# Atividade Prática 5

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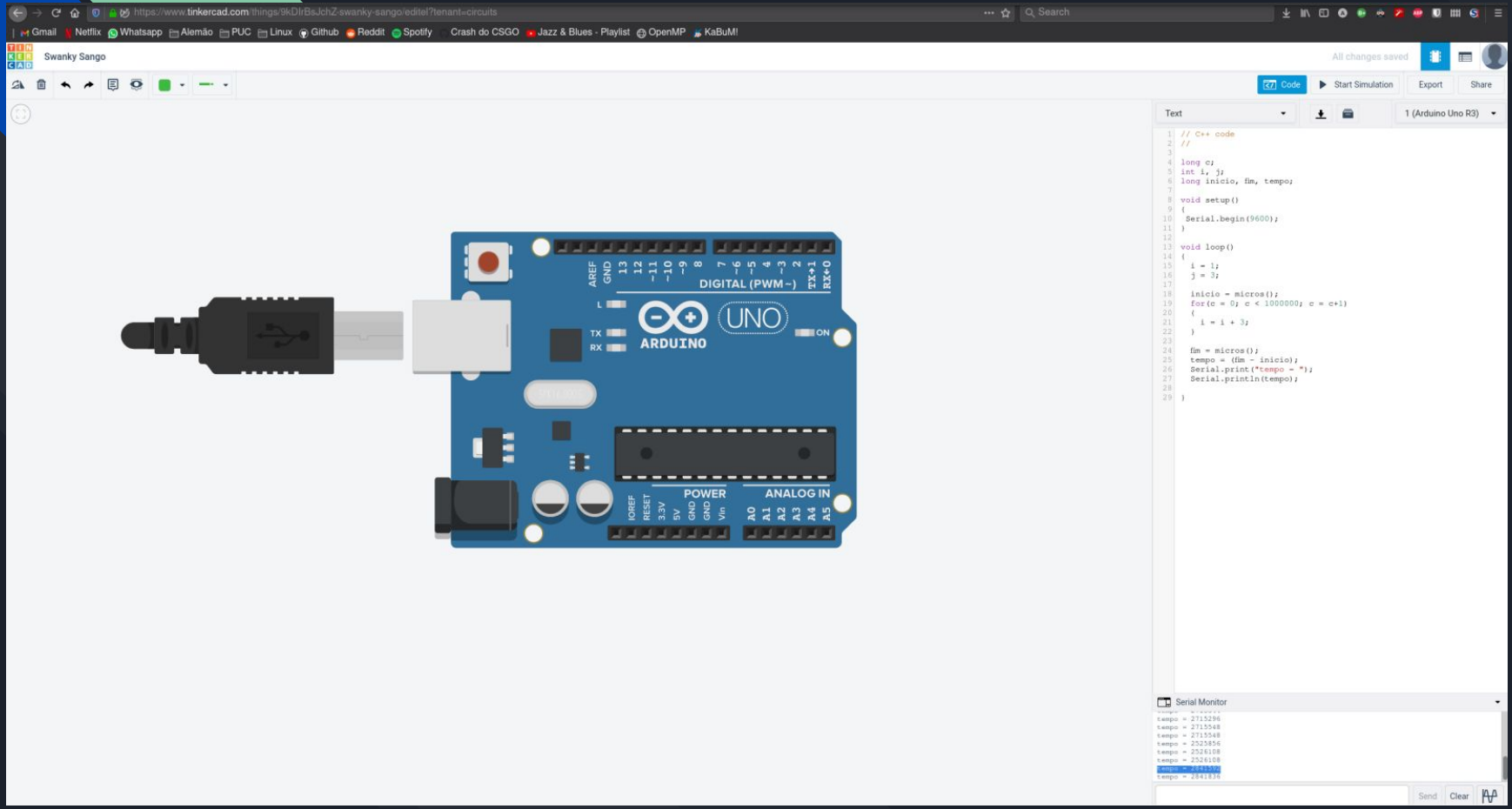
# Parte 1 – Print Arduino



# 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 |

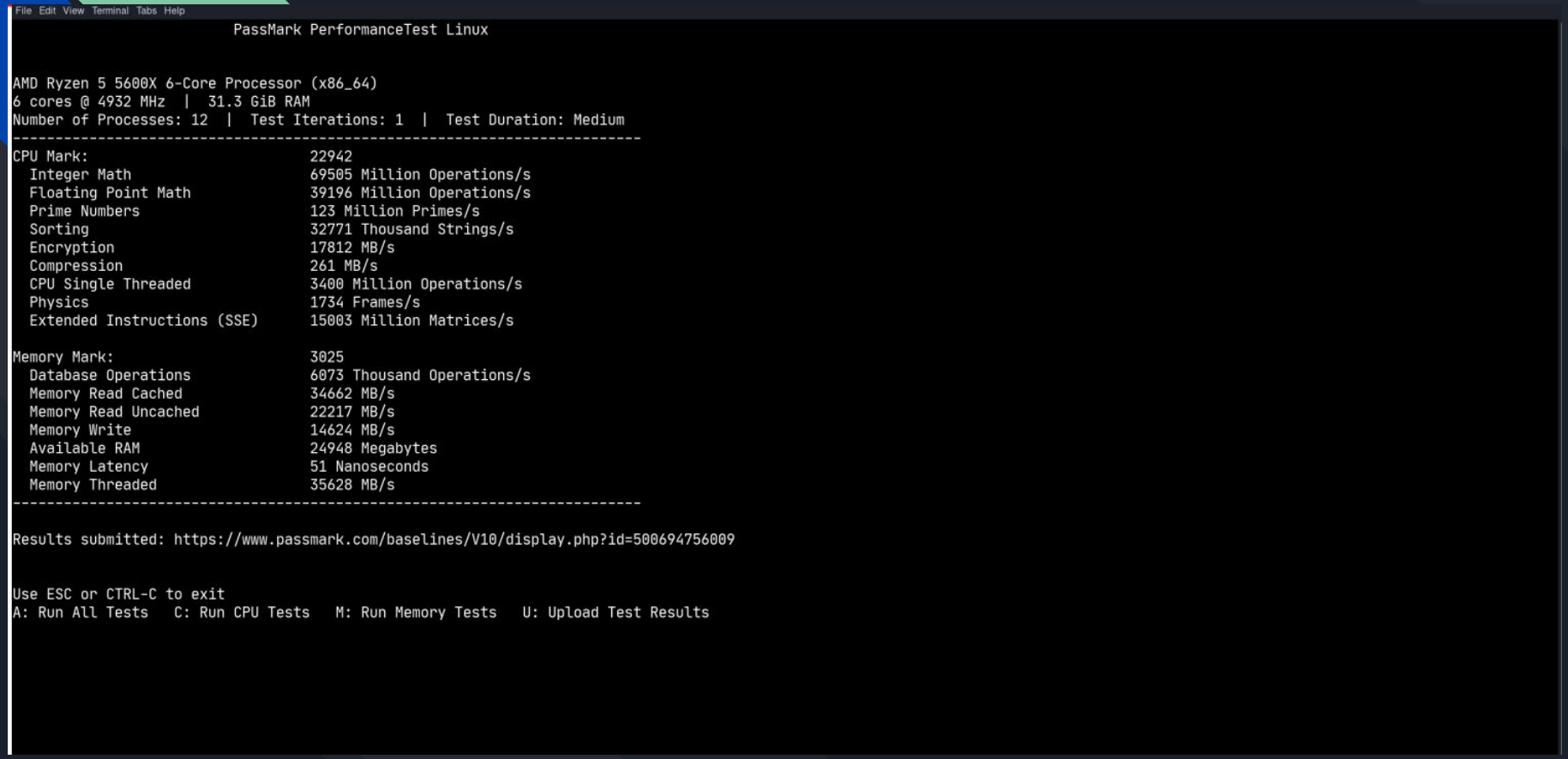
# Parte 1 – Tabela Arduino

| 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 |

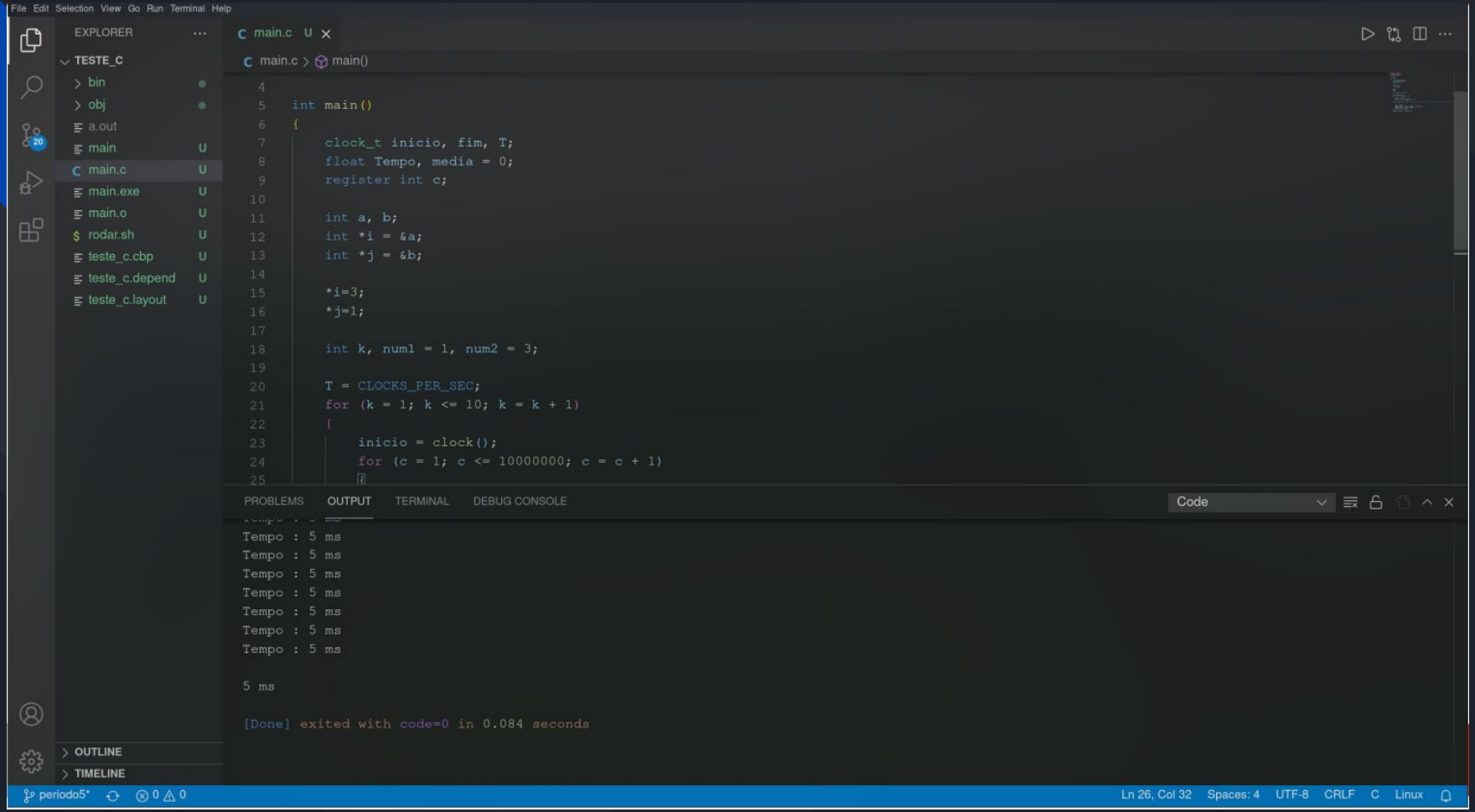
# Parte 1 – Tabela Arduino

| 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 |

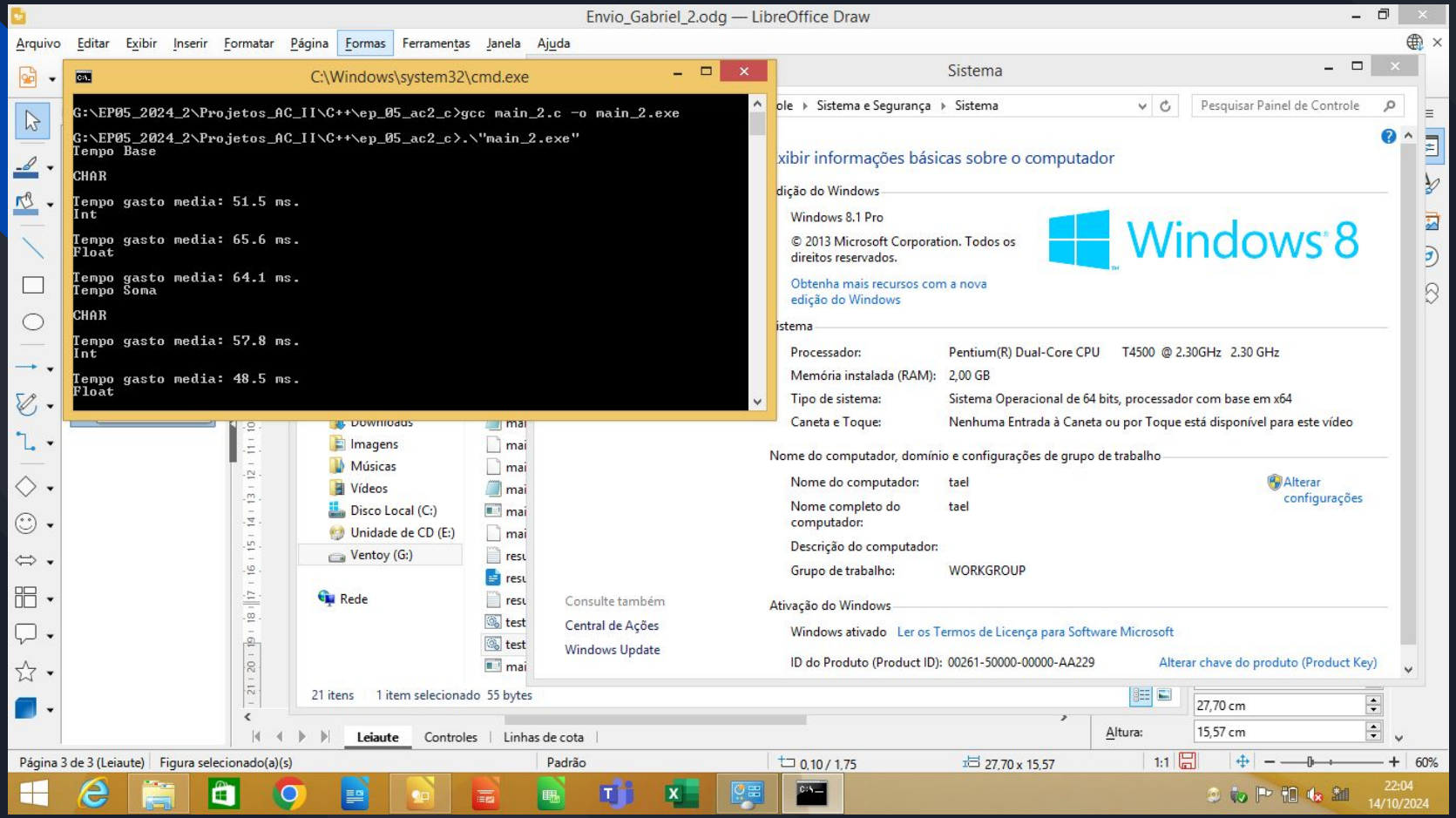
# Parte 2 – PassMark Benchmark



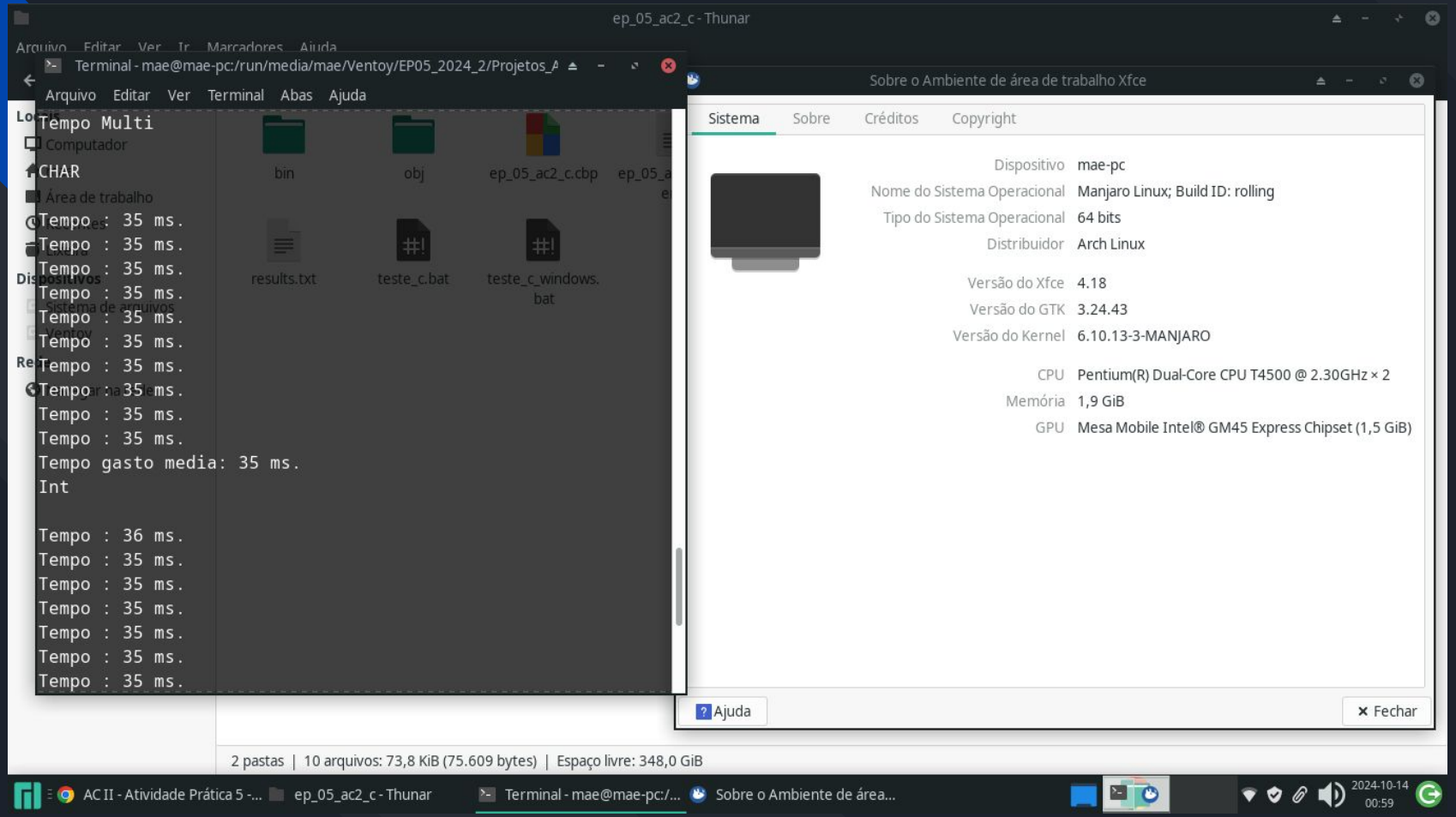
# Parte 3 – Print Código em C



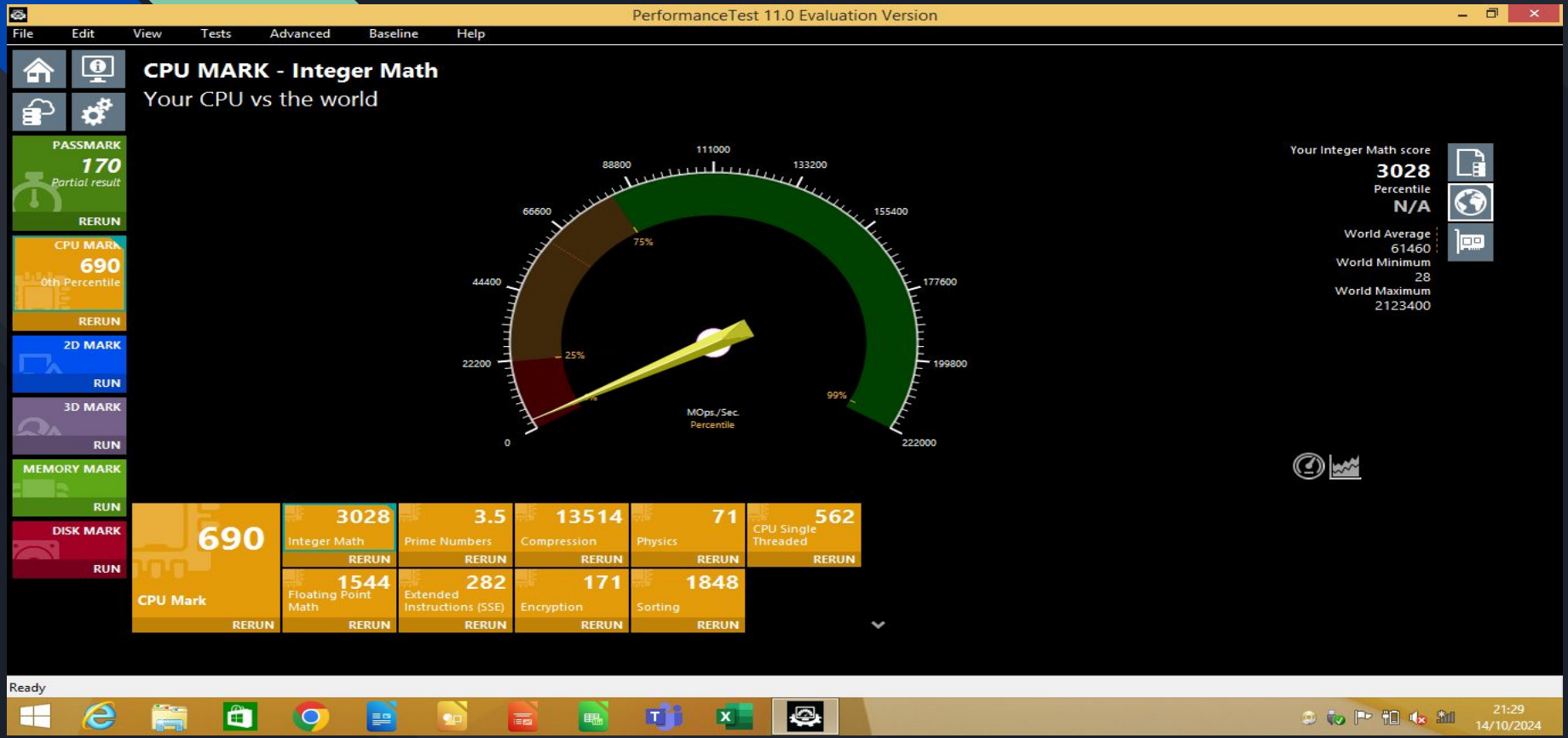
# Parte 3 – Print Código em C - máquina 2



# Parte 3 – Print Código em C - máquina 2



# Parte 3 – Print Passmark - máquina 2



# Parte 3 – Print Passmark - máquina 2

# Parte 3 – Configuração do 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 – Configuração do PC 2

Intel® Pentium® T4500 - 2 cores / 2 threads @2.3 Ghz

2 GB RAM @ 800 Mhz

Manjaro XFCE 64 - kernel versão 6.10.13-3
Windows 8.1 Pro x64

GCC E GCC-libs versão 14.2.1

# Parte 3 – Tabela Programa C - Máquina 1

| | | 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 - Máquina 1

| 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 - Máquina 1

| 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 - Máquina 1

| 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 |

# Dados Programa C Máquina 2

| Notebook Positivo Sim+4025 Manjaro XFCE | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Use para o teste ( i = i op j ) | | | Use para o teste ( i = i op 3) | | |
| Tipo | Tempo base | Soma | Or | Mult. | Soma | Or | Mult. |
| Char | 25,1 | 29 | 29 | 34 | 29 | 29 | 34,2 |
| Int | 23,8 | 29,5 | 26,5 | 34,2 | 25 | 26,3 | 34,1 |
| Float | 28,7 | 39 | N/A | 43 | 39 | N/A | 43 |
| *int | 29 | 28 | 28 | 35,2 | 26 | 27 | 37 |

| Notebook Positivo Sim+4025 Windows 8.1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Use para o teste ( i = i op j ) | | | Use para o teste ( i = i op 3 ) | | |
| Tipo | Tempo base | Soma | Or | Mult. | Soma | Or | Mult. |
| Char | 25,1 | 56,5 | 57,2 | 67,3 | 57,1 | 62,9 | 82,6 |
| Int | 29,5 | 45,9 | 64,9 | 67,2 | 48,1 | 48,3 | 70,2 |
| Float | 28,7 | 75,6 | N/A | 2369,9 | 78,9 | N/A | 2342,1 |
| *int | 29 | 61,2 | 61,5 | 74,9 | 59 | 57,1 | 71,3 |

# Dados Programa C Máquina 2

| Notebook Positivo Sim+4025 | | | | | |
|---|---|---|---|---|---|
| MIPS | | | | | MFLOPS |
| | | char | int | *int | float |
| Constante | Soma | 318,4713376 | 609,756098 | 310,559006 | 213,219616 |
| | Mult. | 236,9668246 | 265,251989 | 217,864924 | 4,27131386 |
| | Or | 311,5264798 | 282,485876 | 307,692308 | N/A |
| Variável | Soma | 312,5 | 537,634409 | 333,333333 | 199,203187 |
| | Mult. | 173,9130435 | 245,700246 | 236,406619 | 4,322642 |
| | Or | 264,5502646 | 531,914894 | 355,871886 | N/A |
| CPI | | | | | |
| Constante | Soma | 7,222 | 3,772 | 7,406 | 10,787 |
| | Mult. | 9,706 | 8,671 | 10,557 | 538,476 |
| | Or | 7,383 | 8,142 | 7,475 | N/A |
| Variável | Soma | 7,36 | 4,278 | 6,9 | 11,546 |
| | Mult. | 13,225 | 9,361 | 9,729 | 532,082 |
| | Or | 8,694 | 4,324 | 6,463 | N/A |

# Parte 4 – Tabela Speedups

| Maquina forte | ICS | | CPIs | | | | | | CPI-medio |
|---|---|---|---|---|---|---|---|---|---|
| | Int | 6E+07 | Int | 1.44 | 2.976 | 1.92 | 1.488 | 3.888 | 3.072 | 2.464 |
| | Float | 4E+07 | Float | 13.344 | XXXX | 12.4 | 21.408 | XXXX | 20.64 | 16,948 |

| | ICS | | CPIs | | | | | | CPI-medio |
|---|---|---|---|---|---|---|---|---|---|
| | Int | 6E+07 | Int | 3,584 | 3,948 | 4,144 | 3,416 | 3,472 | 5,18 | 3,957333 |
| | Float | 4E+07 | Float | 6,664 | XXXX | 28,5712 | 6,552 | XXXX | 6,636 | 14,946 |

| Maquina Fraca | ICS | | CPIs | | | | | | CPI-medio |
|---|---|---|---|---|---|---|---|---|---|
| | Int | 6E+07 | Int | 3,772 | 8,142 | 8,671 | 4,278 | 4,324 | 9,361 | 6,424667 |
| | Float | 4E+07 | Float | 10,787 | N/A | 538,476 | 11,546 | N/A | 532,082 | 273,22275 |

# Parte 4 – Tabela Speedups

| Maquina forte | Frequencia(Hz) | CPU-time | | Speed-UP | | |
|---|---|---|---|---|---|---|
| | 4.6Ghz | Int | 0,032139 | Int | 4,568920 | Ryzen 5 5600x |
| | | Float | 0,22087 | Float | 4,933375 | GCC e GCC-libs versão 11.1.0 |
| | | | | | | Arch Linux - Kernel versão 5.14.14 |
| | Frequencia(Hz) | CPU-time | | Speed-UP | | |
| | 2,8Ghz | Int | 0,0848 | Int | 4,428703 | i7 7700HQ |
| | | Float | 2,1351 | Float | 1,426091 | Windows 10 |
| | | | | | | GCC-6.3.0-1 |
| Maquina Fraca | Frequencia(Hz) | CPU-time | | Speed-UP | | |
| | 2,3Ghz | Int | 0,057433 | Int | 1 | Pentium dual cor T4500 |
| | | Float | 0,81108 | Float | 1 | GCC e GCC-libs versão 14.2.1 |
| | | | | | | Linux Manjaro - Kernel versão 6.10.14 |