

# Template Week 3 – Hardware

Student number: 563634

## Assignment 3.1: Examine your phone

### What processor is in your phone?

Apple A13 Bionic chip.

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

It belongs to the ARM architecture family.

### How much RAM is in it?

4GB RAM.

### How much storage does your phone have?

64GB of Storage

### What operating system is running on your phone?

iOS 13

### Approximately how many applications do you have installed?

35

### Which application do you use the most?

Instagram

### Can your phone be charged with what type of plug?

A lightning cable

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

A lightning port for charging, a speaker and microphone outputs

## Assignment 3.2: Examine your laptop

### What processor is in your laptop?

AMD Ryzen 5 8645HS

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

AMD64 Instruction Set Architecture

**How much RAM is in it?**

16GB

**How much storage does your laptop have?**

1000GB of SSD storage

**Which operating system is running on your laptop?**

Windows 11 Home

**Approximately how many applications do you have installed?**

70

**Which application do you use the most?**

Brave browser

**Can your laptop be charged with what type of plug?**

A dedicated power adapter

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

USB-C port, HDMI port, Headphone combo jack

### **Assignment 3.3: Power to the laptop**

**What is the input voltage?**

100-240V AC

**What is the output voltage?**

19.5V DC

**How many watts can your power adapter deliver?**

200W

**Is the input voltage AC or DC?**

AC

**Is the output voltage AC or DC?**

DC

## AC/DC what is that?

Alternating Current: Electricity alternates direction periodically. We get this type of power from wall outlets.

Direct Current: Electricity flows in one direction only. It is used by electronics like laptops, so the adapter converts AC to DC.

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

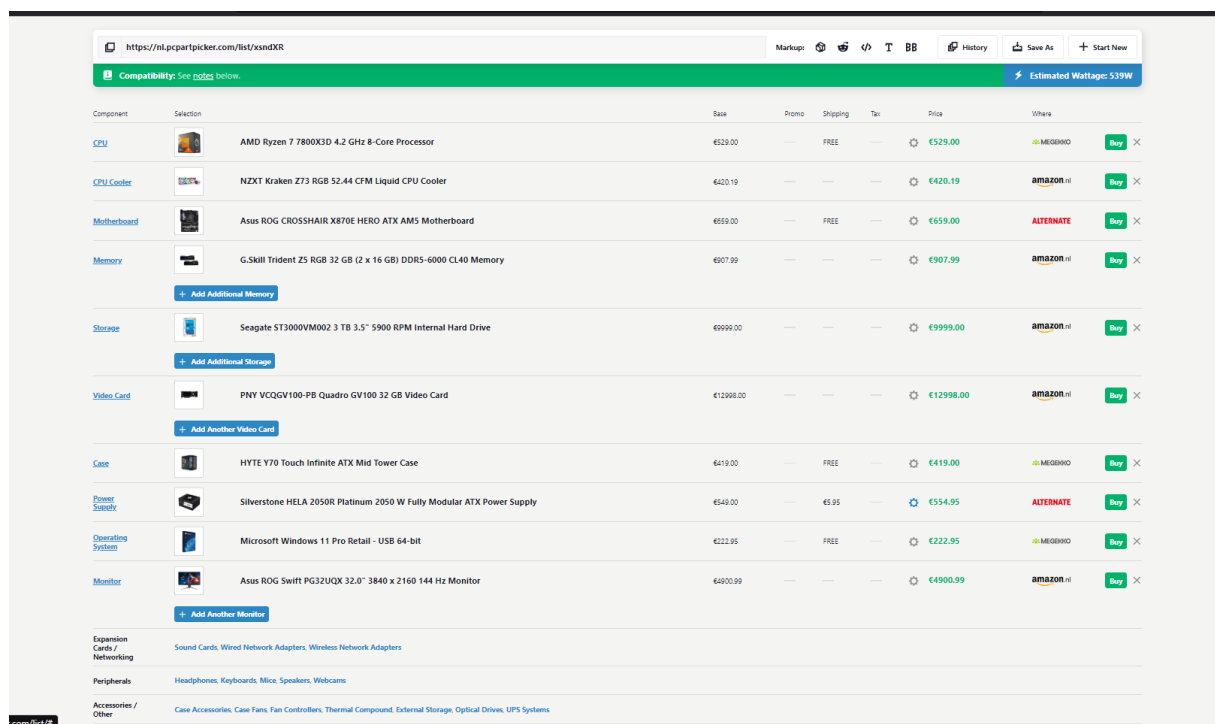
Yes, reversing the polarity damage my laptop. Electronic circuits are designed to operate with specific polarities, and a reversal can cause short circuits or permanent hardware failure.

**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.**

Yes, I will use it. My laptop will only use the power that it needs, it does not matter how many watts the adapter can deliver.

## Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:



The screenshot shows a PC configuration website with a table of components. The components are listed with their specifications, prices, and where to buy them. The total estimated wattage is 539W.

Component	Selection	Base	Promo	Shipping	Tax	Price	Where
CPU	AMD Ryzen 7 7800X3D 4.2 GHz 8-Core Processor	€529.00	—	FREE	—	€529.00	amazon.nl Buy
CPU Cooler	NZXT Kraken Z73 RGB 52.44 CFM Liquid CPU Cooler	€420.19	—	—	—	€420.19	amazon.nl Buy
Motherboard	Asus ROG CROSSHAIR X870E HERO ATX AM5 Motherboard	€659.00	—	FREE	—	€659.00	ALTERNATE Buy
Memory	G.Skill Trident Z5 RGB 32 GB (2 x 16 GB) DDR5-6000 CL40 Memory	€907.99	—	—	—	€907.99	amazon.nl Buy
+ Add Additional Memory							
Storage	Seagate ST3000VM002 3 TB 3.5" 5900 RPM Internal Hard Drive	€999.00	—	—	—	€999.00	amazon.nl Buy
+ Add Additional Storage							
Video Card	PNY VCQGV100-PB Quadro GV100 32 GB Video Card	€12998.00	—	—	—	€12998.00	amazon.nl Buy
+ Add Another Video Card							
Case	HYTE Y70 Touch Infinite ATX Mid Tower Case	€419.00	—	FREE	—	€419.00	amazon.nl Buy
Power Supply	Silverstone HELA 2050R Platinum 2050 W Fully Modular ATX Power Supply	€549.00	—	€5.95	—	€554.95	ALTERNATE Buy
Operating System	Microsoft Windows 11 Pro Retail - USB 64-bit	€222.95	—	FREE	—	€222.95	amazon.nl Buy
Monitor	Asus ROG Swift PG32UQX 32.0" 3840 x 2160 144 Hz Monitor	€4900.99	—	—	—	€4900.99	amazon.nl Buy
+ Add Another Monitor							
Expansion Cards / Networking	Sound Cards, Wired Network Adapters, Wireless Network Adapters						
Peripherals	Headphones, Keyboards, Mice, Speakers, Webcams						
Accessories / Other	Case Accessories, Case Fans, Fan Controllers, Thermal Compound, External Storage, Optical Drives, UPS Systems						

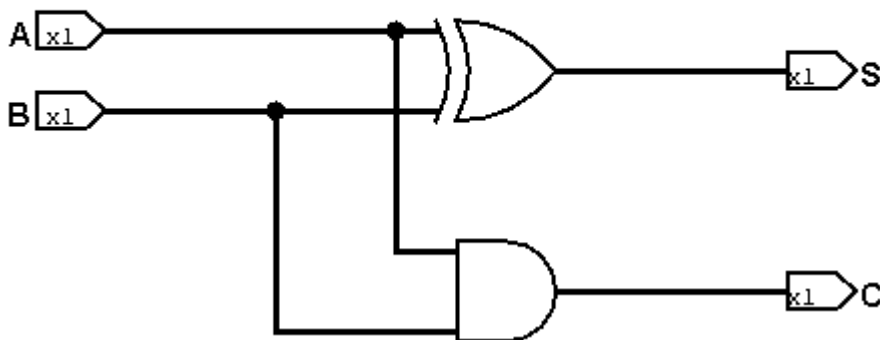
This PC is very costly, however with these specifications this PC is future proof, which means that even in the next 10 years, this PC will probably play any game on maximum settings for a long time.

### Bonus point assignment – week 3

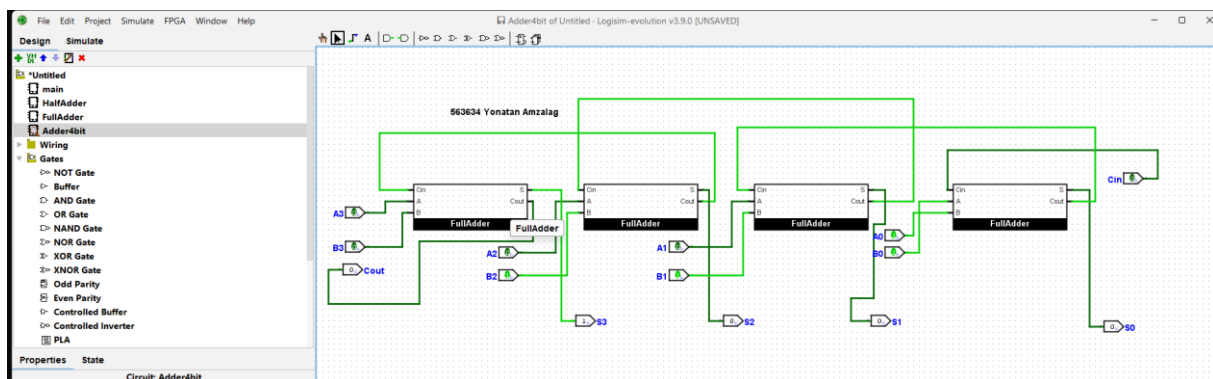
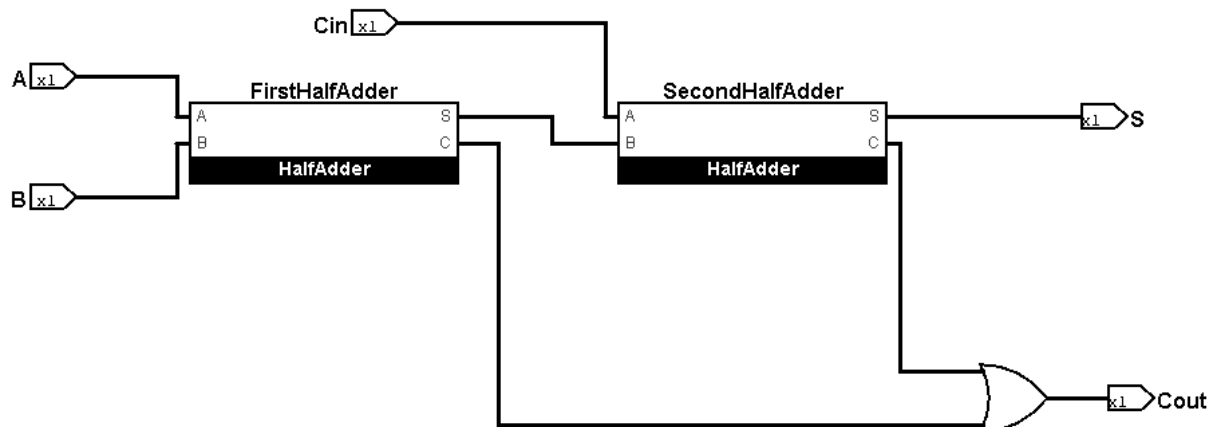
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

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