Template Week 3 – Hardware

Student number: 573512

Assignment 3.1: Examine your phone

What processor is in your phone?

Exynos 990

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

ARM-architecture

How much RAM is in it?

6GB

How much storage does your phone have?

128GB

What operating system is running on your phone?

Android

Approximately how many applications do you have installed?

100 - 150

Which application do you use the most?

Instagram or YouTube

Can your phone be charged with what type of plug?

USB-C

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

USB-C, Microphone, Speaker, SIM-card slot, Power button, Volume up and down buttons.

Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel Core i7 – 9750H CPU 2.6 GHz

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

CISC

How much RAM is in it?

16GB

How much storage does your laptop have?

475GB

Which operating system is running on your laptop?

Windows 10

Approximately how many applications do you have installed?

30 - 40

Which application do you use the most?

google

Can your laptop be charged with what type of plug?

AC adapter

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

2x USB 3.2 Type-A

USB 3.2 Type-C

HDMI

RJ-45 Ethernet

3.5mm headphone

SD-card reader

AC adapter

Assignment 3.3: Power to the laptop

What is the input voltage?

100 – 240 Volt

What is the output voltage?

How many watts can your power adapter deliver?

Is the input voltage AC or DC?

Is the output voltage AC or DC?

AC/DC what is that?

AC/DC means: Alternating Current/Direct Current, referring to two types of electric current. Alternating current changes direction periodically, while direct current flows in one constant direction.

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

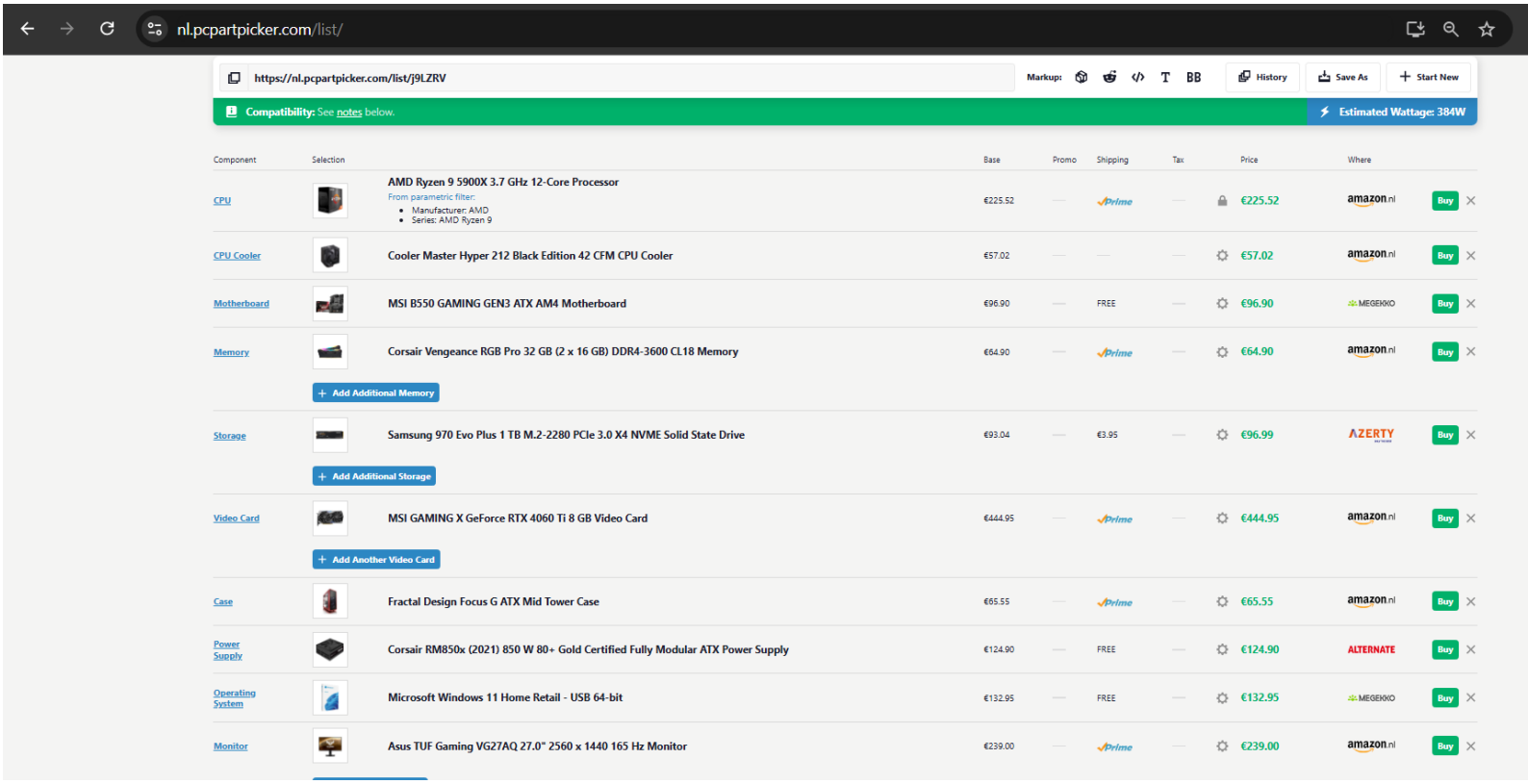
Yes, reversing the polarity of the output voltage is harmful to your laptop. It can damage internal components like the motherboard which will lead to permanent damage.

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.

It should be no problem that the power adapter delivers 50 watts instead of 15. As long as the voltage and polarity are the same its all good.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



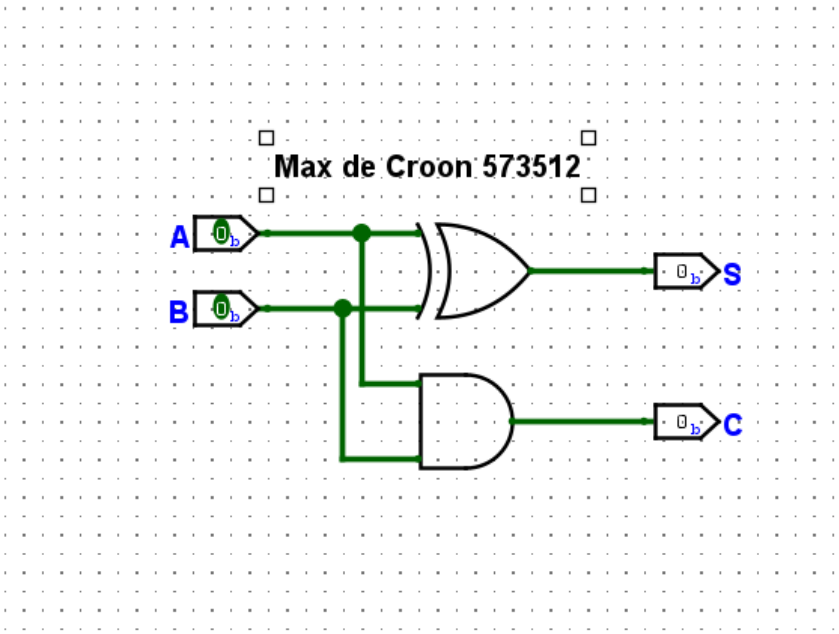
I chose this layout because it is a pretty powerful combination of parts and not too expensive (total cost: €1548.68). With the Ryzen 9 5900X, you have a very powerful processor to run heavy programs. The GPU might be a bit weak for this build, but to save costs, I have chosen the RTX 4060 TI 8 GB, but if you want to play video games on this build, you might want to put a GPU in with 12 or more GB instead of only 8. The estimated wattage is also 384W, and the power supply supplies 850W. I chose for more wattage so that you can upgrade the GPU without replacing the power supply. For the memory, I chose 32 GB (2x16 GB) to have enough memory to run multiple programs at the same time and 1 TB of M.2 storage so that you don't run out of storage.

Bonus point assignment – week 3

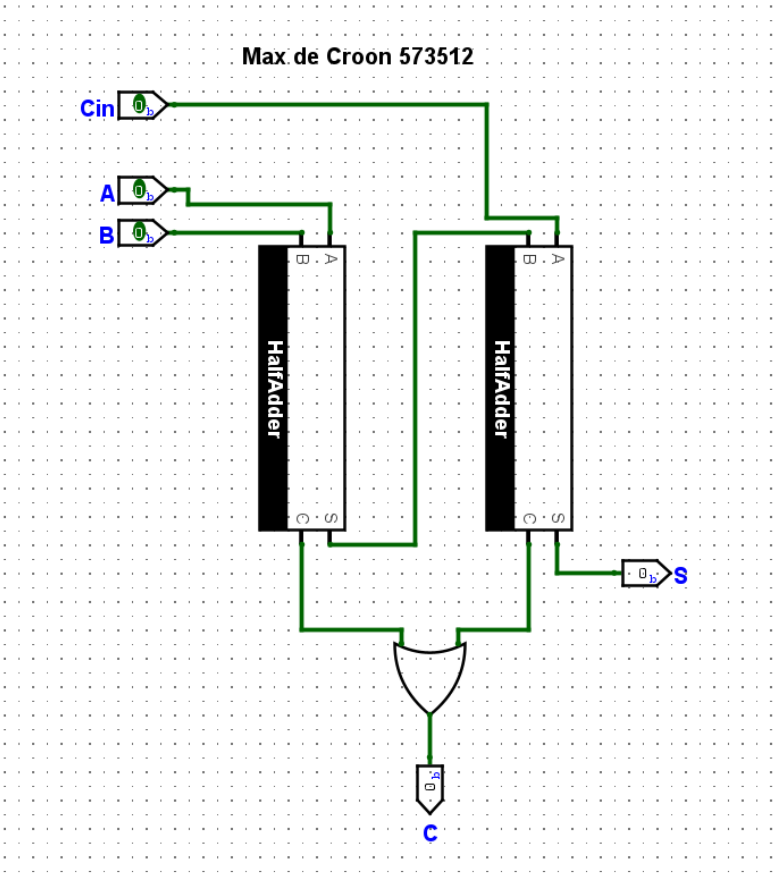
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

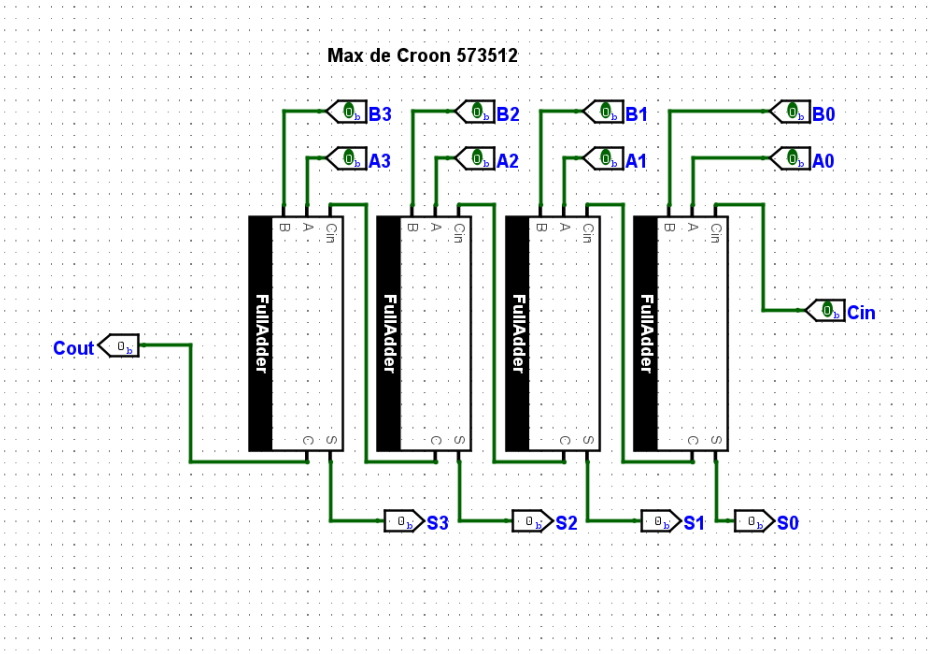
Half adder:



Full adder:



4-bit adder:



Ready? Save this file and export it as a pdf file with the name: **week3.pdf**