

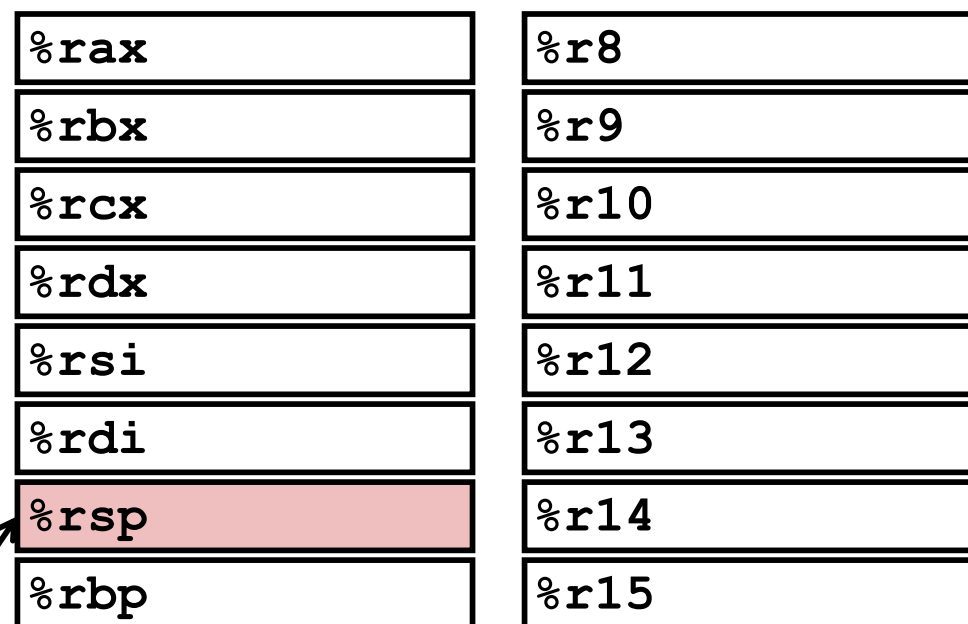
Processor State (x86-64, Partial)

■ Information about currently executing program

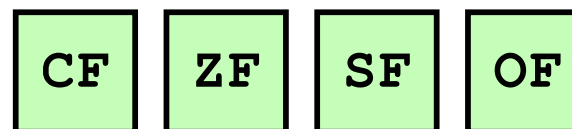
- Temporary data (`%rax`, ...)
- Location of runtime stack (`%rsp`)
- Location of current code control point (`%rip`, ...)
- Status of recent tests (CF, ZF, SF, OF)

Current stack top

Registers



`%rip` Instruction pointer



Condition codes

Condition Codes (Implicit Setting)

■ Single bit registers

- CF Carry Flag (for unsigned) SF Sign Flag (for signed)
- ZF Zero Flag OF Overflow Flag (for signed)

■ Implicitly set (think of it as side effect) by arithmetic operations

Example: `addq Src, Dest` \leftrightarrow `t = a+b`

CF set if carry out from most significant bit (unsigned overflow)

ZF set if `t == 0`

SF set if `t < 0` (as signed)

OF set if two's-complement (signed) overflow

`(a>0 && b>0 && t<0) || (a<0 && b<0 && t>=0)`

■ Not set by `leaq` instruction