Date

第六次作业

1.

1).

5级流水化后时钟周期应取流水级中延时最长一级的延时

~~应取~~

$\because T_{pipe} = \max\{1ns, 1.5ns, 2ns, 1ns, 1.5ns\} + 0.1ns$

$= 2.1ns$

2) N很大时, $\frac{CPI_{pipe}}{CPI_{cycle}} \approx 1$

$\therefore S_{overall} \approx \frac{T_{cycle}}{T_{pipe}} = \frac{7ns}{2.1ns} = \frac{10}{3} \approx 3.33$

3). 设有K级流水

流水线寄存器延时均为0.1ns

N很大时, $\frac{CPI_{pipe}}{CPI_{cycle}} \approx 1$

可取 $T_{pipe} = \frac{7ns}{K} + 0.1ns$

则 $S_{overall} = \frac{7ns}{\frac{7ns}{K} + 0.1ns}$

$K \to \infty$ 时

~~$S_{overall}$~~ $S_{overall} = 70$

即为最大加速比