16.317: Microprocessor Systems Design I

Spring 2013

Lecture 3: Key Questions
January 28, 2013

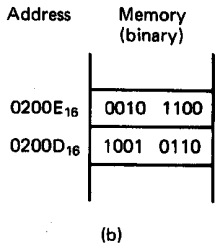
1. Describe the basic characteristics of processor registers.

2. Describe the basic characteristics of processor memory.

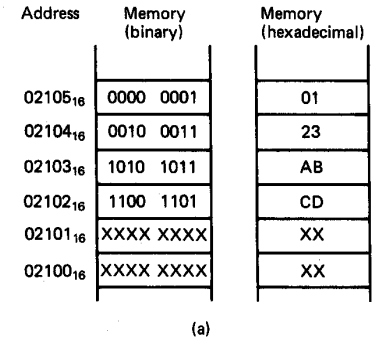
3. What does it mean for data to be aligned? What is the impact of mis-aligned data?

4. What is “little endian” data?

5. **Example:** Given the figure shown below (Fig. 2.5b), write the full data word in hexadecimal. Is this word aligned?



6. **Example:** Given the double word in this figure (Figure 2.7a), write the full double-word in hexadecimal. Is this double word aligned?



7. Describe the general characteristics of the 80386DX

8. Briefly describe the registers of the 80386DX.

9. What are the three general types of locations where operands can be stored and the addressing modes associated with those locations?

10. Explain what an effective address is and how one is generally calculated.

11. Describe each of the general classes of memory addressing modes.

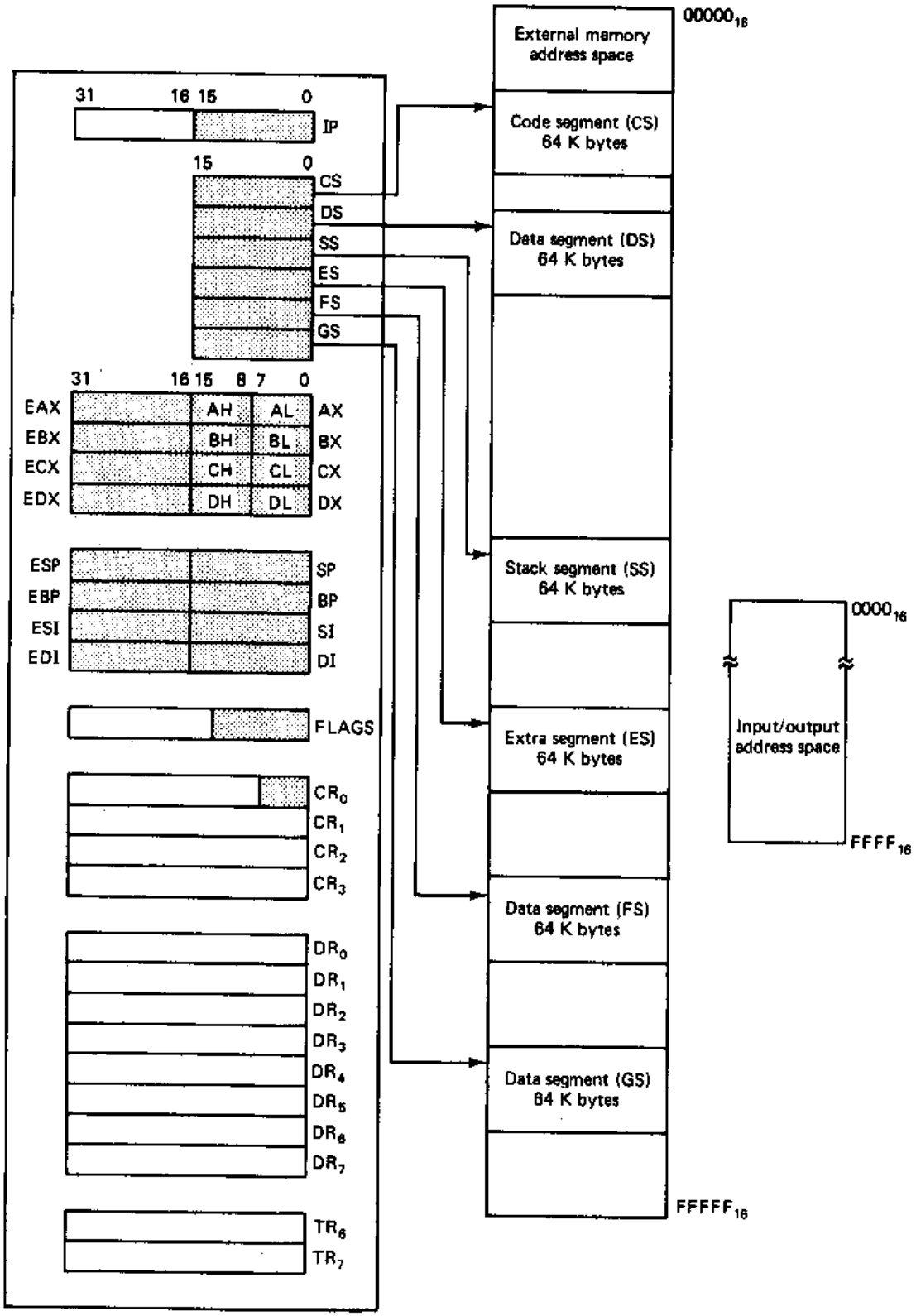


Fig. 2.2: Real-mode software model of the 80386DX microprocessor