

## Cycle 3430

Decode jalr to shellcode

*Register File Tag*

rf\_reg[1]

*ID\_stage*

*IF\_stage*

pc\_if\_o.tag

*IF\_stage*

**Fetch :** 0xc34: addi sp, sp, -128  
**Decode :** 0xc30: jalr zero,ra,0  
**Execute :** 0xc2c: addi sp, sp, 128  
**WB :** 0xc28: lw s0,120(sp)

## Cycle 3431

Fetch 1<sup>st</sup> instruction shellcode

## Cycle 3432

Fetch 2<sup>nd</sup> instruction shellcode  
Decode 1<sup>st</sup> instruction shellcode

*Tag Check Register*

pc\_id\_o.tag

tcr.q[21]

*ID\_stage*

Exception handling

**Fetch :** 0x6fc: addi sp, sp, -16  
**Decode :** 0xc30: jalr zero,x1,0  
**Execute :**  
**WB :** 0xc2c: addi sp, sp, 128

**Fetch :** 0x700: sw ra,12(sp)  
**Decode :** 0x6fc: addi sp, sp, -16  
**Execute :**  
**WB :**