MARTÍ PALOMARES PERERA

(41)

AC Problemas Sesión 9

(3.18) a) $T_{exe} = N \cdot CPI_{ideal} \cdot T_C = 5 \cdot 10^9 \cdot 1,8 \cdot 10 \cdot 10^{-9} = \boxed{90s}$

$T_C = 10ns$

P { $N = 5 \cdot 10^9$ inst. ; $t_{am} = 1c$. ; $CPI_{ideal} = 1,8$ u.

b) accessos a L1 = $\boxed{5 \cdot 10^9 \text{ accessos}}$

c) $T_{pene} = (\text{sumar}) = \boxed{13c}$

d) $t_{mam} = t_h + m \cdot t_{pf} = 1 + 0,1 \cdot 13 = 2,3$ cicles

$t_{mam(s)} = 2,3c \cdot \frac{10ns}{1c} = \boxed{23ns}$

e) $CPI_{TOT} = CPI_{ideal} + CPI_{MEM} = 1,8 + 0,1 \cdot 13 = \boxed{3,1 c/i}$

CPI ?

f) $t_{exe(s)} = N \cdot CPI \cdot t_C = 5 \cdot 10^9 \cdot 3,1 \cdot 10 \cdot 10^{-9} = \boxed{155s}$

g) L2 { m = 0,3 ; 32B/bk.

$\frac{L1}{0,1} \cdot \frac{L2}{0,7} = 0,07 = \boxed{7\%}$

f) Speedup = $\frac{3,1}{2,2} = \boxed{1,359}$

h) $\frac{L1}{0,1} \cdot \frac{L2}{0,3} = 0,03 = \boxed{3\%}$

i) $t_{pene} = (\text{sumar}) = \boxed{5 \text{ cicles}}$

j) $t_{pf} = (\text{sumar}) = \boxed{16 \text{ cicles}}$

K) $t_{mam} = t_h + m_{L1} \cdot t_{pf_{L1}} + m_{L2} \cdot t_{pf_{L2}} = 1 + 0,1 \cdot 0,3 \cdot 16 = \boxed{1,48c}$

$t_{mam(s)} = 1,48c \cdot \frac{10ns}{1c} = \boxed{14,8ns}$ $1,48 \cdot 10_{ns} = \boxed{14,8ns}$

e) $CPI_{TOT} = CPI_{ideal} + CPI_{MEM} = 1,8 + 0,1 \cdot 0,3 \cdot 16 = \boxed{3,28 c/i}$