

Exercício Prático 5 - AC-II

EXPERIÊNCIA I:

	i = j	i = i op 3	i = i op 3	i = i op 3	i = i op j	i = i op j	i = i op j
Tipo	Tempo base	Soma	Or	Mult	Soma	Or	Mult
Byte	2462716	2525856	2525856	2652156	2652156	2652156	2841596
Int	2715292	2841592	2778444	3031032	3094168	3094168	3599348
Float	3220472	12437600	xxxxxxx	2210136	2210132	xxxxxxx	2210136

MIPS ARDUINO

Tipo	MIPS	MIPS	MIPS	MIPS	MIPS	MIPS
	Constante	Constante	Constante	Variável	Variável	Variável
	Soma	Or	Mult	Soma	Or	Mult
Byte	6.129	1.583	5.278	5.278	5.278	2.639
Int	7.917	1.583	3.167	2.639	2.639	1.131
Tipo	-----	-----	-----	-----	-----	-----
	MFLOPS	MFLOPS	MFLOPS	MFLOPS	MFLOPS	MFLOPS
Float	1.084	xxxxxxxxx	9.897	9.897	xxxxxxxxx	9.897

CPI

	CPI	CPI	CPI	CPI	CPI	CPI
Tipo	Soma	Or	Multi	Soma	Or	Multi
Byte	07.07	3.36	2.97	3.00	2.269	6.03
Int	2.00	1.14	5.03	6.06	8.05	14.10
Float	14.10	xxxxxx	10.78	14.94	xxxxxx	11.19

Experiência II:

Programa em C

	i = j	i = i op 3	i = i op 3	i = i op 3	i = i op j	i = op j	i = i op j
Tipo	Tempo base	Soma	Or	Mult	Soma	Or	Mult
Char	12.98ms	18.98ms	14.4ms	13.4ms	33ms	16.98ms	30.98ms
Int	4.3ms	12.4ms	11ms	10.3ms	25ms	21ms	14ms
Float	51.4ms	78.1ms	xxxxxxx	81.5ms	54ms	xxxxxx	56.98ms

MIPS (Meu PC)

	MIPS	MIPS	MIPS	MIPS	MIPS	MIPS
	Constante	Constante	Constante	Variável	Variável	Variável
Tipo	Soma	Or	Mult	Soma	Or	Mult
Char	1,720	6,663	20	480,73	2	558,63
Int	1,20	1,53	1,63	480,3	591,4	970,3
xxxxxxx	MFLOPS	MFLOPS	MFLOPS	MFLOPS	MFLOPS	MFLOPS
	Constante	Constante	Constante	Variável	Variável	Variável
Tipo	Soma	Or	Mult	Soma	Or	Mult
Float	367	xxxxx	331,122	3.701	xxxxx	1,814

CPI

Tipo	Soma	Or	Mult	Soma	Or	Mult
Char	1,443	6	1,21	5,15	9,93	4,43
Int	2,1	1,55	1,43	5,12	4,21	2,41
Float	6,73	xxxxx	7,50	7,4	xxxxx	1,493

Speed up

Identificação	Programa em C		Performance Test	
-----	Speed up (int)		Speed up (FP)	
AMD Ryzen 5 5600x 6-Core	0,658	1,450	0,911	1,107
Intel Core i5-7400 @ 3.00GHz	0,660	1,452	1.940	1.790

Speed up SO

Identificação	Programa em C		Speed up
Windows 11 Professional Edition build 22621 (64-bit)		Sistema operaciona l de 64 bits, Windows	1,482

Speed up Compilador

Identificação	Programa em C		Speed up
AMD Ryzen 5 5600x 6-Core	Compilado r Online de C	gcc (MinGW.or g GCC-6.3.0- 1) 6.3.0	0,540
Intel Core i5-7400 @ 3.00GHz	Compilado r Online de C	Gcc(MinG W.org GCC-6.3 0-1) 6.3.0	0,639

Speed up Máquina

Identificação	Programa em C	Speed up
2208.1 MHz, Windows	Inter® Core™ i5	1,183

CPU INFORMATION

CPU Information	
Manufacturer	GenuineIntel
Type	Intel Core i5-7400 @ 3.00GHz
Codename	Kaby Lake
CPUID	Family 6, Model 9E, Stepping 9
Socket	LGA 1151
Lithography	14nm
Number of CPU's	1
Total Cores per CPU	4
Total Threads per CPU	4
P-Cores per CPU	4
E-Cores per CPU	N/A
Clock Frequencies	
Measured Speed	3000.0 MHz [Turbo: 3300.0 MHz]
Multiplier	30.0X
Bus Speed	100.0 MHz
Front Side Bus Speed	(N/A)
Timing Error Ratio	1.000
Cache per CPU package	
L1 Instruction Cache	4 x 32 KB
L1 Data Cache	4 x 32 KB
L2 Cache Size	4 x 256 KB
L3 Cache	6 MB

CPU MARK



```
teste_c > C main.c > main()
1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <time.h>
4
5  int main() {
6      clock_t inicio, fim, T;
7      float Tempo, media=0;
8      register int c;
9
10     //FLOAT
11     float *i, *j, x=3, y = 1;
12     i = &x;
13     j = &y;
14
15     // INT
16     int k, num1=1, num2=3;
17
18     //CHAR
19     char *a, *b, c1=1, c2=3;
20     a = &c1;
21     b = &c2;
22
23     T= CLOCKS_PER_SEC;
24     for(k=1;k<=10;k = k+1) {
25         inicio = clock();
26         for(c=1;c<10000000;c=c+1)*a = *a * *b;
27         fim = clock();
28         Tempo=((fim-inicio)*1000/CLOCKS_PER_SEC);
29         printf("\nTempo: %g ms.", Tempo);
30         media = media + Tempo;
31     }
32     printf("\nTempo gasto na media: %g ms.", media/10);
33     return 0;
34 }
```