CSE 331L / EEE 332L

Microprocessor Interfacing & Embedded System

Section: 5,6 &7 , Fall 2021

Lab- 07: Bit-Shift

Bit-shift:

- The instructions have two possible formats. For a single shift or rotate, the form is

  Opcode destination,l

- For a shift or rotate of N positions, the form is

  Opcode destination, CL

  where CL contains N. In both cases, destination is an 8 or 16 bit register or memory location.

Example: Multiply using bit-shift instruction

```
12      mov ax, 3h
13
14      shl ax, 1     ; multiply bx by 2^1
15
16      print "3X2^1 = 3X2 = "
17      call print_num
18      printn
19
20      shl ax, 2     ; multiply bx by 2^2
21
22      print "6X2^2 = 6X4 = "
23      call print_num
24      printn
25
26      shl ax, 3     ; multiply bx by 2^3
27
28      print "24X2^3 = 24X8 = "
29      call print_num
30      printn
```

Example: Division using bit-shift

```
12      mov ax, 192
13
14      shr ax, 1     ; divide by 2^1
15
16      print "192/2^1 = 192/2 = "
17      call print_num
18      printn
19
20      shr ax, 2     ; divide by 2^2
21
22      print "96/2^2 = 96/4 = "
23      call print_num
24      printn
25
26      shr ax, 3     ; divide by 2^3
27
28      print "24/2^3 = 24/8 = "
29      call print_num
30      printn
31
32      ;division for odd number
33      print "3/2 = "
34      shr ax, 1
35      call print_num
36
```