Template Week 3 – Hardware

Student number: 562606

Assignment 3.1: Examine your phone

What processor is in your phone?

Snapdragon

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

ARM ISA

How much RAM is in it?

6 GB

How much storage does your phone have?

128 GB

What operating system is running on your phone?

Android

Approximately how many applications do you have installed?

40 applications

Which application do you use the most?

Instagram

Can your phone be charged with what type of plug?

USB-C ports

Which I/O ports can you visually see on your phone?

USB-C

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel®

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used?

x86 ISA

How much RAM is in it?

31.6 GB

How much storage does your laptop have?

954 GB

Which operating system is running on your laptop?

Windows 11

Approximately how many applications do you have installed?

80 applications

Which application do you use the most?

Google Chrome

Can your laptop be charged with what type of plug?

USB-C charger

Which I/O ports can you visually see on your laptop?

USB, HDMI, Audio port, DisplayPort

Assignment 3.3: Power to the laptop

What is the input voltage?

100-240V

What is the output voltage?

5-20V

How many watts can your power adapter deliver?

65W

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

AC and DC are electric currents but the difference between them is that AC reverses direction periodically and DC goes in a single direction and is used to power electronic devices for which is needed a power adapter to convert the AC to DC.

If you reverse the polarity of the output voltage, is that bad for your laptop?

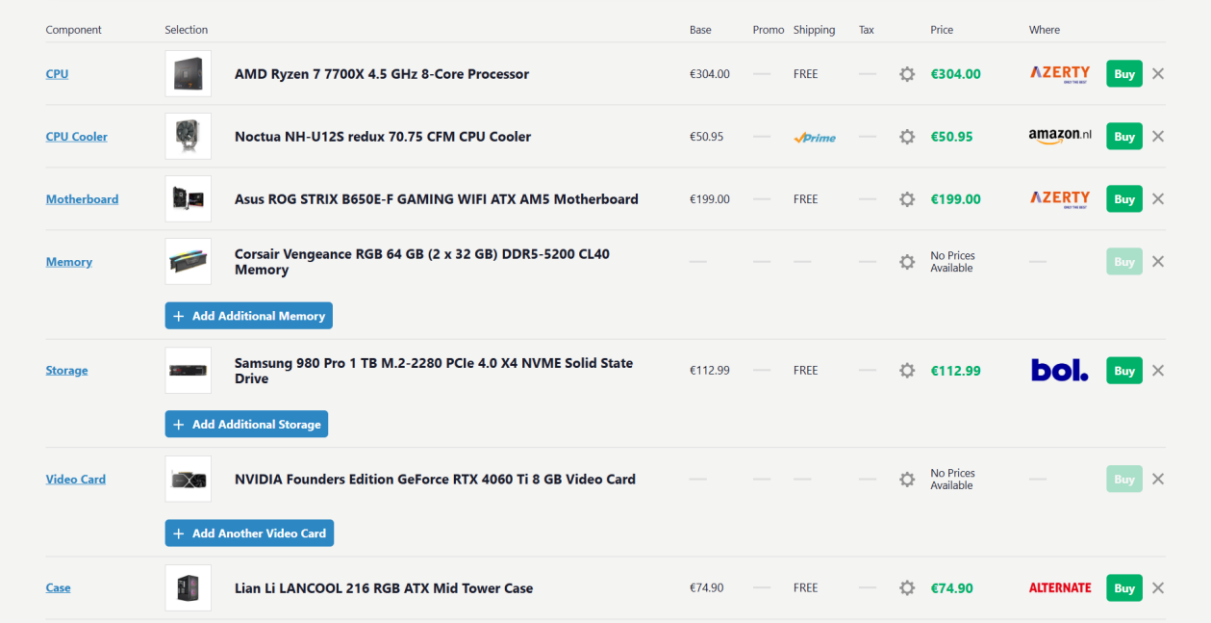
Yes, it is bad because most computers are designed to work with a certain polarity for their power input and reversing it can cause an overheating of the components of the computer which can lead to permanent damage.

You forgot your power adapter, your laptop normally needs 15 watts. You will be loaned a power adapter that can deliver 50 watts. Voltage, polarity, etc. are all the same compared to the original power adapter. You can connect the borrowed power adapter to your laptop. What will happen? Also explain why you think that.

In this case, nothing will happen and I can safely use that adapter because as long as voltage, polarity, and connector type are the same as the original one, my laptop can charge itself with a 50 watts adapter while only taking the 15 watts that it needs.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



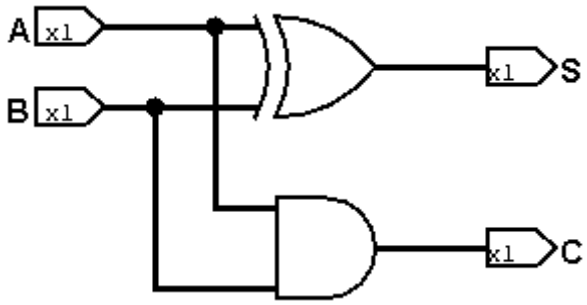
Compared to my actual laptop the number of cores in its processor and in the AMD Ryzen 7 7700X are the same and these 2 processors are suitable for multitasking and executing code. The RAM of my dream PC is almost the same as that of the laptop I'm using which is good enough to run codes, VMs and computer games. The storage of my dream PC consists of 1TB which is much more than the storage on my laptop so it can fit both larger codebases, projects and games. The monitor of the dream PC has a higher resolution than that of my laptop and a bigger screen is needed for both gaming and coding. The operating system is the same as my laptop since I'm used to Windows and will need more time to get used to other operating systems like Ubuntu Linux or macOS and not only

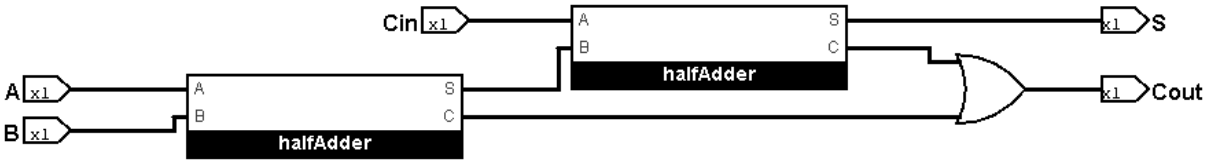
that but Windows 11 Home is compatible with different sorts of IDEs used for my programming skill development and runs all versions of video games.

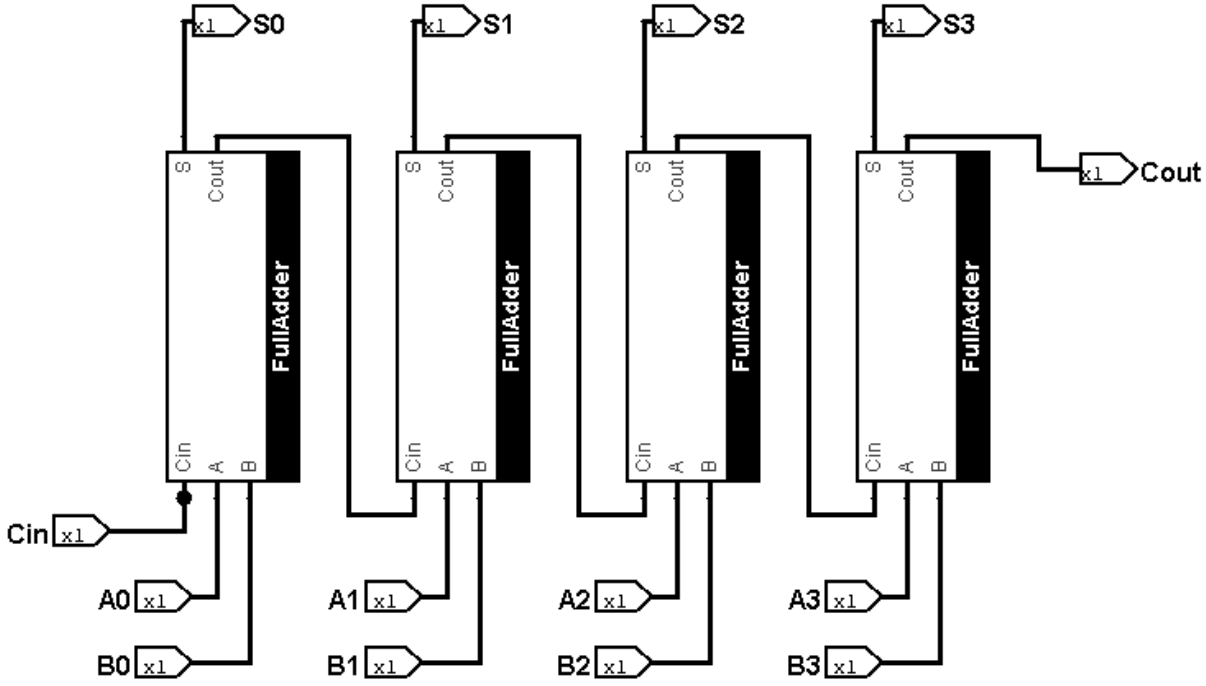
Bonus point assignment – week 3

Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.







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