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Section: A

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Lab-3

Section A: Amdahl’s Law

a). divide\_run # of cycles: 16680

b). divide2\_run # of cycles: 16661

difference: 19

1. opt\_division does shift instead of dividing and they shift by n which is in 2^n (2^3 = 8, 2^4 = 16, 2^5 = 32)
2. #cycles unopt / #cycles opt = SUoverall = 120463/17282 = 7.18
3. unopt: CPI: 3.0565; Cycles: 120463

opt: CPI: 0.6740; Cycles: 17269

120463-17629 = 103181

Section B: Assembly Program

4. opt does not have register $L6, $L7 and $L8

5. unopt: div = 3000; sra = 12

opt: div = 0; sra = 3009