Template Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

Snapdragon 8 Gen 2 for Galaxy

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

64-bit ARM

How much RAM is in it?

8GB

How much storage does your phone have?

256GB

What operating system is running on your phone?

Andrioid 16

Approximately how many applications do you have installed?

201

Which application do you use the most?

Spotify

Can your phone be charged with what type of plug?

USB Type-C

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

USB Type-C port

Sim Card tray

Assignment 3.2: Examine your laptop

What processor is in your laptop?

AMD Ryzen 7 5800H

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

64-bit x86

How much RAM is in it?

16GB

How much storage does your laptop have?

512GB

Which operating system is running on your laptop?

Windows 11

Approximately how many applications do you have installed?

26 applications

Which application do you use the most?

Brave

Can your laptop be charged with what type of plug?

Lenovo slim Tip

Of via de power delivery USB Type-C port

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

USB Type-A

USB Type-C

HDMI

RJ-45 Ethernet-poort

Audio 3.5 mm jack

Slim Tip-poort

Assignment 3.3: Power to the laptop

What is the input voltage?

AC 100-240 V, 50/60 Hz

What is the output voltage?

DC 20 V, 12 A → tot 240 W

How many watts can your power adapter deliver?

240W

Is the input voltage AC or DC?

AC

Is the output voltage AC or DC?

DC

AC/DC what is that?

AC is wisselstroom en DC is gelijkstroom. Dus bij wisselstroom verandert de richting (daarom ook de 50/60 Hz). Wisselstroom is beter in grotere afstanden. Apparaten gebruiken DC omdat ze elektronica stabiele stroom nodig heeft.

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

Ja want dan gaat de stroom de andere kant op en dat vinden de meeste componenten in je laptop niet zo leuk. Maar als je een veiligheidscircuit dan zou er niks aan de hand moeten zijn.

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.

Omdat spanning, polariteit en connector hetzelfde zijn zal de laptop normaal werken.

De adapter kan meer watt leveren maar dat is nog steeds veilig: het betekent alleen dat hij meer stroom kan leveren dan nodig maar de laptop trekt alleen wat hij nodig heeft.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

Dit is momenteel mijn huidige pc:

https://nl.pcpartpicker.com/list/JcvxqR

Component	Selection		Base	Promo	Shipping	Tax	Availability	Price	Where	
CPU		AMD Ryzen 5 7600X 4.7 GHz 6-Core Processor	€176.99	—	Prime	—	In stock	€176.99	amazon.nl	Buy
CPU Cooler		Thermalright Peerless Assassin 120 Black 66.17 CFM CPU Cooler	—	—	—	—	—	No Prices Available	—	Buy
Motherboard		Asus TUF GAMING B650-PLUS WIFI ATX AM5 Motherboard	€159.00	—	FREE	—	In stock	€159.00	ALTERNATE	Buy
Memory		Kingston FURY Beast RGB 32 GB (2 x 16 GB) DDR5-6000 CL40 Memory	—	—	—	—	—	No Prices Available	—	Buy
Storage		Samsung 980 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€438.57	—	—	—	In stock	€438.57	amazon.nl	Buy
Video Card		XFX Speedster QICK 319 Core Radeon RX 7800 XT 16 GB Video Card	—	—	—	—	—	No Prices Available	—	Buy
Case		NZXT H5 Elite ATX Mid Tower Case	—	—	—	—	—	No Prices Available	—	Buy
Power Supply		Corsair RM650 (2023) 650 W 80+ Gold Certified Fully Modular ATX Power Supply	—	—	—	—	—	No Prices Available	—	Buy

dit is de dream pc:

https://pcpartpicker.com/list/shftcx

Component	Selection		Base	Promo	Shipping	Tax	Availability	Price	Where	
CPU		AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor	$439.99	—	Prime	—	In stock	$439.99	amazon.com	Buy
CPU Cooler		Thermalright Peerless Assassin 120 SE 66.17 CFM CPU Cooler	$34.90	—	Prime	—	In stock	$34.90	amazon.com	Buy
Motherboard		MSI MAG B850 TOMAHAWK MAX WIFI ATX AM5 Motherboard	$229.99	—	FREE	—	In stock	$229.99	newegg	Buy
Memory		Corsair Vengeance RGB 128 GB (4 x 32 GB) DDR5-5600 CL40 Memory	$1747.99	—	FREE	—	In stock	$1747.99	CORSAIR	Buy
Storage		Samsung 9100 PRO 8 TB M.2-2280 PCIe 5.0 X4 NVME Solid State Drive	$879.95	—	Prime	—	In stock	$879.95	amazon.com	Buy
Video Card		Asus ROG Astral OC GeForce RTX 5090 32 GB Video Card	$3359.00	—	FREE	—	In stock	$3359.00	B&H	Buy
Case		Fractal Design Torrent ATX Mid Tower Case	$204.99	—	FREE	—	In stock	$204.99	B&H	Buy
Power Supply		Asus ROG STRIX 1200P Gaming 1200 W 80+ Platinum Certified Fully Modular ATX Power Supply	$455.41	—	$65.00	—	In stock	$520.41	amazon.com	Buy

CPU

- 8 cores / 16 threads (meer cores voor multitasking en zware workloads)
- 3D V-Cache (veel grotere L3-cache daardoor hogere FPS en lagere latency)

Geheugen (RAM)

- 128 GB DDR5 (4× zoveel geheugen)
- Ideaal voor zware software, grote projecten, AI-modellen en VMs te runnen

Opslag

- 8 TB PCIe 5.0 SSD (4× zoveel opslag)
- Veel hogere lees en schrijfsnelheden dan PCIe 4.0
- Sneller laden van games en grote bestanden, betere workflow

Videokaart

- RTX 5090 (veel krachtiger dan RX 7800 XT)
- Beter bij 4K/8K gaming en ray tracing
- Tensor- en CUDA-cores voor AI-acceleratie en videobewerking

Voeding

- 1200W Platinum (stabieler en efficiënter)
- Geschikt en is nodig voor de high-end componenten zoals de RTX 5090 omdat die veel stroom nodig hebben
- Koeler en stiller bij zware belasting

Case

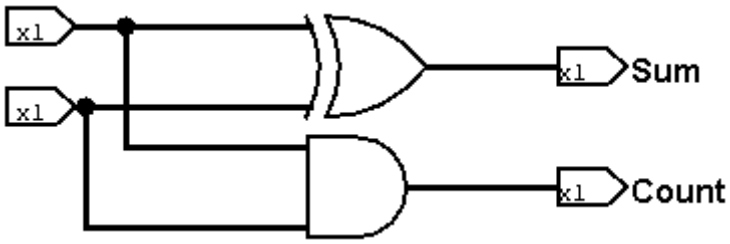
- Fractal Design Torrent (beste airflow-case)
- Lagere temperaturen bij CPU en GPU

Assignment 3.5: Adders

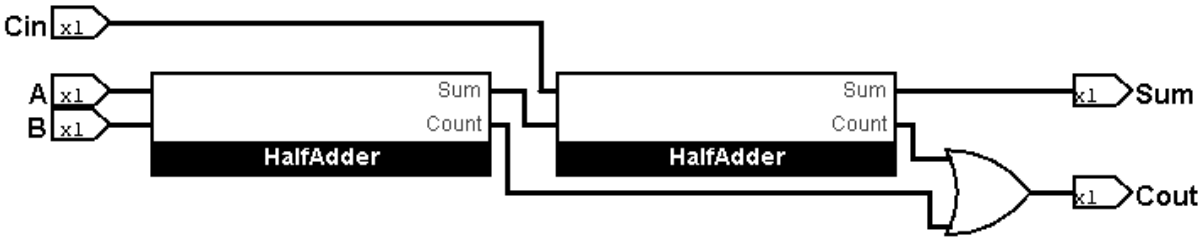
Complete the **half adder**, **full adder** and **4-bit adder** assignment as described in the PowerPoint slides of week 3 in Logisim. Save the chip design and also export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.

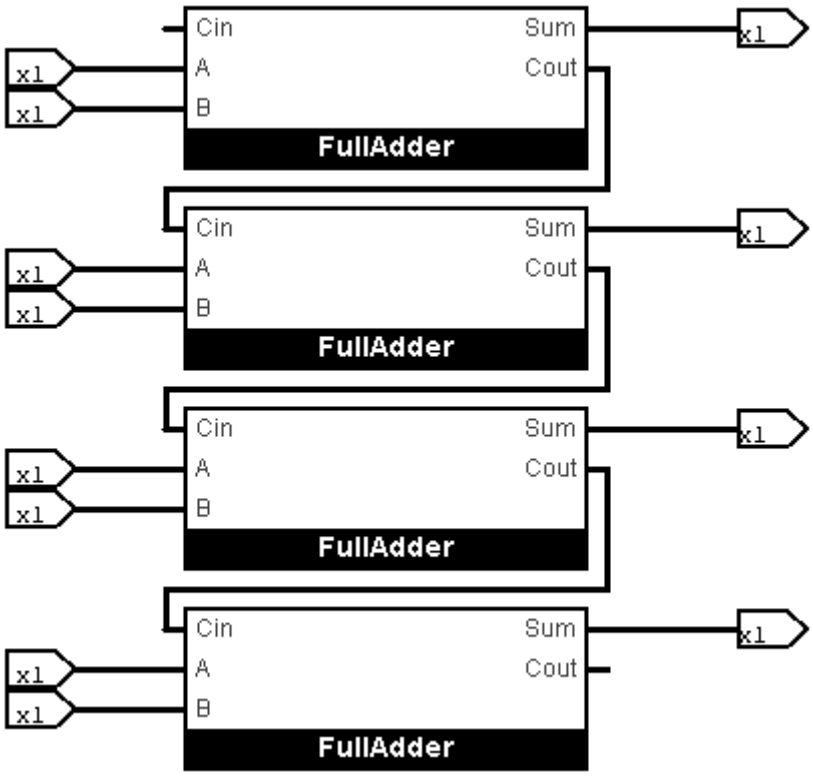
Half bit adder:



Full bit adder:



4 bit adder:



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