SCHOOL OF SOFTWARE, TSINGHUA UNIVERSITY

Architecture of Computer and Network (2)

homework 2

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I. Problem 1

Which instruction pushes all 32 bits general register into stack?
PUSHAD

II. Problem 2

In protect mode,how many bytes of space does procedure need at least?
4 bytes

III. Problem 3

Please write a instruction to reverse all the bit in EAX.
xor eax, FFFFFFFFh

IV. Problem 4

Which jump instruction equals to JA?
JNBE

Problem 5

Please write some instructions to jump to label L2 when signed integer in AX is larger than signed integer in CX.
cmp ax, cx jg L2

V. Problem 6

Does LOOPZ instruction jump to the label only when ZF = 0?
No, it jumps when ZF = 0 or ECX ≤ 0.

VI. Problem 7

Use assembly language to implement the following pseudocode(assume that they are all unsigned)

```
1 if (dx <= cx)
2       X = 1;
3 else
4       X = 2;
```

```
cmp dx, cx
jbe L1
jmp L2
L1:
  mov x, 1
L2:
  mov x, 2
```

VII. PROBLEM 8

Use 32 bits register to implement the following loop(do not use directives like .while)

```
while( ebx <= val1)
{
        ebx = ebx + 5;
        val1 = val1 - 1
}
```

```
while:
    cmp ebx, val1
    jg endwhile
    add ebx, 5
    dec val1
    jmp while
endwhile
```