

# Template Week 3 – Hardware

Student number: 588734

## Assignment 3.1: Examine your phone

**What processor is in your phone?**

Qualcomm Snapdragon 8 Gen 2

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

ARMv9-A

**How much RAM is in it?**

8GB Ram

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

256GB opslag

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

Android 16

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

100+

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

Snapchat, Gmail, Whatsapp, Discord, Reddit, Quillpad, 112NL, Samen1, Home Assistant

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

USB-C 45W

**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?**

AMD Ryzen 7 7435HS

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

x86-64 architecture family

**How much RAM is in it?**

32GB DDR5 Ram

How much storage does your laptop have?

C: 500GB Nvme

D: 1TB Nvme

Which operating system is running on your laptop?

Windows 11

Approximately how many applications do you have installed?

100+

Which application do you use the most?

Discord, Firefox, Outlook, CMD

Can your laptop be charged with what type of plug?

Lenovo Slim Tip Power Connector

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

UsbC, Ethernet, 3.5mm Audio jack, USB A, power Connector

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

What is the input voltage?

100 – 240V

What is the output voltage?

20V = 8.5A

How many watts can your power adapter deliver?

170W

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

AC is alternating current, It switches 50 times a second

DC is a constant current

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

Most likely it will destroy an fuse or fry the motherboard, some boards have protection for it.

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.

You can use it, it will not use more current than it can handle. You can even use an 5000W power supply.

### Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

Configuration: <https://nl.pcpartpicker.com/list/jgwzBq>

For the CPU I have decided to use the AMD Ryzen 7 9800X3D, this is a very good CPU for gaming. Together with the AMD Radeon RX 9060 XT it is a beast of an setup. I want to run Linux on the system so I decided to use the AMD instead of the NVIDIA, since AMD is more compatible with Linux.

For storage I went with 2TB NVMe storage from Samsung. It is reliable and fast.

The screenshot shows a PCPartPicker configuration page with the URL https://nl.pcpartpicker.com/list/jgwzBq. The build summary at the top indicates an estimated wattage of 416W. The configuration table lists the following components:

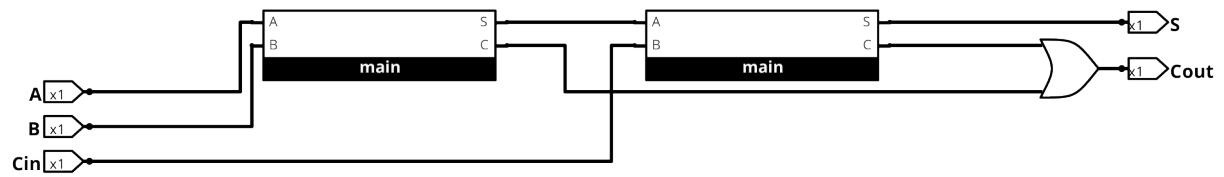
Component	Selection	Base	Promo	Shipping	Tax	Availability	Price	Where	Action
CPU	AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor	€439.00	—	✓Prime	—	In stock	€439.00	amazon.nl	<button>Buy</button>
CPU Cooler	ARCTIC Liquid Freezer III Pro A-RGB 360 77 CFM Liquid CPU Cooler	€94.49	—	✓Prime	—	In stock	€94.49	amazon.nl	<button>Buy</button>
Motherboard	MSI MAG B850 TOMAHAWK MAX WIFI ATX AM5 Motherboard	€253.99	—	✓Prime	—	In stock	€253.99	amazon.nl	<button>Buy</button>
Memory	Corsair Vengeance RGB 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory	€449.00	—	FREE	—	In stock	€449.00	bol.	<button>Buy</button>
Storage	Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€219.00	—	✓Prime	—	In stock	€219.00	amazon.nl	<button>Buy</button>
Video Card	Sapphire PULSE Radeon RX 9060 XT 16 GB Video Card	€398.57	—	✓Prime	—	In stock	€398.57	amazon.nl	<button>Buy</button>
Case	Fractal Design North ATX Mid Tower Case	€145.00	—	✓Prime	—	In stock	€145.00	amazon.nl	<button>Buy</button>
Power Supply	Corsair SF1000 (2024) 1000 W 80+ Platinum Certified Fully Modular SFX Power Supply	€215.57	—	✓Prime	—	In stock	€215.57	amazon.nl	<button>Buy</button>
Total:								€2214.62	<button>Buy From Amazon Netherlands</button>

### Assignment 3.5: Adders

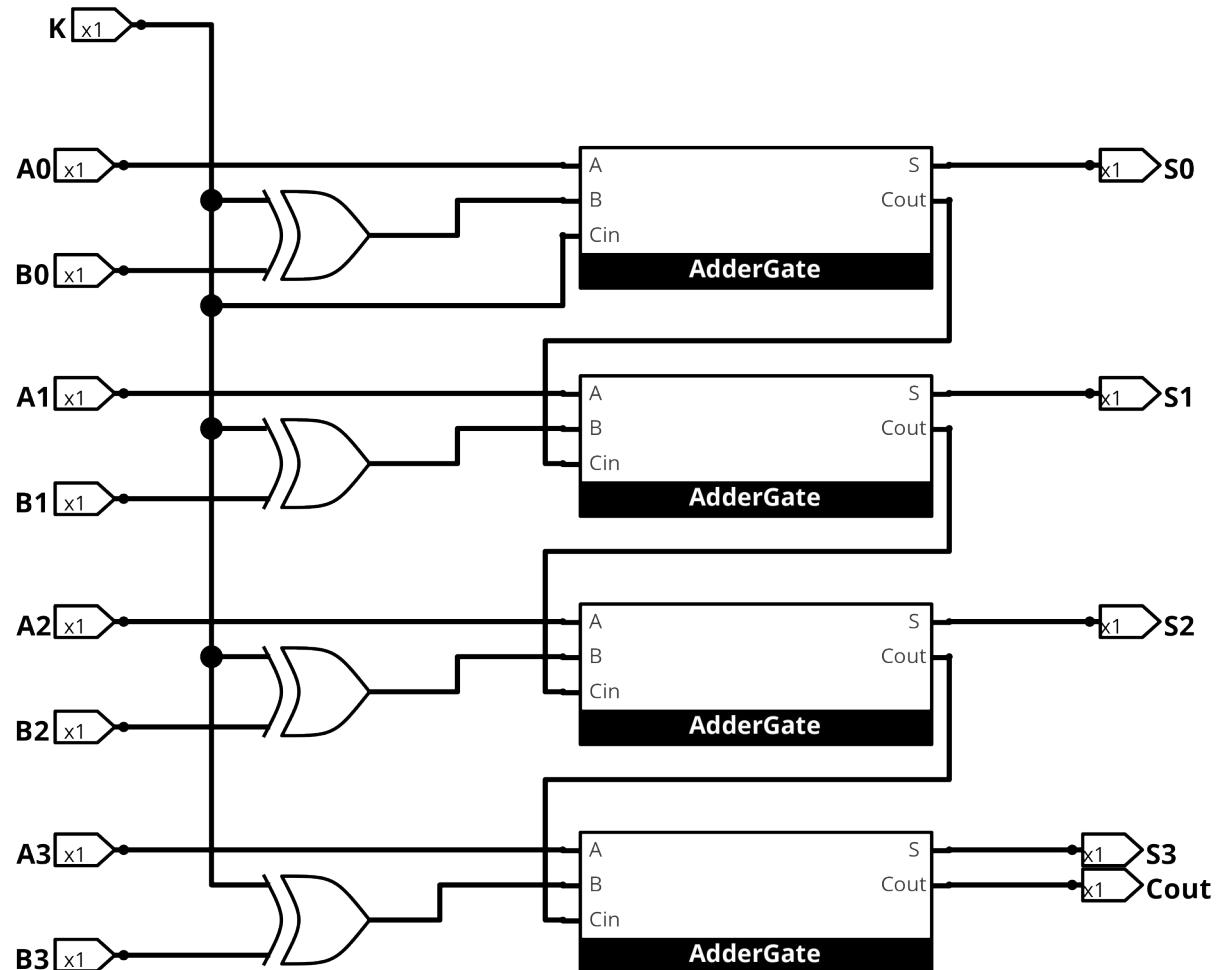
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

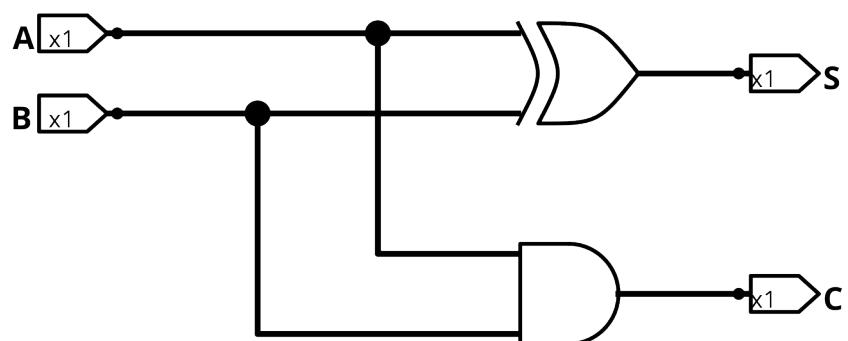
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