Project 3 Report

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CSCE212-002

**Dynamic Instruction Count and CPI:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| words | 10 | 20 | 30 | 40 | 50 |
| Instructions | 4366 | 7820 | 11506 | 15425 | 19112 |

CPI:

10 words: (1400\*2+2480\*3+486\*4)/4366= 2.79…

20 words:( 2520\*2+4428\*3+872\*4)/7820=2.7893…

30 words:( 3714\*2+6511\*3+1281\*4)/11506=2.7885…

40 words:( 4986\*2+8720\*3+1719\*4)/15425=2.7882…

50 words: (6180\*2+10805\*3+2127\*4)/19112=2.7879…

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Words | 10 | 20 | 30 | 40 | 50 |
| CPI | 2.79 | 2.7893 | 2.7885 | 2.7882 | 2.7879 |

**Energy Consumption:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Words | 10 | 20 | 30 | 40 | 50 |
| Energy (10^-15) | 21113 | 37887 | 55723 | 74696 | 92737 |

50 words: 335\*3+3546\*4+4067\*6+1429\*20+4783\*2=92737

After Optimize:

I adjust the produce which is used the most. I removed the useless code.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Words | 10 | 20 | 30 | 40 | 50 |
| Energy (10^-15) | 19793 | 35536 | 52181 | 70010 | 86645 |

50 words: 4791\*3+3536\*4+3525\*6+1425\*20+4239\*2=86645

**MIPS/mW:**

10 words: 4366/(19793\*10^-15\*10^9)=220583

20 words: 7820/(35536\*10^-15\*10^9)=220058

30 words: 11506/(52181\*10^-15\*10^9)=220501

40 words: 15425/(70010\*10^-15\*10^9)=220325

50 words: 19112/(86645\*10^-15\*10^9)=220578