

Bit Shifting Instruction

- SHL/SAL

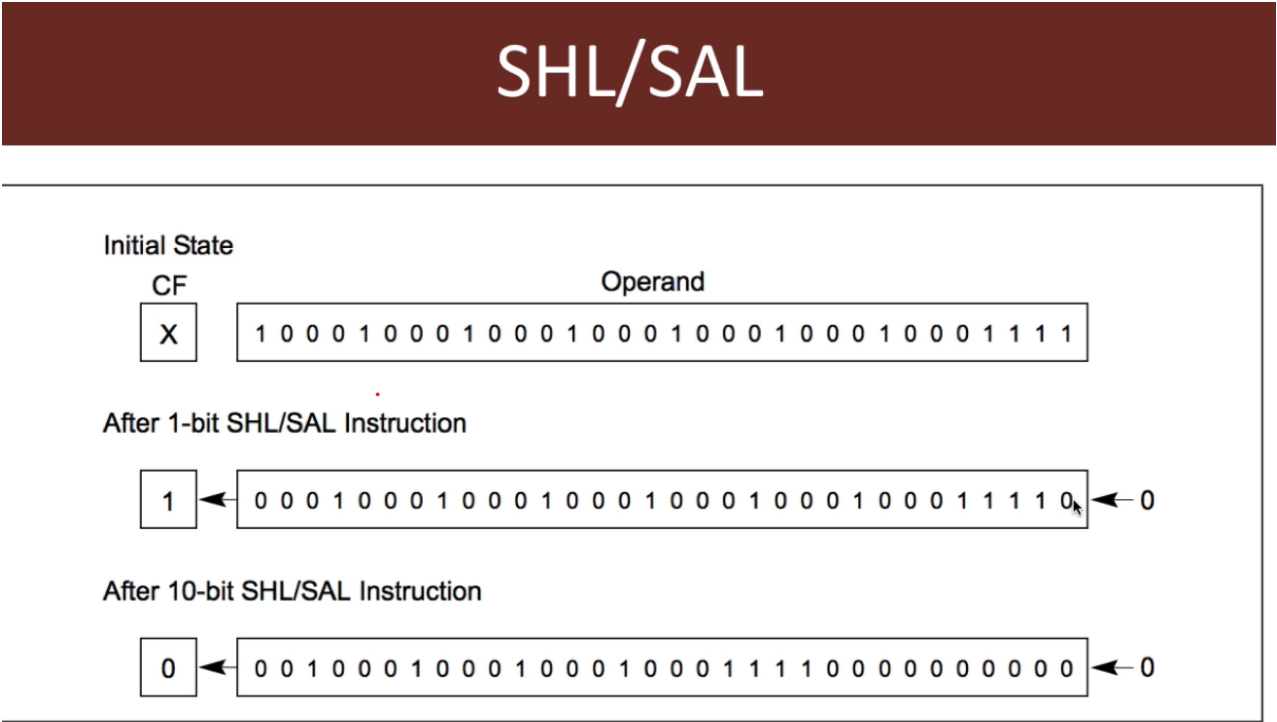


Figure 7-6. SHL/SAL Instruction Operation

- SHR

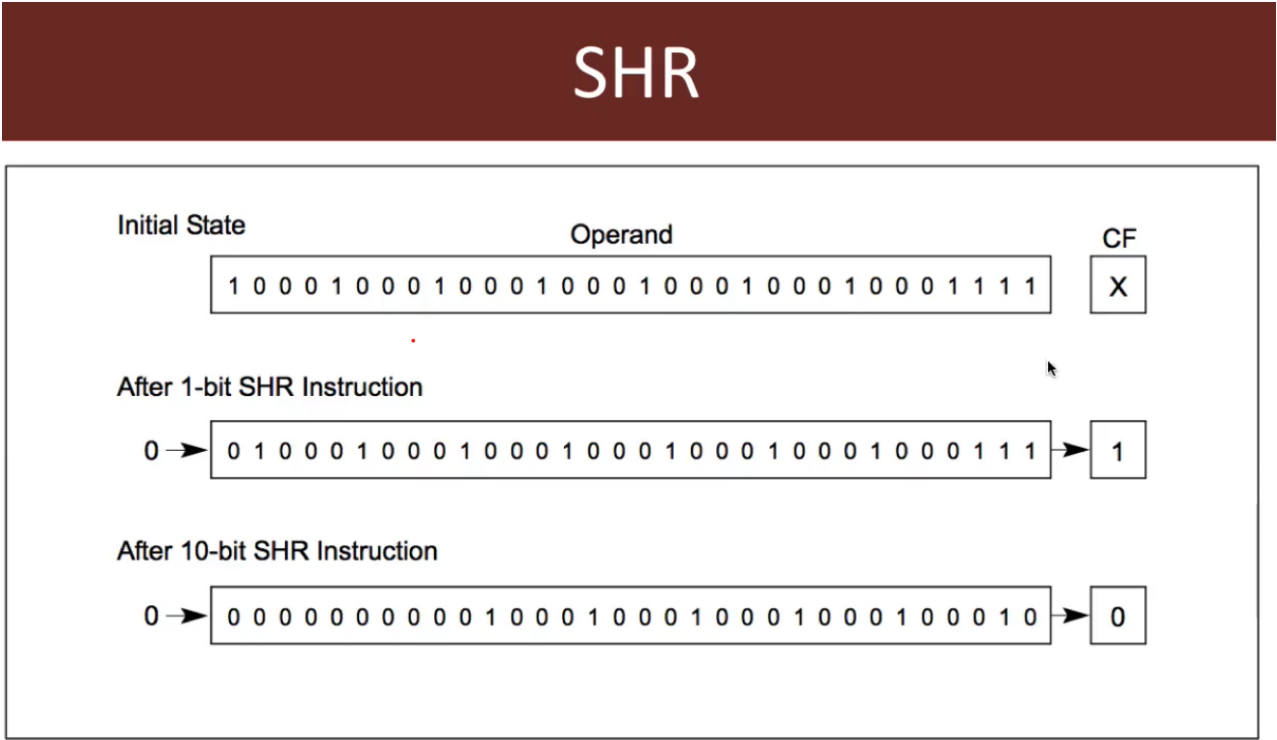
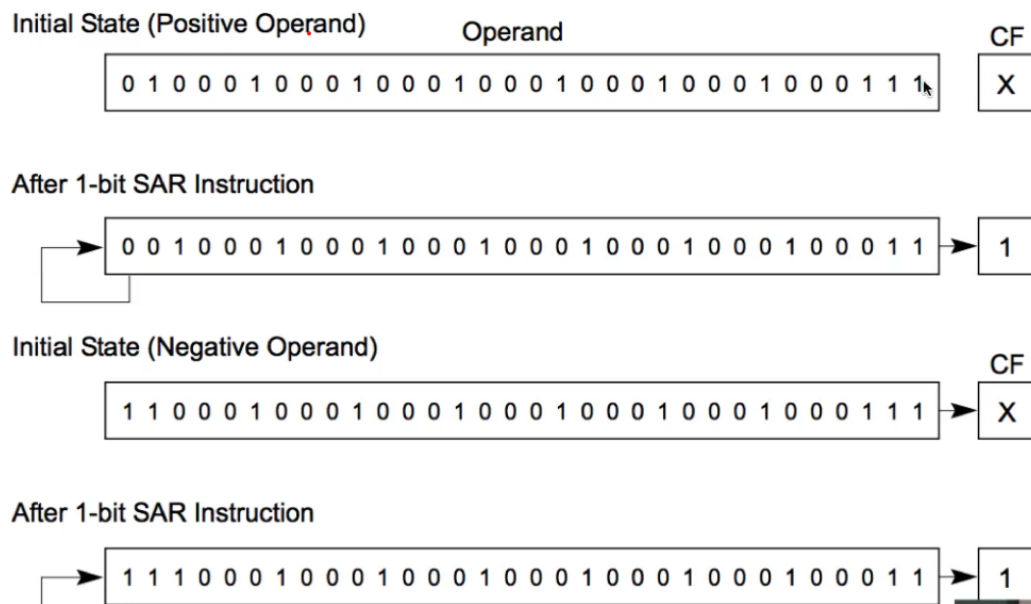


Figure 7-7. SHR Instruction Operation

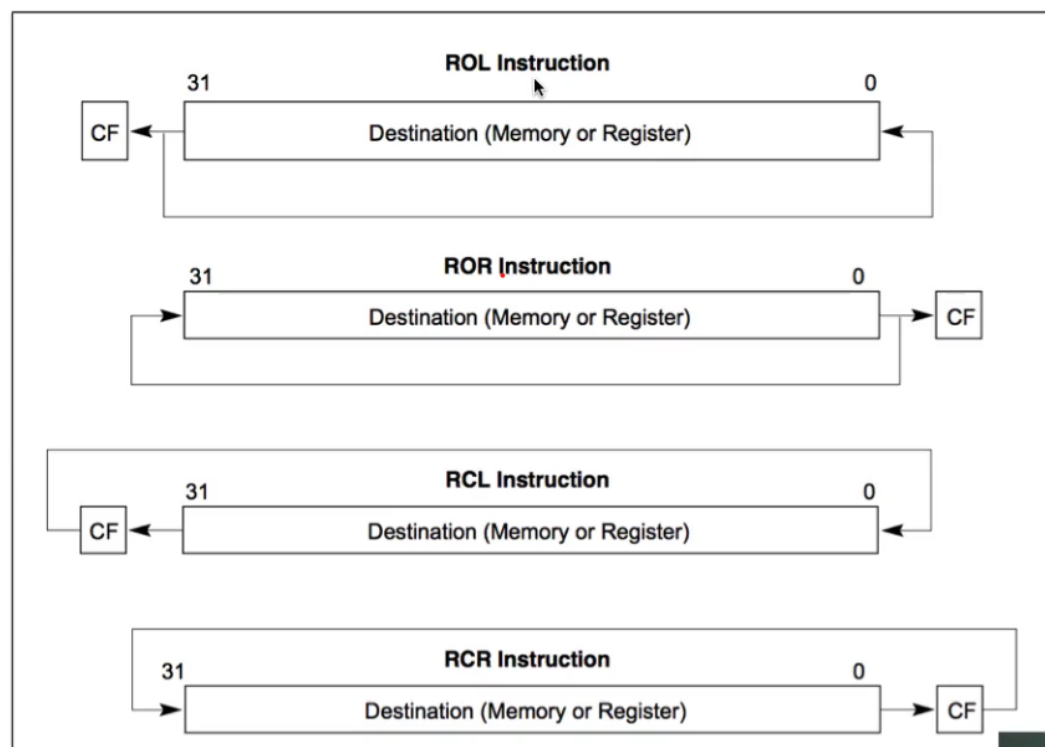
- SAR

SAR



- ROL

Rotate Instructions



CODE :

```
global _start

section .text
_start:

    mov rax, 0x00000000ffffffff
    sal rax, 32
    sal rax, 1

    clc
    mov rax, 0x00000000ffffffff
    shr rax, 1
    shr rax, 31

    clc
    mov rax, 0x00000000ffffffff
    sar rax, 1
    clc
    mov rax, 0xffffffffffffffff
    sar rax, 1

    clc
    mov rax, 0x0123456789abcdef
    ror rax, 8
    ror rax, 12
    ror rax, 44

    ; exit the program gracefully

    mov rax, 0x3c
    mov rdi, 0
    syscall

section .data

var1 dq 0x1111111111111111
var2 dq 0x0
```