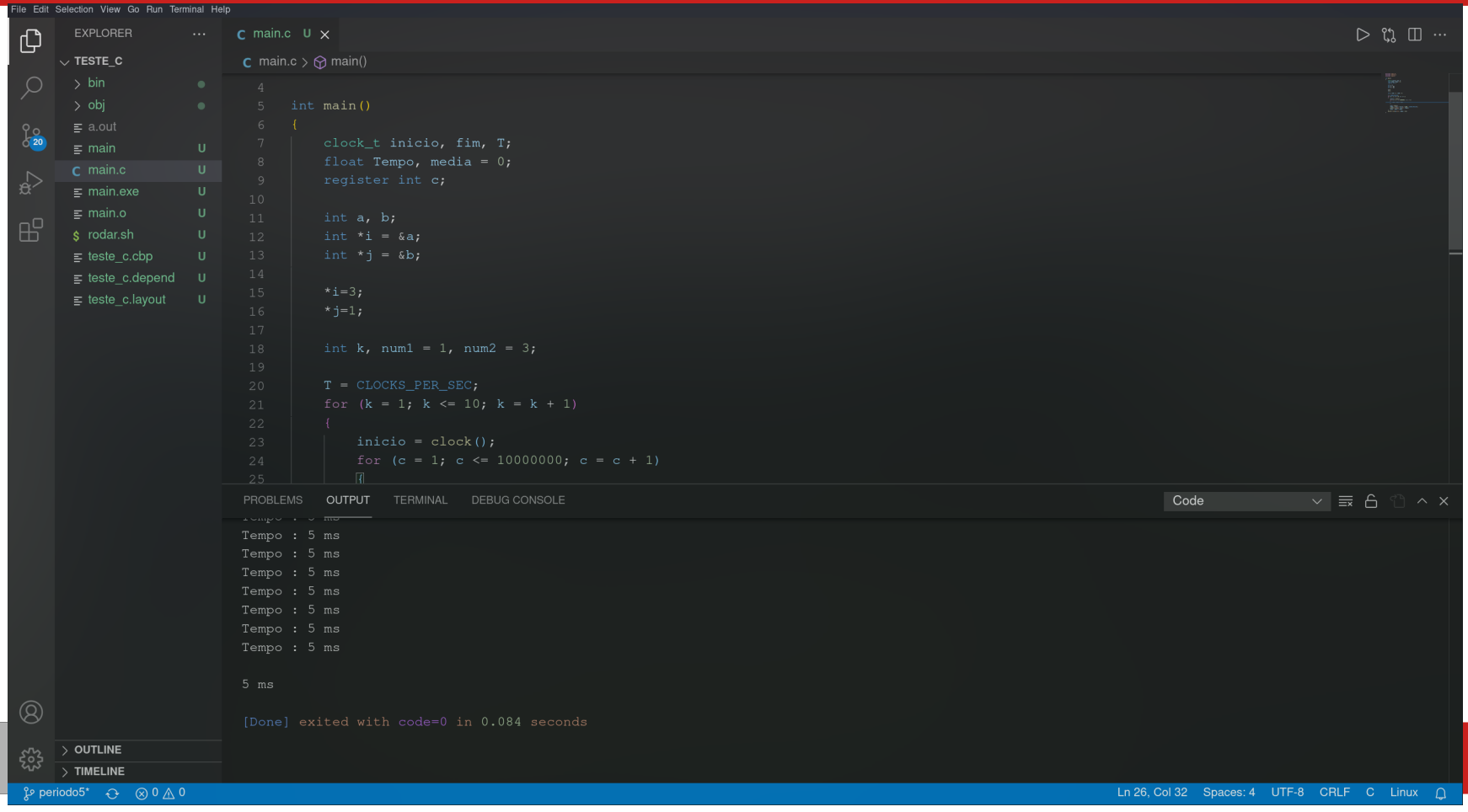
Parte 1 – Tabela Arduino

CPI						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Byte	39.407296	40.413696	42.4384	42.438336	45.469376	45.469376
Int	45.465472	41.424064	48.500416	49.510784	51.527488	57.593472
Float	199.0016	N/A	165.698624	203.046912	N/A	169.744
* Int	45.46944	45.465472	48.500544	69.717376	60.620608	85.882816

Parte 2 – PassMark Benchmark



Parte 3 – Print Código em C



Parte 3 – Configuração do meu PC

Ryzen 5 5600X – 6 cores / 12 threads @ 4.6 GHz

32 GB RAM @ 3200 MHz

Arch Linux – Kernel versão 5.14.14

GCC e GCC-libs versão 11.1.0

Parte 3 – Tabela Programa C

		i = i op 3			i = i op j		
Tipo	Tempo Base	Soma	Or	Mult	Soma	Or	Mult
Byte	2.2 ms	16 ms	2.7 ms	18 ms	17 ms	6.4 ms	19 ms
Int	2.6 ms	3 ms	6.2 ms	4 ms	3.1 ms	8.1 ms	6.4 ms
Float	3.2 ms	27.8 ms	N/A	26 ms	44.6 ms	N/A	43 ms
* Int	2.2 ms	3.5 ms	2.3 ms	5.6 ms	5 ms	10.6 ms	8.2 ms

Parte 3 – Tabela Programa C

MIPS (Meu PC)						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Byte	~72463.768116 MIPS	2000000 MIPS	~63291.139241 MIPS	~67567.567568 MIPS	~238095.238095 MIPS	~59523.809524 MIPS
Int	2500000 MIPS	~277777.777778 MIPS	~714285.714286 MIPS	2000000 MIPS	~181818.181818 MIPS	~263157.894737 MIPS
* Int	~769230.769231 MIPS	10000000 MIPS	~294117.647059 MIPS	~357142.857143 MIPS	~119047.619048 MIPS	~166666.666667

Parte 3 – Tabela Programa C

MFLOPS (Meu PC)						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Float	~40650.406504 MIPS	N/A	~43859.649123 MIPS	~24154.589372 MIPS	N/A	~25125.628141 MIPS

Parte 3 – Tabela Programa C

CPI						
	Constante			Variável		
Tipo	Soma	Or	Mult	Soma	Or	Mult
Byte	7.68	1.296	8.64	8.16	3.072	9.12
Int	1.44	2.976	1.92	1.488	3.888	3.072
Float	13.344	N/A	12.4	21.408	N/A	20.64
* Int	1.68	1.104	2.688	2.4	5.088	3.936

Parte 4 – Tabela Speedups

Máquina mais fraca	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		i5 2430M
1	Int	6E+07	Int	5.483	5.412	5.986	5.364	5.962	5.986	5.69883333	2394700000	Int	0.142786	Int	1	Gcc 7,5,0
2	Float	4E+07	Float	6.417	XXXX	8.07	5.364	XXXX	8.094	10.34475		Float	0.172794	Float	1	Linux Mint 19.3 Tricia
3																
4	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		
5	Int	6E+07	Int	6.712	5.227	4.608	5.722	5.722	7.671	5.94366667	3100000000	Int	0.115039	Int	1.241201	Windows 10
6	Float	4E+07	Float	7.176	XXXX	8.475	6.712	XXXX	10.052	11.9005		Float	0.153555	Float	1.125292	
7																
8	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		I3 3240
9	Int	6E+07	Int	5.495	5.869	5.835	6.344	6.852	7.972	6.3945	3600000000	Int	0.106575	Int	1.339772	Windows 10
10	Float	4E+07	Float	8.99	XXXX	364.02	8.99	XXXX	459.38	303.5975		Float	3.373306	Float	0.051224	GCC-6.3.0-1
11																
12	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		i7 7700HQ
13	Int	6E+07	Int	3.584	3.948	4.144	3.416	3.472	5.18	3.95733333	2800000000	Int	0.0848	Int	1.683799	Windows 10
14	Float	4E+07	Float	6.664	XXXX	285.712	6.552	XXXX	6.636	149.457		Float	2.1351	Float	0.08093	
15																
16	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		I7 6700
17	Int	6E+07	Int	3.638	1.173	4.225	4.547	1.877	0.001	2.57683333	3400000000	Int	0.045474	Int	3.139984	Windows 10
18	Float	4E+07	Float	3.873	XXXX	0.001	5.897	XXXX	0.029	3.9245		Float	0.046171	Float	3.742514	
19																
20	Ics		CPIs							CPI-médio	Frequência (Hz)	CPU-time		Speed-UP		Ryzen 5 5600x
21	Int	6E+07	Int	1.44	2.976	1.92	1.488	3.888	3.072	2.464	4600000000	Int	0.032139	Int	4.442751	GCC e GCC-libs versão 11.1.0
Máquina mais forte	Float	4E+07	Float	13.344	XXXX	12.4	21.408	XXXX	20.64	25.4		Float	0.22087	Float	0.782335	Arch Linux – Kernel versão 5.14.14