

1.

	ALU	load	branch	total
cycles	1	2	4	NA
A number in millions	30	75	45	150
B number in millions	30	60	30	120
A% occurrences	20	50	30	100
B% occurrences	25	50	25	100
A CPI	NA	NA	NA	2.4
B CPI	NA	NA	NA	2.25

% Occurences

$$total_A = ALU_A + load_A + branch_A$$

$$150 = 30 + 75 + 45$$

$$1 = .2 + .5 + .3$$

$$100 = 20 + 50 + 30$$

$$total_B = ALU_B + load_B + branch_B$$

$$120 = 30 + 75 + 45$$

$$1 = .25 + .5 + .25$$

$$100 = 25 + 50 + 25$$

CPI

$$CPI = Cycles_{ALU}(ALU\%) + Cycles_{load}(load\%) + Cycles_{branch}(branch\%)$$

$$CPI_A = 1(.2) + 2(.5) + 4(.3)$$

$$= .2 + 1 + 1.2$$

$$= 2.4$$

$$CPI_B = 1(.25) + 2(.5) + 4(.25)$$

$$= .25 + 1 + 1$$

$$= 2.25$$