Template Week 3 – Hardware

Student number: 589020

Assignment 3.1: Examine your phone

What processor is in your phone?

Samsung Exynos 990

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

ARMv8

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 version 13 and One UI 5.1

Approximately how many applications do you have installed?

~ 85 applications

Which application do you use the most?

Instagram

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 input and output.

SIM card tray

Assignment 3.2: Examine your laptop

What processor is in your laptop?

11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz

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

x86-64

How much RAM is in it?

16 GB (2x8GB)

How much storage does your laptop have?

1TB SSD

Which operating system is running on your laptop?

Windows 11 Education edition

Approximately how many applications do you have installed?

222 applications

Which application do you use the most?

I think at the moment IntelliJ IDEA for coding or Google Chrome.

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 input and output,

2x USB A,

SD card slot,

HDMI port,

3.5mm audio port

Assignment 3.3: Power to the laptop

What is the input voltage?

100 – 240V

What is the output voltage?

20V

How many watts can your power adapter deliver?

65W

Is the input voltage AC or DC?

AC which comes from the wall outlet.

Is the output voltage AC or DC?

DC, The charger converts AC to DC

AC/DC what is that?

AC: Alternating current.

AC periodically reverses the direction of the current.

Comes out of the wall outlet.

Used to transport current.

DC: Direct current.

DC current flows in one direction.

Most modern electronic devices need DC current to charge.

Chargers or power supply's convert AC to DC.

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

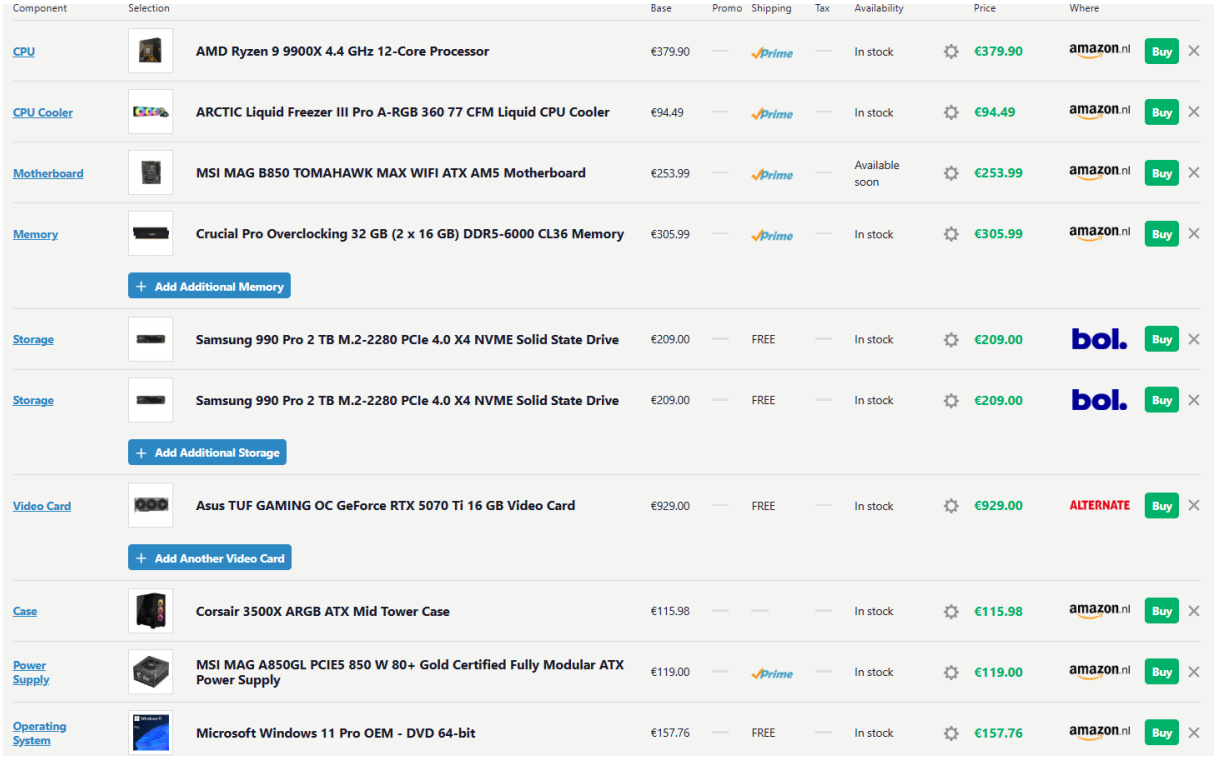
Yes that's very bad for your laptop and will most likely kill the device instantly.

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 most likely limit the power delivery to the max the laptop can receive 15 watts in this case.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



Component	Selection	Base	Promo	Shipping	Tax	Availability	Price	Where
CPU	AMD Ryzen 9 9900X 4.4 GHz 12-Core Processor	€379.90	—	Prime	—	In stock	€379.90	amazon.nl Buy
CPU Cooler	ARCTIC Liquid Freezer III Pro A-RGB 360 77 CFM Liquid CPU Cooler	€94.49	—	Prime	—	In stock	€94.49	amazon.nl Buy
Motherboard	MSI MAG B850 TOMAHAWK MAX WIFI ATX AM5 Motherboard	€253.99	—	Prime	—	Available soon	€253.99	amazon.nl Buy
Memory	Crucial Pro Overclocking 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory	€305.99	—	Prime	—	In stock	€305.99	amazon.nl Buy
	+ Add Additional Memory							
Storage	Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€209.00	—	FREE	—	In stock	€209.00	bol. Buy
Storage	Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€209.00	—	FREE	—	In stock	€209.00	bol. Buy
	+ Add Additional Storage							
Video Card	Asus TUF GAMING OC GeForce RTX 5070 Ti 16 GB Video Card	€929.00	—	FREE	—	In stock	€929.00	ALTERNATE Buy
	+ Add Another Video Card							
Case	Corsair 3500X ARGB ATX Mid Tower Case	€115.98	—	—	—	In stock	€115.98	amazon.nl Buy
Power Supply	MSI MAG A850GL PCIE5 850 W 80+ Gold Certified Fully Modular ATX Power Supply	€119.00	—	Prime	—	In stock	€119.00	amazon.nl Buy
Operating System	Microsoft Windows 11 Pro OEM - DVD 64-bit	€157.76	—	FREE	—	In stock	€157.76	amazon.nl Buy

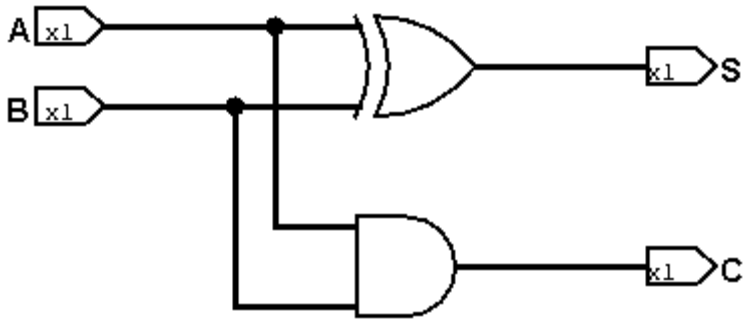
Motivation: When making this list I wanted it not to be very expensive but it turned out to be €2774,11. My current pc is a prebuilt with a AMD Ryzen 7 and an RTX 3060. It has 512GB SSD and 1TB hdd with an external 1TB SSD disk, 2x16GB DDR4 RAM and a 400W power supply which is just enough for these components. When I want a new PC I want more SSD storage, a better GPU and a better power supply. And I think most importantly: better CPU and GPU cooling because these get very hot in my pc especially the GPU because it's a one fan RTX 3060 it reaches 80 to 90 degrees Celsius sometimes. with the chosen build (see screenshot) I have all of that better than my current pc.

Assignment 3.5: Adders

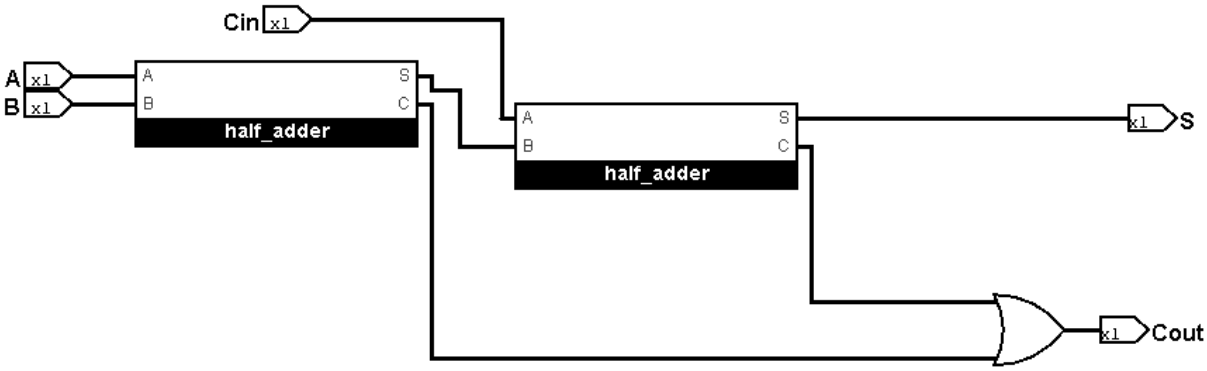
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

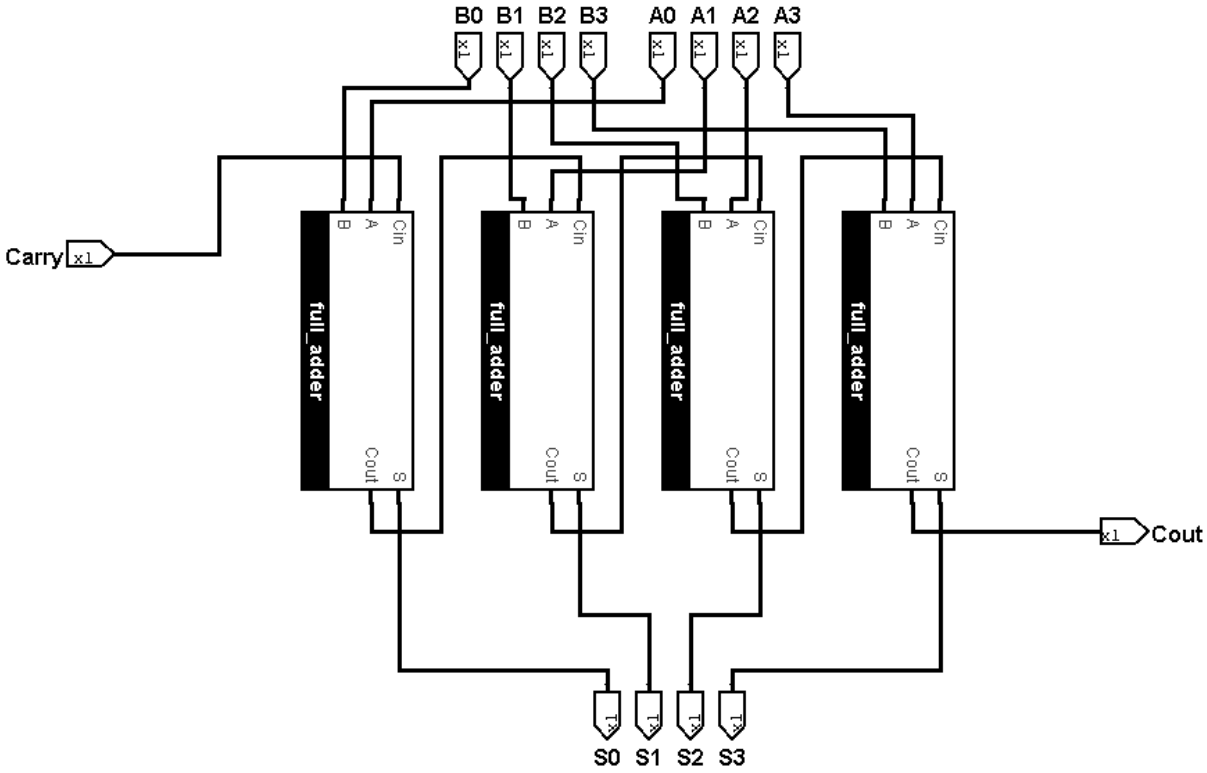
Half adder:



Full adder:



4-bit adder:



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