

A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light greenish-blue. They are positioned diagonally, with the blue one partially covering the green one.

Pipeline Stalls e Flushes

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Primeiro Exemplo

```
1  #include<stdio.h>
2
3  int main() {
4      int i;
5      int vetor[1000];
6      for(i = 0; i < 1000; i++) {
7          if((i % 2) == 0)
8              vetor[i] = 2;
9          else
10             vetor[i] = 1;
11     }
12 }
```



Com adiantamento

Execution info	
Cycles:	32524
Instrs. retired:	23516
CPI:	1.38
IPC:	0.723
Clock rate:	18.87 KHz

Total de Stalls: 3000 (3 stalls por ciclo do loop).

Total de Flushes: 3001 (6 na primeira execução do loop, 5 nas outras 999 execuções e 1 na última execução).

Sem adiantamento

Execution info	
Cycles:	64526
Instrs. retired:	54518
CPI:	1.18
IPC:	0.845
Clock rate:	9.16 KHz

Total de Stalls: 0 (tratado com os nops)

Total de Flushes: 5001



Primeiro Exemplo- Melhor Performance

Com adiantamento

Cycles:	26524
Instrs. retired:	21516
CPI:	1.23
IPC:	0.811
Clock rate:	6.20 KHz

Total de Stalls: 3000
Total de Flushes: 2001

Sem adiantamento

Cycles:	50026
Instrs. retired:	47018
CPI:	1.06
IPC:	0.94
Clock rate:	1.38 KHz

Total de Stalls: 0
Total de Flushes: 3001



Segundo exemplo

```
1  #include<stdio.h>
2
3  int main() {
4      int i;
5      int vetor[1000];
6      for(i = 0; i < 1000; i+=2) {
7          vetor[i] = 2;
8          vetor[i+1] = 1;
9      }
10 }
```



Com adiantamento

Cycles:	15524
Instrs. retired:	11016
CPI:	1.41
IPC:	0.71
Clock rate:	4.13 KHz

Stalls: 1500
Flushes: 1502

Sem adiantamento

Cycles:	25526
Instrs. retired:	22518
CPI:	1.13
IPC:	0.882
Clock rate:	21.46 KHz

Stalls: Tratados com nops
Flushes: 1500



Segundo Exemplo- Melhor Performance

Com adiantamento

Cycles:	12021
Instrs. retired:	10015
CPI:	1.2
IPC:	0.833
Clock rate:	18.17 KHz

stall: 501
flushes:500

Sem adiantamento

Cycles:	22526
Instrs. retired:	21518
CPI:	1.05
IPC:	0.955
Clock rate:	6.88 KHz

stall: **Tratados com nops**
flushes:1000