

Week 3 – Hardware

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Assignment 3.1: Examine your phone

What processor is in your phone?

» Apple A14 Bionic

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

» It is based on the ARM architecture and used the ARMv8-A ISA

How much RAM is in it?

» 6 GB of RAM

How much storage does your phone have?

» 128GB Storage

What operating system is running on your phone?

» iOS 17

Approximately how many applications do you have installed?

» 60 applications

Which application do you use the most?

» SaxionApp

Can your phone be charged with what type of plug?

» Lightning Cable, no USB TYPE-C sadly :(

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

» The Lightning port for charging

Assignment 3.2: Examine your laptop

What processor is in your laptop?

» AMD Ryzen 5 7520U With Integrated Graphics

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

» x86-64 architecture, x86-64 ISA

How much RAM is in it?

» 16 GB Ram

How much storage does your laptop have?

» 500GB SSD

Which operating system is running on your laptop?

» Windows 11 Home

Approximately how many applications do you have installed?

» 40 applications

Which application do you use the most?

» Microsoft Word

Can your laptop be charged with what type of plug?

» Barrel Power Connector

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

» HDMI Port

» Headphone/microphone jack (3.5mm)

» USB Type-C Port

» USB Type-A ports

Assignment 3.3: Power to the laptop

What is the input voltage?

» 230V

What is the output voltage?

» 19V DC

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?

» DC is that the electrical current only flows in one direction, it's used to power most electronics.

» AC is that the electrical current changes direction periodically, it's used to power transmission as it is more efficient over long distances.

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

» Yes this is very bad for your laptop as it can damage the 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.

» It would work perfectly, it CAN deliver 50 watts but it will only draw 15 watts.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

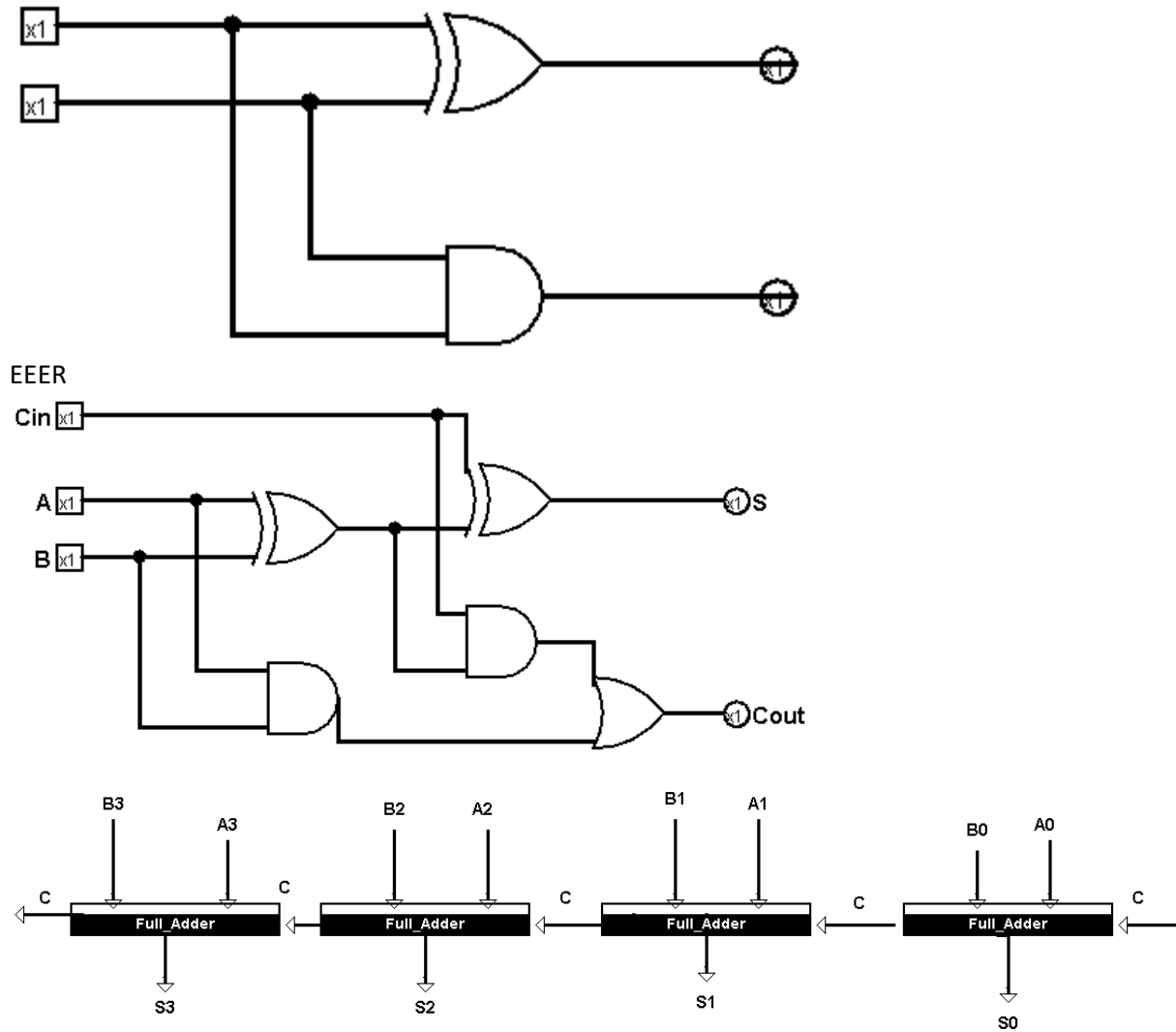
» This PC configuration has the fastest CPU, fastest GPU, WiFi and Bluetooth on the motherboard, more than enough RAM and high memory clocks, 4tb of m.2 ssd (the fastest), the best GPU to render every frame in every game, case in which airflow is good and a 1000w 80+ Gold PSU.

CPU		AMD Ryzen 7 9800X3D 4.7 GHz 8-Core Processor	€649.00	—	FREE	—	⚙️	€649.00	ALTERNATE	Buy	×
CPU Cooler		Noctua NH-D15 chromax.black 82.52 CFM CPU Cooler	€114.90	—	Prime	—	⚙️	€114.90	amazon.nl	Buy	×
Motherboard		Gigabyte X870E AORUS ELITE WIFI7 ATX AM5 Motherboard	€299.00	—	Prime	—	⚙️	€299.00	amazon.nl	Buy	×
Memory		G.Skill Trident Z5 RGB 64 GB (2 x 32 GB) DDR5-6400 CL32 Memory	€236.90	—	Prime	—	⚙️	€236.90	amazon.nl	Buy	×
+ Add Additional Memory											
Storage		Samsung 990 Pro 4 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive	€258.00	—	FREE	—	⚙️	€258.00	ASUS	Buy	×
+ Add Additional Storage											
Video Card		Asus ROG STRIX GAMING OC GeForce RTX 4090 24 GB Video Card	€2699.00	—	—	—	⚙️	€2699.00	amazon.nl	Buy	×
+ Add Another Video Card											
Case		NZXT H9 Flow ATX Mid Tower Case	€151.57	—	€3.95	—	⚙️	€155.52	AZERTY	Buy	×
Power Supply		Corsair RM1000e (2023) 1000 W 80+ Gold Certified Fully Modular ATX Power Supply	€158.99	—	Prime	—	⚙️	€158.99	amazon.nl	Buy	×
Operating System		Microsoft Windows 11 Home OEM - DVD 64-bit	€128.85	—	FREE	—	⚙️	€128.85	MEGEMO	Buy	×

Bonus point assignment – week 3

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](#)