EP_05

1) Avaliação do Arduino

Tipo	Tempo Base	Soma (i + 3)	Or (i | 3)	Mult (i * 3)	Soma (i + j)	Or (i | j)	Mult (i * j)
byte	2462960	2526108	2526108	2652396	2652396	2652396	2841836
int	2715544	2841836	2841836	3031272	3094428	3094428	3599592
float	3220712	12437600	XXXX	10356420	12690176	XXXX	10609000

Print Arduino

```
1  long c;
2  float i, j;
3  long inicio, fim, tempo;
4
5  void setup() {
6      Serial.begin(9600);
7  }
8
9  void loop() {
10     i=1;
11     j=3;
12     inicio=micros();
13     for(c=0;c<1000000;c=c+1) i=i*j;
14     fim=micros();
15     tempo=(fim-inicio);
16     Serial.print("tempo = ");
17     Serial.println(tempo);
18 }
```

Serial Monitor

tempo = 10608752

MIPS de cada instrução

MIPS

Tipo	Soma (i+3)	Or (i|3)	Mult (i*3)	Soma (i+j)	Or (i|j)	Mult (i*j)	
byte	15.8358	15.8358	5.2788	5.2788	5.2788	2.6393	
int	7.9181	7.9181	3.1672	2.6393	2.6393	1.1311	

MFLOPS

Tipo	Soma (i+3)	Or (i|3)	Mult (i*3)	Soma (i+j)	Or (i|j)	Mult (i*j)
float	0.1084	XXXX	0.1401	0.1056	XXXX	0.1353

CPI de cada instrução

Tipo	Soma (i + 3)	Or (i | 3)	Mult (i * 3)	Soma (i + j)	Or (i | j)	Mult (i * j)
byte	1.0103	1.0103	3.0309	3.0309	3.0309	6.0620
int	2.0206	2.0206	5.0516	6.0621	6.0621	14.1447
float	147.4702	XXXX	114.1713	151.5114	XXXX	118.2126

2) Meu PC

Resultado Performancetest

```
                    PassMark PerformanceTest Linux (11.0.1002)


AMD Ryzen 7 8700F 8-Core Processor (x86_64)
8 cores @ 5054 MHz  |  15.3 GiB RAM
Number of Processes: 16  |  Test Iterations: 1  |  Test Duration: Medium
--------------------------------------------------------------------------
CPU Mark:                         26632
  Integer Math                    93744 Million Operations/s
  Floating Point Math             53152 Million Operations/s
  Prime Numbers                   65.1 Million Primes/s
  Sorting                         33163 Thousand Strings/s
  Encryption                      22808 MB/s
  Compression                     373150 KB/s
  CPU Single Threaded             3773 Million Operations/s
  Physics                         1035 Frames/s
  Extended Instructions (SSE)     24818 Million Matrices/s

Memory Mark:                      2477
  Database Operations             6856 Thousand Operations/s
  Memory Read Cached              36001 MB/s
  Memory Read Uncached            32124 MB/s
  Memory Write                    12451 MB/s
  Available RAM                   4958 Megabytes
  Memory Latency                  61 Nanoseconds
  Memory Threaded                 33579 MB/s
--------------------------------------------------------------------------


Results not submitted
Upload results to cpubenchmark.net? [Y/n]:

Use ESC or CTRL-C to exit
A: Run All Tests   C: Run CPU Tests   M: Run Memory Tests   U: Upload Test Results
```

Tabela codigo em C

Tipo	Tempo Base	Soma (i + 3)	Or (i | 3)	Mult (i * 3)	Soma (i + j)	Or (i | j)	Mult (i * j)
char	4.6	15	12	16	15.1	12	18
int	4	4.3	4.1	6	5	5.1	4.3
float	4	24	XXXX	24	24	XXXX	24

MIPS Meu PC

Tipo	Soma (i+3)	Or (i|3)	Mult (i*3)	Soma (i+j)	Or (i|j)	Mult (i*j)
char	961.5	1352.3	877.1	952.3	1351.3	746.2
int	33333.3	100000	5000	10000	9090.9	33333.3

MFLOPS Meu PC

Tipo	Soma (i+3)	Or (i|3)	Mult (i*3)	Soma (i+j)	Or (i|j)	Mult (i*j)
float	500	XXXX	500	500	XXXX	500

CPI Meu PC

Tipo	Soma (i + 3)	Or (i | 3)	Mult (i * 3)	Soma (i + j)	Or (i | j)	Mult (i * j)
char	2.0577	1.4641	2.2556	2.0775	1.4641	2.6513
int	0.0593	0.0197	0.3957	0.1978	0.2176	0.0593
float	3.9572	XXXX	3.9572	3.9572	XXXX	3.9572

Comparação Com Grupo

Identificação da máquina	C SUP (int)	C SUP (FP)	PT SUP (int)	PT SUP (float)
Raquel (i7 1165G7, 2.8 GHz, Windows 11)	1	1	1	1
Laura (Ryzen 5 8500G, 3.5 GHz, Windows 11)	0.25	0.713	2.0077	1.7689
Antonio (Ryzen 7 8700F, 5.0 GHz, NixOS Linux)	0.25	1.462	3.1118	2.4380

Identificação da máquina	GCC 14.2	GCC 7.5	Speed Up
Ryzen 7 8700F, 5.0 GHz	5.2 ms	5.0 ms	1.04

Identificação do processador, clock, compilador	Linux-Ubuntu	Windows 11	Speed Up
Ryzen 5 8500G, 3.5 GHz, GCC 14.2	0.9	1.0	1.11

Identificação do SO, compilador	i7 1165G7, 2.8GHz	Ryzen 5 8500G, 3,5 GHz	Speed Up
Windows 11, GCC 14.2	1.3 ms	1.0 ms	1.3

Testes por SO

Prints Testes em C

Minha maquina

```
antonio in ~/Desktop/testesEP05FINAL via C v14.2.0-gcc
❄ ❯ gcc -o s -O0 floatSoma.c

antonio in ~/Desktop/testesEP05FINAL via C v14.2.0-gcc
❄ ❯ ./s

Tempo : 24 ms.
Tempo : 25 ms.
Tempo : 25 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 25 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo gasto media: 24.3 ms.
```

Maquina Laura

```
PS C:\Users\Pc\Desktop\arq_puc\arq_02\testesEP05FINAL> .\fs.exe

Tempo : 26 ms.
Tempo : 25 ms.
Tempo : 24 ms.
Tempo : 25 ms.
Tempo : 25 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 24 ms.
Tempo : 25 ms.
Tempo gasto media: 24.6 ms.
```

Print programa de benchmarks

CPU MARK - Integer Math
Your CPU vs the world

Your Integer Math score
60479
Percentile
56%

World Average
65249
World Minimum
28
World Maximum
4013460

112000
89600
134400
67200
156800
44800
179200
22400
201600
75%
25%
1%
99%
224000
0

MOps./Sec.
Percentile