

# Template Week 3 – Hardware

Student number:

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## Assignment 3.1: Examine your phone

**What processor is in your phone?**

Octa-core (4x2.0 GHz Cortex-A55 & 4x2.0 GHz Cortex-A55)

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

ARM

**How much RAM is in it?**

4GB

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

64GB

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

Android 14

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

152

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

Telegram

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

USB-C

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

Audio, charger port, camera, screen, microphone, flashlight, simcard

## Assignment 3.2: Examine your laptop

**What processor is in your laptop?**

Intel core ultra 7

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

x86

**How much RAM is in it?**

16GB

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

1TB

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

Windows 11 home

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

27

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

Brave browser

**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, HDMI, Audio, USB-A, camera, microphone, mousepad, keyboard

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

**What is the input voltage?**

65W

**What is the output voltage?**

20V

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

65W

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

AC

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

DC

**AC/DC what is that?**

Alternating Current is high voltage power and Direct current is low voltage power.

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

Yes it will cause 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 will charge my laptop. It will only draw the 15 watts the laptop needs because of the power management chip.

Source:

<https://www.4xem.com/blogs/blog/do-high-wattage-chargers-damage-batteries#:~:text=Modern%20devices%20come%20with%20built,Wattage%20Charger%20Always%20Improves%20Speed>

#### **Assignment 3.4: Build your dream PC**

Screenshots PC configuration + motivation:

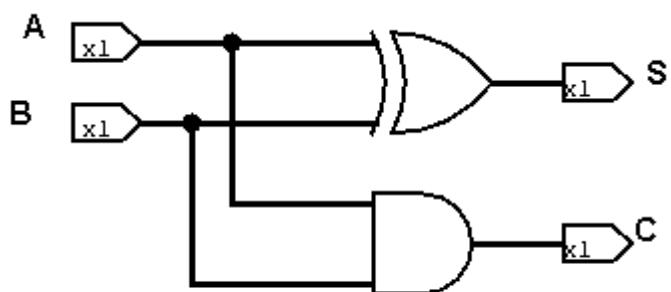
<a href="#">CPU</a>		<b>Intel Core Ultra 9 285K 3.7 GHz 24-Core Processor</b>	From parametric selection:	€548.98	<a href="#">... ...</a>
		• Intel Core Ultra 9 285K 3.7 GHz 24-Core Processor			
<a href="#">CPU Cooler</a>		<b>Noctua NH-D15 82.5 CFM CPU Cooler</b>	From parametric selection:	€99.90	<a href="#">... ...</a>
		• Noctua NH-D15 82.5 CFM CPU Cooler			
<a href="#">Motherboard</a>		<b>MSI Z890 GAMING PLUS WIFI ATX LGA1851 Motherboard</b>	From parametric selection:	€244.90	<a href="#">... ...</a>
		• MSI Z890 GAMING PLUS WIFI ATX LGA1851 Motherboard			
<a href="#">Memory</a>		<b>Corsair Vengeance RGB 64 GB (2 x 32 GB) DDR5-6000 CL30 Memory</b>	From parametric selection:	€849.00	<a href="#">... ...</a>
		• Corsair Vengeance RGB 64 GB (2 x 32 GB) DDR5-6000 CL30 Memory			
		<a href="#">+ Add Additional Memory</a>			
<a href="#">Storage</a>		<b>Seagate Exos M 30 TB 3.5" 7200 RPM Internal Hard Drive</b>	From parametric selection:	€887.65	<a href="#">... ...</a>
		• Seagate Exos M 30 TB 3.5" 7200 RPM Internal Hard Drive			
		<a href="#">+ Add Additional Storage</a>			
<a href="#">Video Card</a>		<b>Asus TUF GAMING GeForce RTX 5090 32 GB Video Card</b>	From parametric selection:	€2699.00	<a href="#">... ...</a>
		• Asus TUF GAMING GeForce RTX 5090 32 GB Video Card			
		<a href="#">+ Add Another Video Card</a>			
<a href="#">Case</a>		<b>MUSETEX Y6 ATX Mid Tower Case</b>	From parametric selection:	€233.83	<a href="#">... ...</a>
<a href="#">Power Supply</a>		<b>Corsair SF1000 (2024) 1000 W 80+ Platinum Certified Fully Modular SFX Power Supply</b>	From parametric selection:	€221.60	<a href="#">... ...</a>
<a href="#">Operating System</a>		<b>Microsoft Windows 11 Home OEM - DVD 64-bit</b>	From parametric selection:	€126.25	<a href="#">... ...</a>
<a href="#">Wireless Network Adapter</a>		<b>Gigabyte GC-WBAX210 802.11a/b/g/n/ac/ax PCIe x1 Wi-Fi Adapter</b>	From parametric selection:	€53.27	<a href="#">... ...</a>
		<a href="#">+ Add Another Wireless Network Adapter</a>			
<a href="#">Monitor</a>		<b>Samsung Odyssey Neo G95NC 57.0" 7680 x 2160 240 Hz Curved Monitor</b>	From parametric selection:	€1899.00	<a href="#">... ...</a>
		<a href="#">+ Add Another Monitor</a>			

I put together this configuration because I picked every part high specs and most positive reviews. Assuming this dream PC would be free. Unfortunately in reality the total cost is almost 8000 euros. My current laptop does everything I need it to do already though.

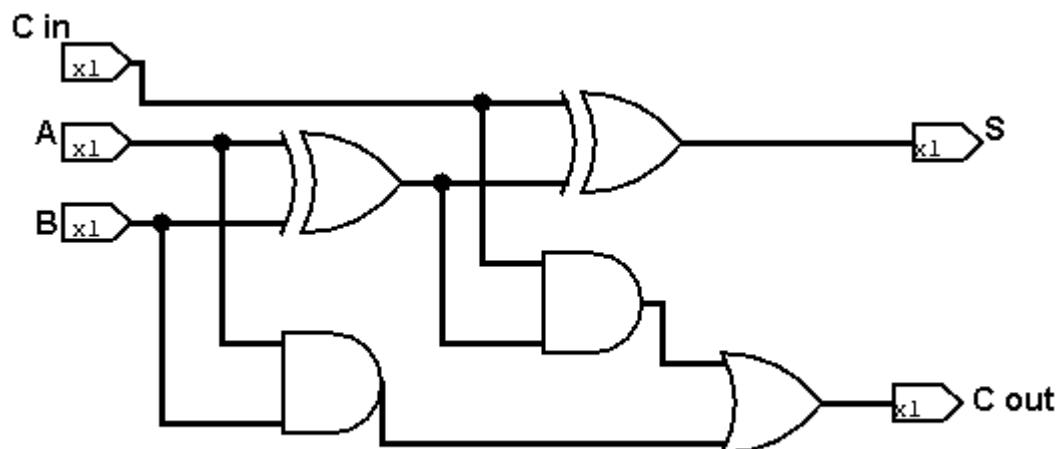
### Assignment 3.5: Adders

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.

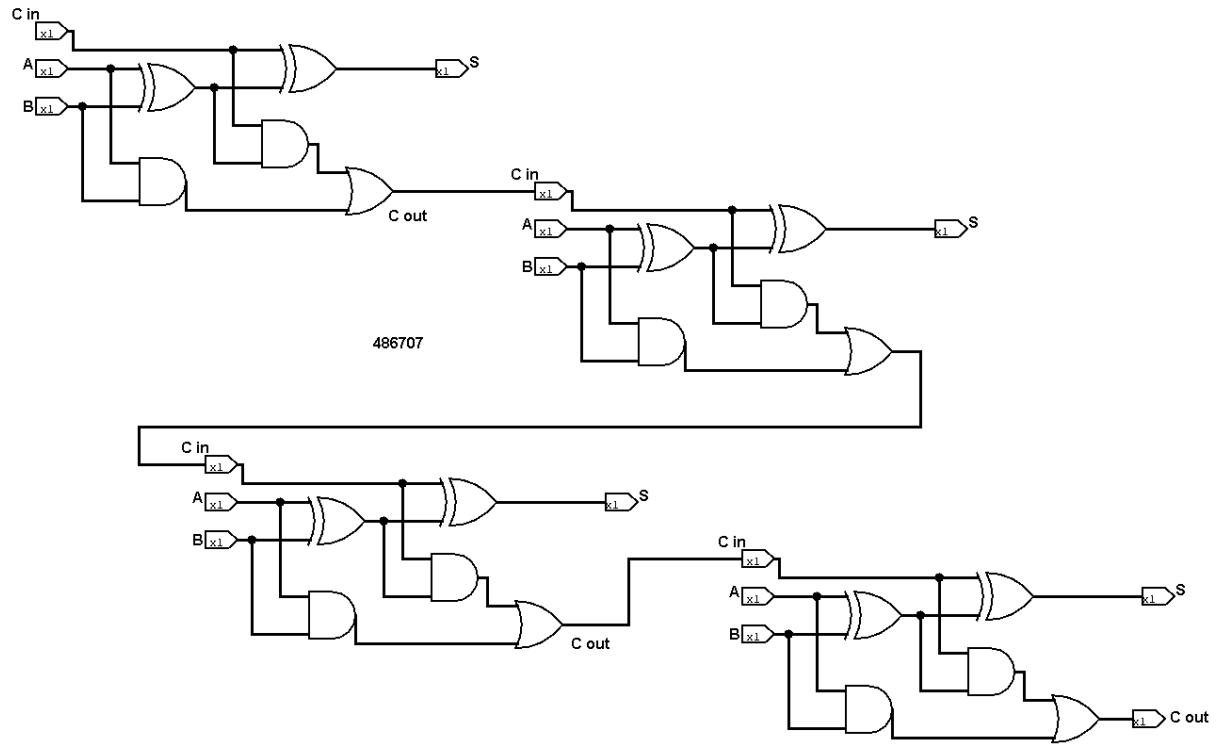
Paste the three exported PNG pictures in here.



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