CSE 331

Computer Organizations

Homework 1

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1- Cost per die = cost per wafer / Dies per wafer x Yield

Cost per wafer = 10000 x (1 – 0.2)^4 = $4096
Dies per wafer = 120
Yield = 80 x (1 – 0.1)^4 = 52.488 %

Cost per die = 4096 / 120 x 0.5249 = $65.03

2-

a. Compiler A:
Cpu clock cycles = (50 * 2 + 10 * 4 + 2 * 3) x 10^6 = 146 x 10^6

Compiler B:
Cpu clock cycles = (80 * 2 + 5 * 4 + 1 * 3) x 10^6 = 183 x 10^6

183 x 10^6 / 146 x 10^6 = 1.25

Compiler A is 1.25 times faster than compiler B

b. 100 ms = 0.1 s

Clock speed = cpu clock cycles / cpu time

Clock speed = 146 x 10^6 / 0.1 = 1.46 GHz