16.317: Microprocessor Systems Design I

Spring 2012

Lecture 2: Key Questions
January 25, 2012

1. Briefly describe each of the six functional units in the 80386DX internal architecture.

2. What are the general aspects of a processor's "software model"?

3. Briefly describe the registers of the 80386DX.

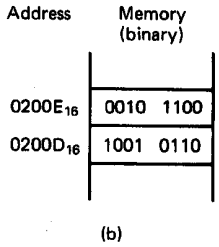
4. Explain how the 80386DX address space is organized.

5. What are the different accessible data sizes on the 80386DX?

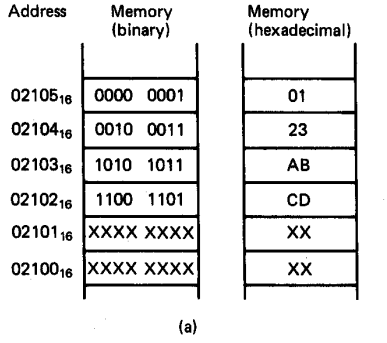
6. What is “little endian” data?

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

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



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



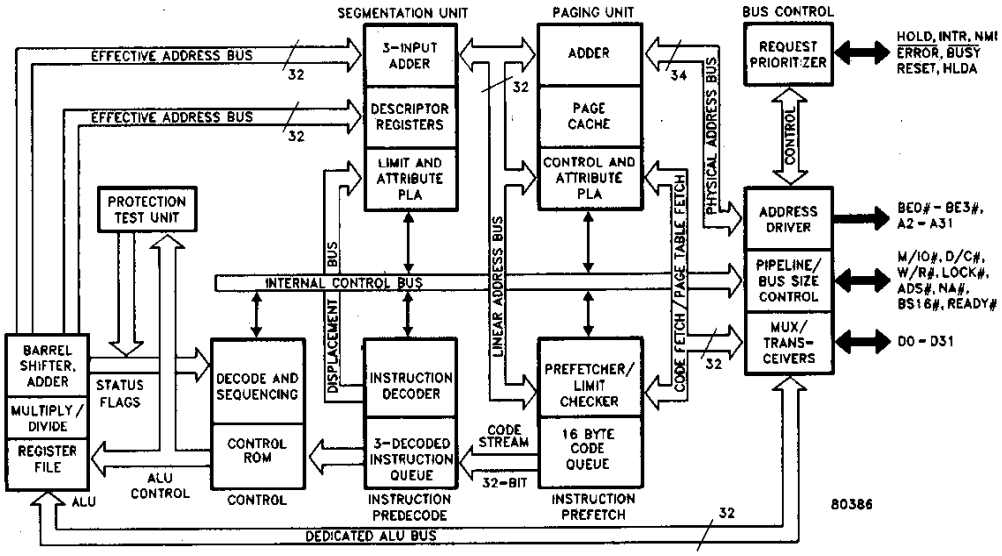


Fig. 2.1: 80386DX internal architecture

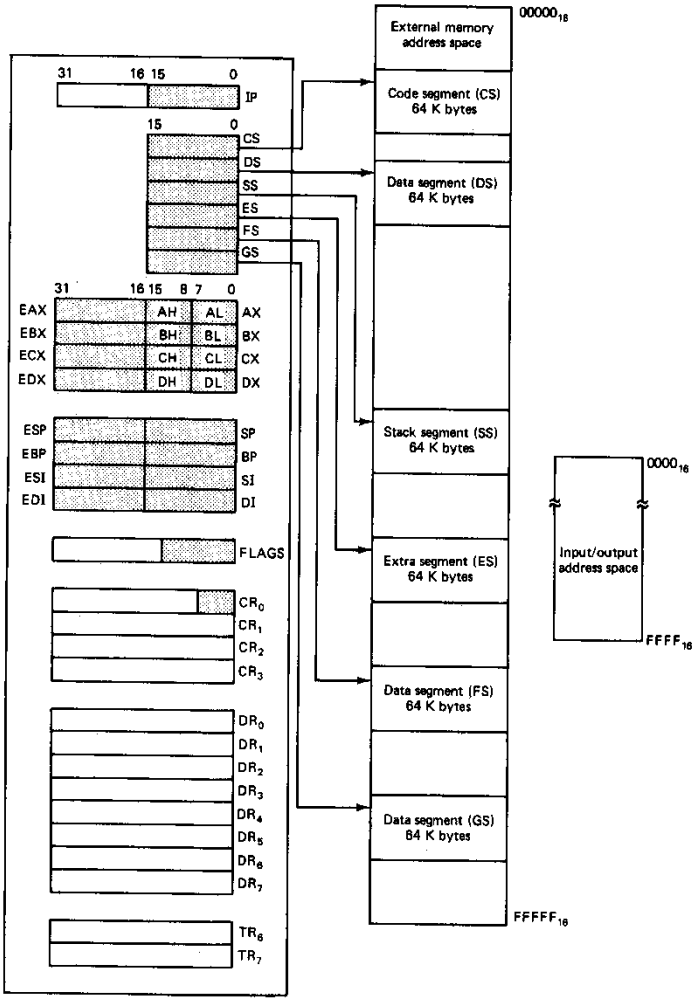


Fig. 2.2: Real-mode software model of the 80386DX microprocessor