



Pipeline Stall e Flushs

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Primeiro Exemplo

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



Com adiantamento

Cycles:	32524
Instrs. retired:	23516
CPI:	1.38
IPC:	0.723
Clock rate:	7.07 KHz

Sem adiantamento

Cycles:	64526
Instrs. retired:	54518
CPI:	1.18
IPC:	0.845
Clock rate:	12.43 KHz



Primeiro Exemplo- Melhor Performance

Com adiantamento

Cycles:	28024
Instrs. retired:	22016
CPI:	1.27
IPC:	0.786
Clock rate:	4.76 KHz

Sem adiantamento

Cycles:	52026
Instrs. retired:	49018
CPI:	1.06
IPC:	0.942
Clock rate:	13.44 KHz

Segundo exemplo

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main() {
5      int i;
6      int vetor[1000];
7      for(i = 0; i < 1000; i++) {
8          if((i % 2) == 0)
9              vetor[i] = 2;
10         else
11             vetor[i] = 1;
12     }
13 }
```



Com adiantamento

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

Sem adiantamento

Cycles:	26026
Instrs. retired:	23018
CPI:	1.13
IPC:	0.884
Clock rate:	14.93 KHz



Segundo Exemplo- Melhor Performance

Com adiantamento

Cycles:	12521
Instrs. retired:	10015
CPI:	1.25
IPC:	0.8
Clock rate:	7.47 KHz

Sem adiantamento

Cycles:	23026
Instrs. retired:	22018
CPI:	1.05
IPC:	0.956
Clock rate:	3.42 KHz