Popquiz 2 - Sep 19, 2025

1. Sketch the hardware organization of a computer, including: CPU chip, main memory, adapters and controllers and the connections between them (5 points).

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2. Where are the following objects located in the computer? Write down what they are and mark (1), (2), (3_ in your diagram. Assume that you've created a C file for the "hello world" program, and that you have compiled it using the `make` command. Tip: There could be more than 1 location per object (3 points).
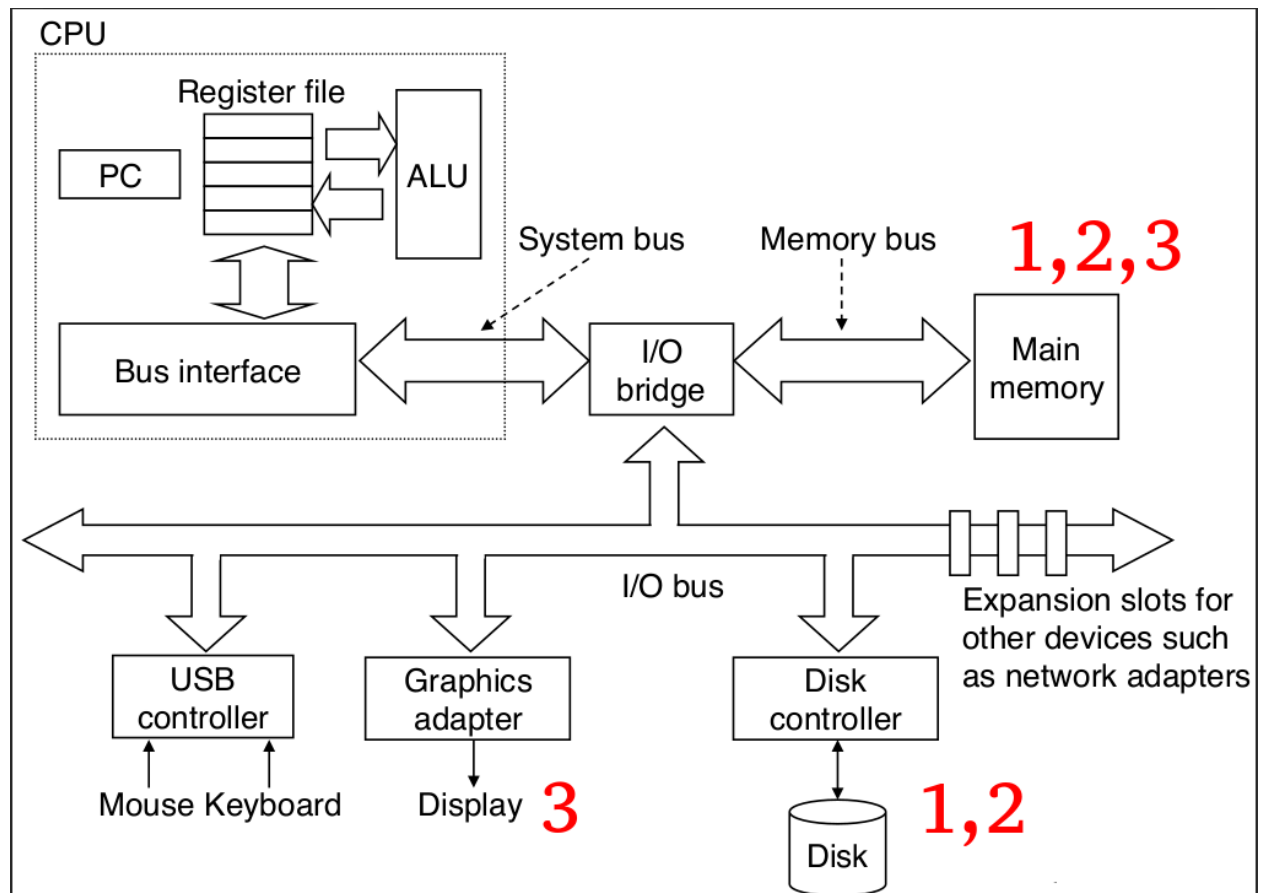
   1) `Hello.c`   _____

   2) `Hello`   _____

   3) `"Hello, world\n"` _____

3. What is cheaper? (A) Fast memory, or (B) fast processors? (2 points)

SOLUTION

1. Sketch the hardware organization of a computer, including: CPU chip, main memory, adapters and controllers and the connections between them (5 points).

2. Where are the following objects located in the computer? Write down what they are and mark 1-3 in your diagram. Assume that you've created a C file for the "hello world" program, and that you have compiled it using the `make` command.

```
1) Hello.c: C source code file. Text file on disk.
2) Hello: Compiled executable file, copied into main memory.
3) "Hello, world\n": String literal output, first in main
   memory, then passed through I/O, then visible on display.
```

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3. What is cheaper? (A) Fast memory, or (B) fast processors?
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   (B) Fast processors are cheaper – large, fast memory (like SRAM) costs more per bit than adding more processor speed.