

本試題是否可以使用計算機: 可使用, 不可使用 (請命題老師勾選)

1. (15%). List and explain five methods to increase the speed of the microprocessor (for one example, processor word length).
2. (15%). List and explain three write-to-memory policies (for one example, write-through).
3. (20%). List and explain five steps affecting the memory latency time by assuming that the address is issued at the beginning of the bus cycle (for one example, ALE active delay).
4. (20%) Consider an Intel 80286-based system for which we want to have the addressing space assigned to local and global memory as shown in Fig. 1: out of the maximum 16 Mbytes of directly addressable space (that the processor's 24-bit address can access), the first (lowest) 15 Mbytes are to be allocated to local memory, with the remaining 1 Mbyte to global memory. Show the necessary interface hardware and indicate the address formats for addressing the two different memories.

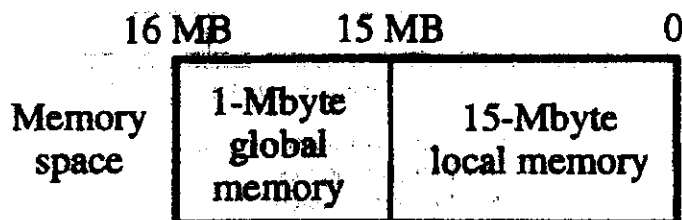
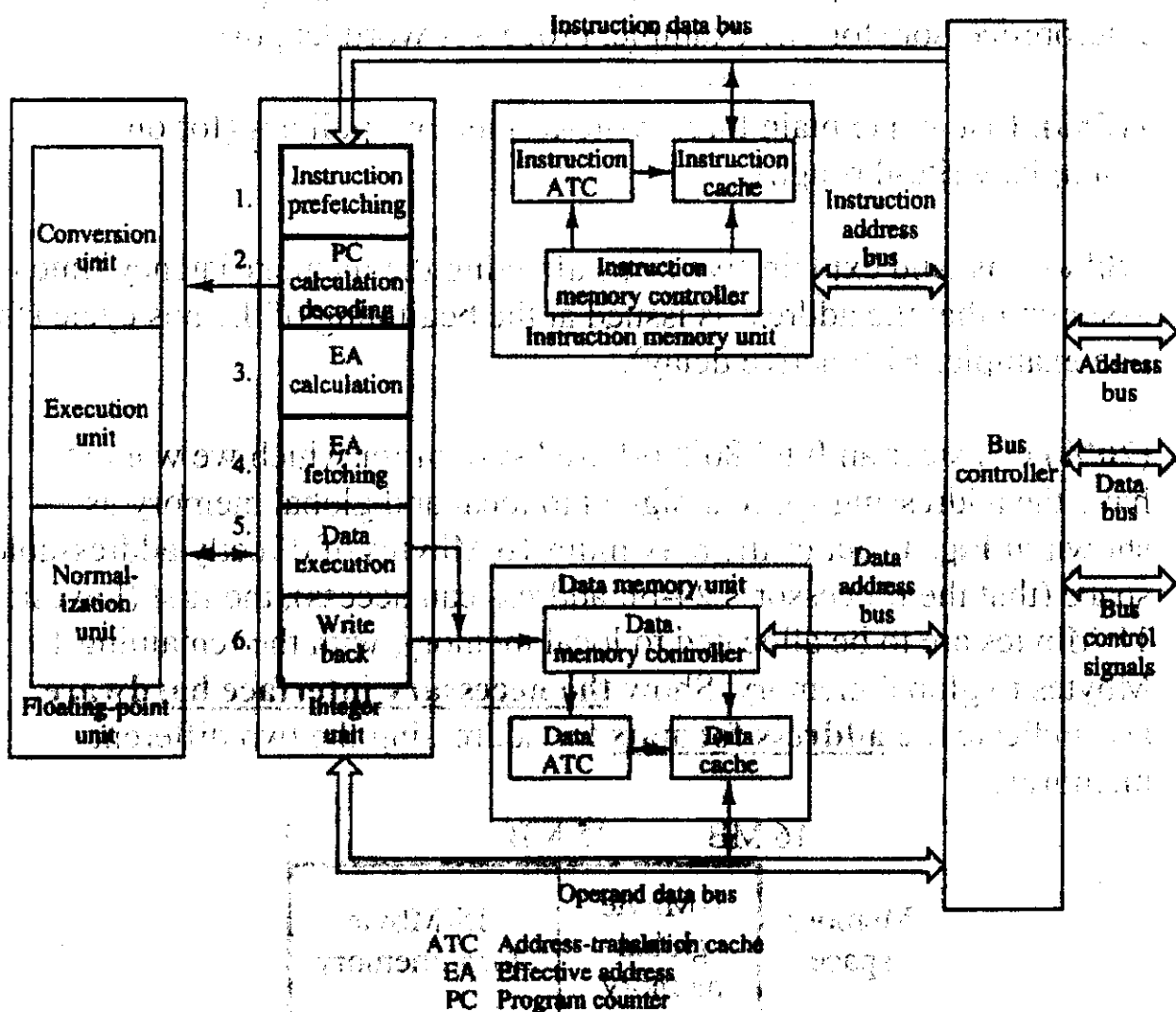


Fig.1

5. (12%) Consider an Intel i860 processor driven by an external 32-MHz clock connected to a "125-ns DRAM" memory. In order to match the microprocessor and memory speeds, how many N-way interleaving are required?
6. (18%) The 68040 has a 6-stage integer pipeline (as shown in Fig. 2). Explain the six stages (i.e. IP, PCD, EAC, EAF, DE, and WB).

(背面仍有題目,請繼續作答)

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(a) 68040 CPU with the 6-stage integer pipeline

Fig. 2