

# Template Week 3 – Hardware

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## Assignment 3.1: Examine your phone

What processor is in your phone?

A16 Bionic chip, is a 6-core processor.

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

ARMv8.6-A

How much RAM is in it?

6GB RAM

How much storage does your phone have?

256GB

What operating system is running on your phone?

iOS

Approximately how many applications do you have installed?

60

Which application do you use the most?

Netflix

Can your phone be charged with what type of plug?

A USB-C charger

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

The only I/O port that you can see visually is the charging port

## Assignment 3.2: Examine your laptop

What processor is in your laptop?

Intel® Core™ 7 150U

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

64-bit operating system, x64-based processor

How much RAM is in it?

32GB

How much storage does your laptop have?

954GB

Which operating system is running on your laptop?

Windows

Approximately how many applications do you have installed?

104

Which application do you use the most?

Google Chrome/Word

Can your laptop be charged with what type of plug?

Laptop can be charged with either USB-C or the DC-IN port

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

- DC-IN port
- USB C port
- USB A port
- HDMI port
- Audio jack

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

What is the input voltage?

100-240V-1.7 A 50-60 Hz

What is the output voltage?

19.0V = 3.42 A

How many watts can your power adapter deliver?

65.0 W

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 meaning the electrons move forwards and backwards

DC is direct current meaning the electrons move in only one direction

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

Yes, it will most likely cause a short circuit and damage/burn internal components.

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.

Nothing bad will happen since the laptop decides how many power it draws from the adapter. The adapter will only supply as much as the laptop decides.

### Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

<a href="#">CPU</a>	 AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor	€439.00	—	FREE	—	In stock	 €439.00	<a href="#">ALTERNATE</a>	<a href="#">Buy</a>	X
<a href="#">CPU Cooler</a>	 Lian Li GALAHAD AIO 360 RGB 69.17 CFM Liquid CPU Cooler	€260.00	—	—	—	In stock	 €260.00	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X
<a href="#">Motherboard</a>	 MSI MEG X870E GODLIKE EATX AM5 Motherboard	€1169.00	—	FREE	—	In stock	 €1169.00	<a href="#">AZERTY</a>	<a href="#">Buy</a>	X
<a href="#">Memory</a>	 Corsair Dominator Platinum RGB 64 GB (2 x 32 GB) DDR5-6800 CL40 Memory	€1950.00	—	FREE	—	In stock	 €1950.00	<a href="#">AZERTY</a>	<a href="#">Buy</a>	X
<a href="#">Memory</a>	 Corsair Dominator Platinum RGB 64 GB (2 x 32 GB) DDR5-6800 CL40 Memory	€1950.00	—	FREE	—	In stock	 €1950.00	<a href="#">AZERTY</a>	<a href="#">Buy</a>	X
<a href="#">+ Add Additional Memory</a>										
<a href="#">Storage</a>	 Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€159.00	—		—	In stock	 €159.00	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X
<a href="#">+ Add Additional Storage</a>										
<a href="#">Video Card</a>	 Zotac GAMING SOLID OC GeForce RTX 5090 32 GB Video Card	€3947.87	—	—	—	In stock	 €3947.87	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X
<a href="#">+ Add Another Video Card</a>										
<a href="#">Case</a>	 Thermaltake View 71 ARGB ATX Full Tower Case	€1041.40	—	—	—	In stock	 €1041.40	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X
<a href="#">Power Supply</a>	 Asus ROG THOR T3 GAMING 1600 W 80+ Titanium Certified Fully Modular ATX Power Supply	€750.00	—	—	—	In stock	 €750.00	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X
<a href="#">Operating System</a>	 Microsoft Windows 11 Pro Retail - Download 64-bit	€258.00	—	FREE	—	In stock	 €258.00	<a href="#">bol.</a>	<a href="#">Buy</a>	X
<a href="#">Monitor</a>	 Asus ROG Swift Pro PG248QP 24.1" 1920 x 1080 540 Hz Monitor	€943.00	—		—	In stock	 €943.00	<a href="#">amazon.nl</a>	<a href="#">Buy</a>	X

I put this pc together since it has the best of the best components.

It contains the fastest and best cpu on the market. A stunning Lian Li AIO CPU cooler for great cooling performance. A MSI MEG GODLIKE motherboard for insane network speed and great storage compatibility. 4 sticks of 32 GB ram at the fastest Mhz rate on the market. A big and fast SSD. The RTX 5090 one of the best gaming GPU's on the market. And a high wattage PSU with a 80 PLUS Titanium rating. And a high HZ monitor.

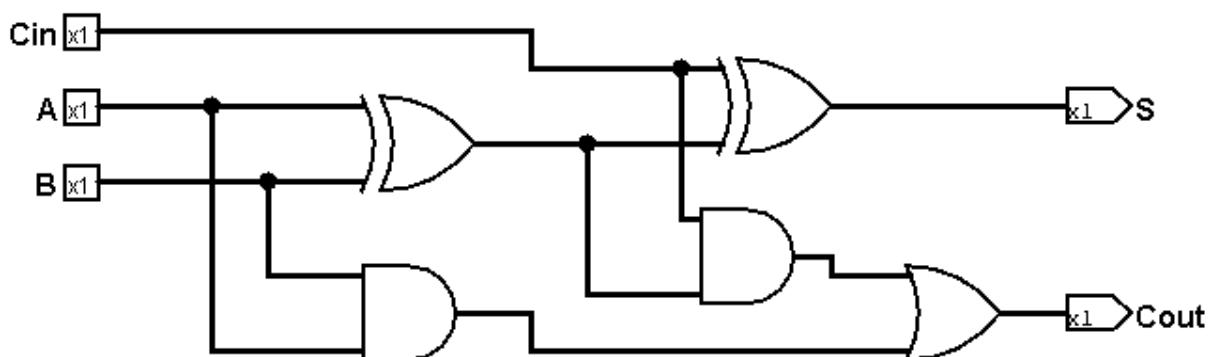
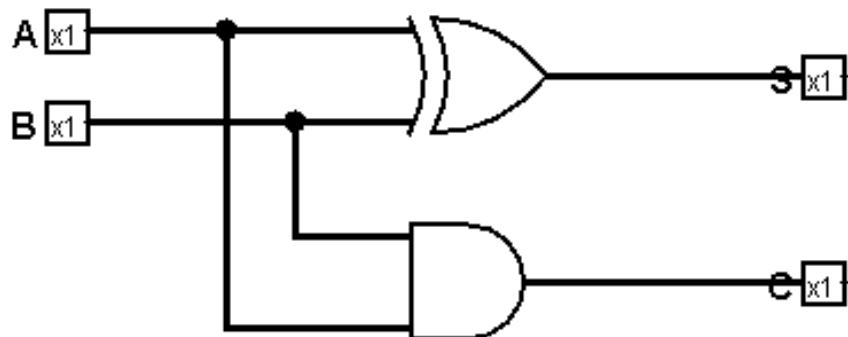
This pc is in every aspect better than my current pc.

My current pc has a ryzen5 9600X, which is mediocre in comparison to the 9800X3D. The performances of my Arctic Liquid Freezer II 360 and the Lian Li are similar. The motherboard on my dream pc is way better than my MSI b650 plus. It supports more pcie5.0 and has better network speeds etc. Although the memory is much more expensive on my dream pc, the performance is only slightly better. I have 2x16GB 6000Mhz cl30 corsair ram sticks. The ssd storage is the same, however the speed of which the ssd on my dream pc can read is much faster. I have a RTX 4070, which in comparison to the RTX 5090 is a 44% performance difference. The Case I have selected for in my dream pc has only slightly better airflow and the PSU has a slightly higher efficiency rating and has a higher max wattage.

### 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.



Ready? Save this file and export it as a pdf file with the name: [week3.pdf](#)