Name: Class:

Task 1

1. The performance of a CPU is dictated and dependent on a number of factors. Complete the table below, stating how each of the factors mentioned affects the performance of a CPU.

|  |  |
| --- | --- |
| **Factor** | **How this affects performance** |
| Clock speed |  |
| Cache Size |  |
| Number of cores |  |

2. Two computers have different specifications.

Computer A has a quad core processor with a frequency of 2 GHz.

Computer B has a dual core processor with a frequency of 4 GHz.

(a) What is the maximum number of fetch-execute cycles that each processor could achieve?

(b) Explain why choosing processor B may be the better choice.

(c) Discuss how the use of cache can improve the performance of CPUs.

Task 2

Match up the terms on the left with the statements on the right.

|  |  |  |
| --- | --- | --- |
| Data Bus |  | Co-ordinates and controls all operations carried out by the computer. |
| Control Bus | Used for communicating the physical addresses of computer memory elements/locations that the CPU wants to access. |
| Address Bus | Responsible for arithmetic operations and logical operations. |
| System bus | Responsible for transporting the actual physical data, the bits and bytes of information between memory and the CPU. |
| Control Unit | A set of registers which act as a working area, often storing numbers and results of calculations. |
| Clock | Carries command and control signals to and from every single connected device. |
| ALU | Controls the timing of the processor. |
| General Purpose Registers | The collective name for the data bus, control bus and address bus. |

**Task 3**

Label the boxes with the following components: CPU, keyboard controller, display controller.

Draw the connections between the Address bus and the components, showing the direction of each connection.

