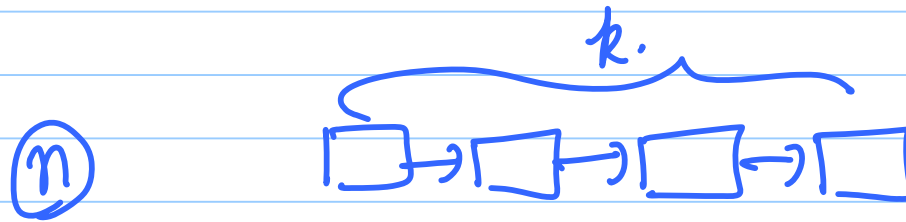


Sept 20th

Note Title

20-09-2011



$$\text{Time}_{\text{non-pipelined}} = nk$$

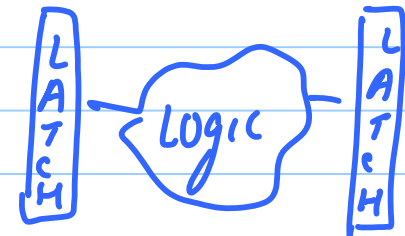
$$\text{Time}_{\text{pipelined}} = (n+k-1)$$

$$\text{CPI} = \frac{n+k-1}{n} \approx 1 \quad (n \gg k)$$

Limit Pipeline Speedup

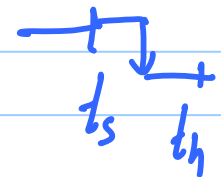
1) Hazards

2) Notion of Algorithmic Work.



$$t_{clk} > t_s + t_h$$

$$+ t_{logic}$$

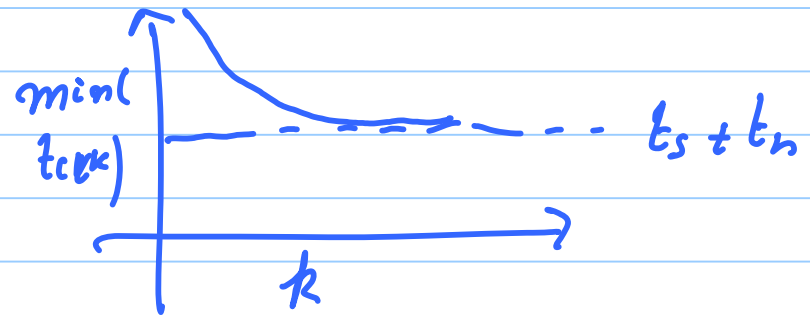


$$\text{Total Work} = W$$

$$t_{logic} = \frac{W}{k}$$

$$\min(t_{ck}) = t_s + t_n + \frac{W}{k}$$

$$k \gg 1$$



$$p = f \times IPC = \frac{1}{t_{ck} \times CPI}$$

