Template Week 3 – Hardware

Student number:

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Assignment 3.1: Examine your phone

What processor is in your phone?

Octa-core (4x2.0 GHz Cortex-A55 & 4x2.0 GHz Cortex-A55)

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

ARM

How much RAM is in it?

4GB

How much storage does your phone have?

64GB

What operating system is running on your phone?

Android 14

Approximately how many applications do you have installed?

152

Which application do you use the most?

Telegram

Can your phone be charged with what type of plug?

USB-C

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

Audio, charger port, camera, screen, microphone, flashlight, simcard

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel core ultra 7

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

x86

How much RAM is in it?

16GB

How much storage does your laptop have?

1TB

Which operating system is running on your laptop?

Windows 11 home

Approximately how many applications do you have installed?

27

Which application do you use the most?

Brave browser

Can your laptop be charged with what type of plug?

USB-C

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

USB-C, HDMI, Audio, USB-A, camera, microphone, mousepad, keyboard

Assignment 3.3: Power to the laptop

What is the input voltage?

65W

What is the output voltage?

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?

Alternating Current is high voltage power and Direct current is low voltage power.

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

Yes it will cause 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.

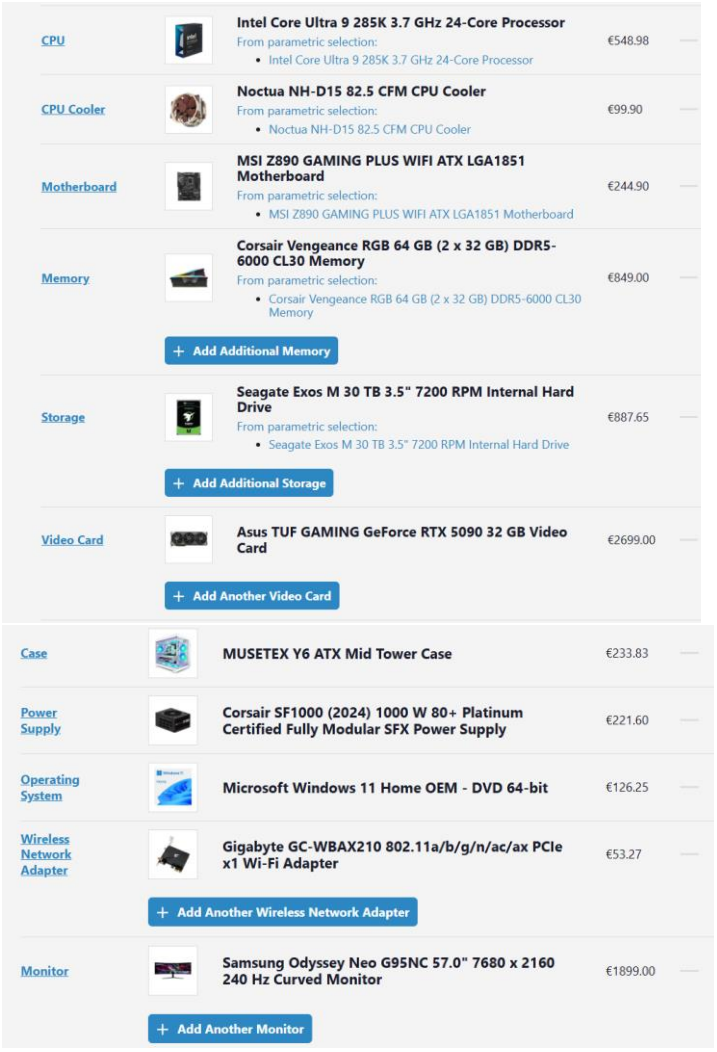
It will charge my laptop. It will only draw the 15 watts the laptop needs because of the power management chip.

Source:

https://www.4xem.com/blogs/blog/do-high-wattage-chargers-damage-batteries#:~:text=Modern%20devices%20come%20with%20built,Wattage%20Charger%20Always%20Improves%20Speed

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

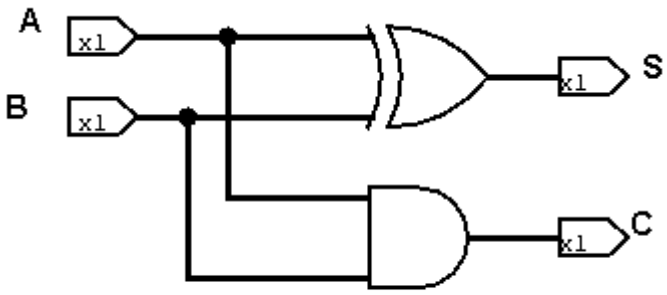


I put together this configuration because I picked every part high specs and most positive reviews. Assuming this dream PC would be free. Unfortunately in reality the total cost is almost 8000 euros. My current laptop does everything I need it to do already though.

Assignment 3.5: Adders

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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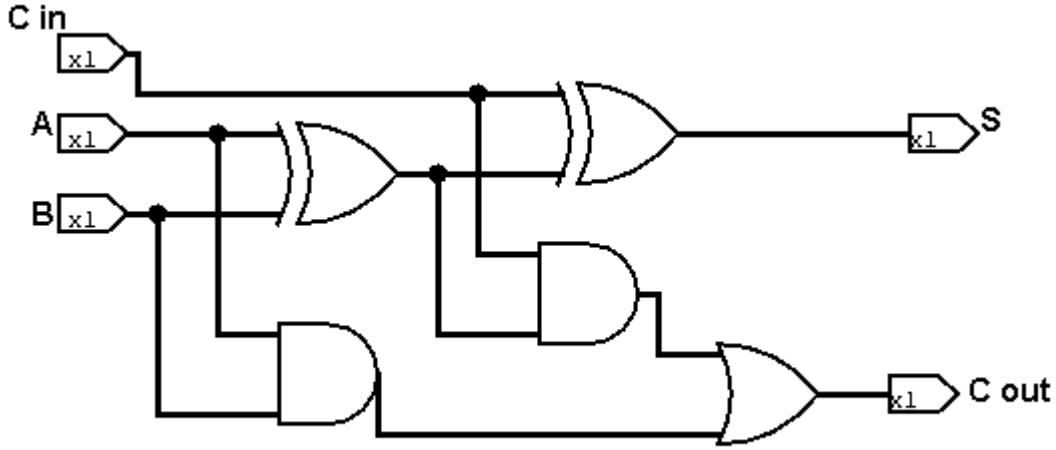

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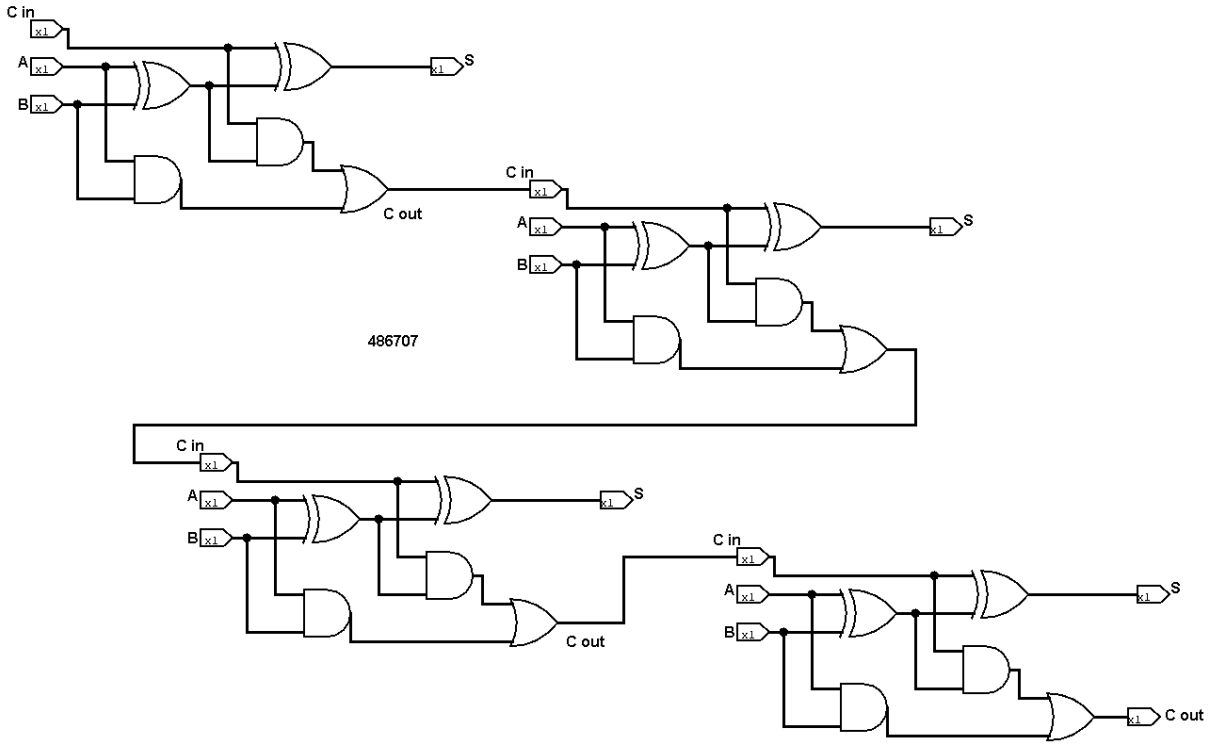

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