

# Template Week 3 – Hardware

Student number:

## Assignment 3.1: Examine your phone

What processor is in your phone?

**Samsung Exynos 990** chipset.

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

ARMv8-A

How much RAM is in it?

6 GB

How much storage does your phone have?

256 GB

What operating system is running on your phone?

Android 13

Approximately how many applications do you have installed?

298 apps

Which application do you use the most?

Tiktok

Can your phone be charged with what type of plug?

**USB Type-C poort**

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

**USB Type-C poort**

**SIM/MicroSD tray**

**Luidsprekerroosters**

**Microfoongaatjes**

### **Assignment 3.2: Examine your laptop**

What processor is in your laptop?

AMD processor

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?

8GB

How much storage does your laptop have?

1TB

Which operating system is running on your laptop?

Windows 11 Pro

Approximately how many applications do you have installed?

99 apps

Which application do you use the most?

Opera GX

Can your laptop be charged with what type of plug?

4.5mm DC-barrel plug

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

USB Type-A poorten

USB Type-C poort

HDMI poort:

3.5mm Audio Jack

DC-in

MicroSD/SD-kaartlezer

### Assignment 3.3: Power to the laptop

What is the input voltage?

100-240 volt

What is the output voltage?

20 volt

How many watts can your power adapter deliver?

90w

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

**AC (Alternating Current) is wisselstroom waarbij de elektronen constant van richting veranderen; dit komt uit je stopcontact omdat het efficiënt over grote afstanden te vervoeren is. DC (Direct Current) is gelijkstroom waarbij de elektronen in één vaste richting stromen; dit wordt gebruikt door batterijen en elektronica zoals laptops en telefoons. Een adapter fungeert als omvormer die de hoge AC-spanning uit de muur omzet naar de veilige, constante DC-spanning die jouw apparaat nodig heeft.**

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


































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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.

Er gaat niks gebeuren, De laptop trekt alleen de 15W die hij nodig heeft; de adapter duwt er niet met geweld 50W in. Die 50W is slechts de **maximale capaciteit** van de lader.

### Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

Component	Selection	Base	Promo	Shipping	Tax	Availability	Price	Where	
CPU	 AMD Ryzen 5 7600X 4.7 GHz 6-Core Processor <small>From parametric selection:</small> • AMD Ryzen 5 7600X 4.7 GHz 6-Core Processor	€179.90	—		—	In stock	 €179.90	amazon.nl	 ✕
CPU Cooler	 Thermalright Peerless Assassin 120 SE 66.17 CFM CPU Cooler <small>From parametric selection:</small> • Thermalright Peerless Assassin 120 SE 66.17 CFM CPU Cooler	€45.90	—		—	In stock	 €45.90	amazon.nl	 ✕
Motherboard	 Asus B650E MAX GAMING WIFI W ATX AM5 Motherboard	€149.90	—	FREE	—		 €149.90	MEGEMO.nl	 ✕
Memory	 Crucial Pro 32 GB (2 x 16 GB) DDR5-5600 CL46 Memory <a href="#">+ Add Additional Memory</a>	€479.00	—	FREE	—		 €479.00	MEGEMO.nl	 ✕
Storage	 Samsung 990 Pro 4 TB M.2-2280 PCIe 4.0 X4 NVMe Solid State Drive <a href="#">+ Add Additional Storage</a>	€409.00	—		—	In stock	 €409.00	amazon.nl	 ✕
Video Card	 Asus PRIME GeForce RTX 5070 Ti 16 GB Video Card <a href="#">+ Add Another Video Card</a>	—	—	—	—		 No Prices Available		 ✕
Case	 Lian Li Vector V100R ATX Mid Tower Case	€72.00	—	FREE	—		 €72.00	PARAUGHT	 ✕
Power Supply	 Montech CENTURY II 850 W 80+ Gold Certified Fully Modular ATX Power Supply	€109.00	—	€5.95	—	Out of stock	 €114.95	ALTERNATE	 ✕
Operating System	 Microsoft Windows 11 Pro OEM - DVD 64-bit <small>From parametric selection:</small> • Microsoft Windows 11 Pro OEM - DVD 64-bit	€157.76	—	FREE	—	In stock	 €157.76	amazon.nl	 ✕
Monitor	 AOC Agon PRO AG276QZD2 26.7" 2560 x 1440 240 Hz Monitor <a href="#">+ Add Another Monitor</a>	€480.00	—	FREE	—	In stock	 €480.00	AZERTY	 ✕
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								

De AMD Ryzen 5 7600X levert veel betere prestaties dan een laptopprocessor en is geschikt voor zowel gaming als productiviteit. Om de processor koel en stabiel te houden heb ik gekozen voor een goede luchtkoeler, wat zorgt voor betere prestaties onder belasting. Met 32 GB DDR5 RAM kan ik meerdere zware programma's tegelijk gebruiken zonder vertraging. De Samsung 990 Pro 4 TB NVMe SSD zorgt voor snelle opstarttijden, korte laadtijden en voldoende opslagruimte voor games en bestanden. De RTX 5070 Ti grafische kaart maakt het mogelijk om moderne games op hoge instellingen en hoge resolutie te spelen. Dit is een grote verbetering ten opzichte van de geïntegreerde grafische kaart in mijn laptop. Een kwalitatieve behuizing, een 850W 80+ Gold voeding en een 27" 1440p 240 Hz monitor voor een stabiel, stil en toekomstgericht systeem met een veel betere gebruikerservaring.

## Onderdeel Asus VivoBook Droom-PC

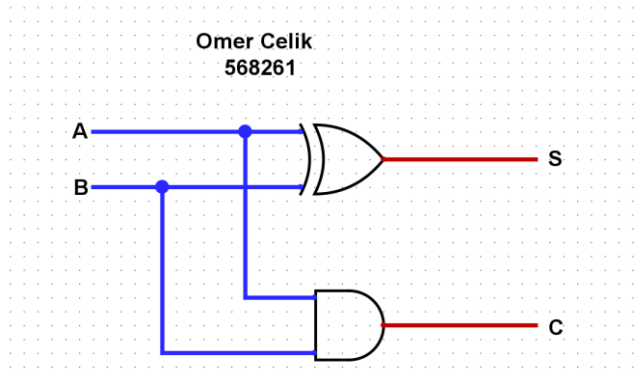
CPU	AMD laptop-CPU Ryzen 5 7600X	
RAM	8 GB	32 GB DDR5
GPU	Geïntegreerd	RTX 5070 Ti 16 GB
Opslag	1 TB	4 TB NVMe
Koeling	Beperkt	High-end koeling
Monitor	Laptop scherm	27" 240 Hz
Mobiliteit	Hoog	Geen
Prestaties	Basis	High-end

### Assignment 3.5: Adders

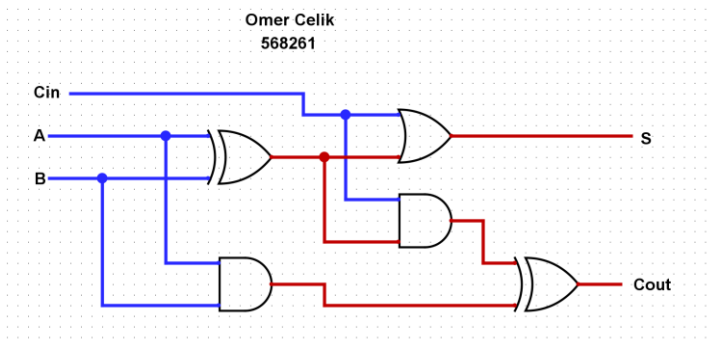
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

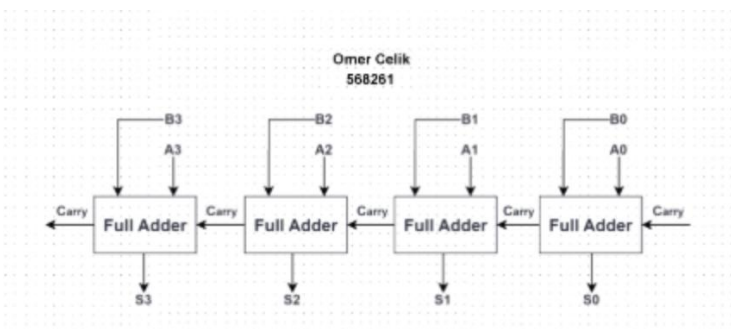
Half adder



Full adder



4-bit adder



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