

16.317: Microprocessor Systems Design I

Spring 2013

Lecture 18: Key Questions

March 18, 2013

Assume the 80386 is running in protected mode with the state given below (all values in hex); note that each memory location shown contains a descriptor about a particular segment:

GDTR = 00200000001F
LDTR = 000B

DS = 0017
SS = 0018
ESI = 00001000
EBX = 0001120

| Memory | Address |
|---------------------------------|----------|
| Base = 030010F0 Limit = 020F | 00200000 |
| Base = 00200020 Limit = 0017 | 00200008 |
| Base = 00200038 Limit = 0010 | 00200010 |
| Base = 1200C000 Limit = FFFF | 00200018 |
| Base = 12340000 Limit = 00FF | 00200020 |

| Memory | Address |
|---------------------------------|----------|
| Base = 01000010 Limit = 1127 | 00200028 |
| Base = 03170200 Limit = 03F7 | 00200030 |
| Base = 1A000000 Limit = 01FF | 00200038 |
| Base = 06B01000 Limit = 0F07 | 00200040 |
| Base = 05000120 Limit = 000F | 00200048 |

- What is the base address and limit of the global descriptor table? How many descriptors does this table contain?
- What is the base address and limit of the current local descriptor table? How many descriptors does this table contain?
- What are the starting and ending addresses for the current data and stack segments?
- What address is accessed by each of the following instructions?
 - MOV AX, [0100H]
 - ADD DX, [SI]
 - MOV AX, SS:[SI+EF00]
 - SUB SS:[A200], CX
 - MOV DX, [BX+SI]
 - MOV CX, [BX+SI+1EH]

Space to answer questions

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