CSCI 2321 (Computer Design), Spring 2021
Reading Quiz 1

Credit: 12.5 points.

1 Reading

Be sure you have read, or at least skimmed, the assigned readings from Chapter 1 of the textbook.

2 Instructions

Answer the questions below using *only* the course textbook (i.e., no Web searches). Please work independently rather than in groups, and include the Honor Code pledge in what you turn in, either the full pledge or just the word "pledged". (Please put this in the same document as your answers, so I don't overlook it.)

You may write out your answers by hand and scan them, or you may use a word processor or other program, but please submit a PDF or plain text via e-mail to my TMail address. (No links to shared files on Google Drive please.) Please use a subject line that mentions the course and the assignment (e.g., "csci 2321 quiz 1" or "computer design quiz 1").

3 Questions

1. (5 points) Chapter 1 defines a lot of terms it's useful to know, including the following:

   (a) PC
   (b) Server
   (c) Supercomputer
   (d) Embedded computer
   (e) Operating system
   (f) Compiler
   (g) Instruction
   (h) Assembly language
   (i) Machine language
   (j) Assembler
   (k) High-level language
   (l) System software
   (m) Application software
   (n) Cache memory
   (o) Implementation
   (p) Transistor
   (q) Instruction set architecture (ISA)

(r) Application binary interface (ABI)

(s) Cloud computing

(t) Personal mobile device

Match these with the following list of definitions (i.e., for each definition say what term it applies to).

- Computer used to run large problems and usually accessed via a network.
- Computer composed of hundreds or even thousands of processor and terabytes of memory and having the highest performance and cost.
- Desktop-class computer without a screen or keyboard and usually accessed via a network.
- Computer used for running one predetermined application or collection of applications, often found as part of another piece of hardware.
- Personal computer delivering good performance to a single user at low cost.
- Program that translates statements in high-level language to assembly language.
- Program that translates symbolic instructions to binary instructions
- Binary language that a processor can understand.
- Command that a processor understands.
- Symbolic representation of machine instructions.
- Interface between user's program and hardware providing a variety of services and supervision functions.
- Software/programs developed by a user.
- Software layer between the application software and the hardware that includes the operating system and compilers.
- Portable language usually composed of words and algebraic expressions that must be translated into assembly language before being run on a computer.
- Small fast memory that acts as a buffer for primary memory.
- Form of computing that has largely replaced traditional servers, relying on huge data-centers that provide a platform for large-scale computing.
- Battery-powered single-user computer using touchscreen rather than mouse and keyboard.
- Hardware that obeys an ISA.
- On/off switch controlled by electric signal
- Abstract interface that encompasses all information needed to write a machine-language program
- User portion of instruction set plus O/S interfaces used in applications

2. (2.5 points) Other courses discuss the role of algorithms in program performance. This textbook lists three other factors. What are they?

3. (2.5 points) What does it mean to say one computer has better performance than another? Is there more than one possibility?

4. (2.5 points) The textbook talks about various forms of parallelism that can be used to make programs faster. What are they, and do they all require the programmer to make explicit changes to take advantage of them?