Template Week 3 – Hardware

Student number: 560830

Assignment 3.1: Examine your phone

What processor is in your phone?

Octa-core (1x2.8 GHz Cortex-X2 & 3x2.50 GHz Cortex-A710 & 4x1.8 GHz Cortex-A510)

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

Exynos 2200 (4 nm)

How much RAM is in it?

8GB

How much storage does your phone have?

128GB

What operating system is running on your phone?

Android 16 (OneUI 8.0)

Approximately how many applications do you have installed?

~50-60

Which application do you use the most?

Signal

Can your phone be charged with what type of plug?

USB-C

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

De oplaadpoort

Assignment 3.2: Examine your laptop

What processor is in your laptop?

AMD Ryzen 7 260

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

Zen 4

How much RAM is in it?

16GB

How much storage does your laptop have?

1TB (954GB Formatted)

Which operating system is running on your laptop?

Windows 24H2

Approximately how many applications do you have installed?

~85 according to windows settings, approximately 20 or so more that aren't listed there

Which application do you use the most?

Brave

Can your laptop be charged with what type of plug?

USB-C

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

2x USB-C, HDMI, 2x USB 3.0

Assignment 3.3: Power to the laptop

What is the input voltage?

100-240V @ 50/60 Hz wisselstroom

What is the output voltage?

5.0V Gelijkstroom @ 3.0A

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 / Direct Current, where alternating current flips direction a set rate per second (50/60 HZ in my case) and direct current stays in one direction

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

The laptop would probably reject the charger and not allow it to charge, as allowing it would cause damage to the battery.

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.

The computer should manage with the increased wattage, as the charger **can** deliver 50 Watts, but is fine with delivering less.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:

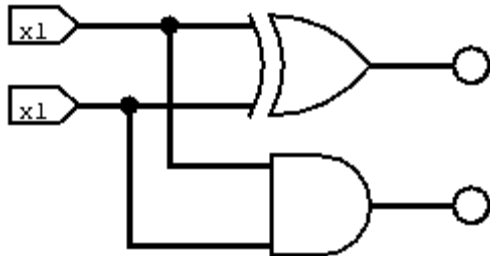Dream PC on pcpartpicker.com

- RTX 5090 for top-of-the-line performance
- 4TB Storage for long-term use
- 96GB (2x48GB) RAM for heavy gaming and overhead clearance @6400Hz
- Ryzen 9 7950X3D 4.5Ghz 16-core
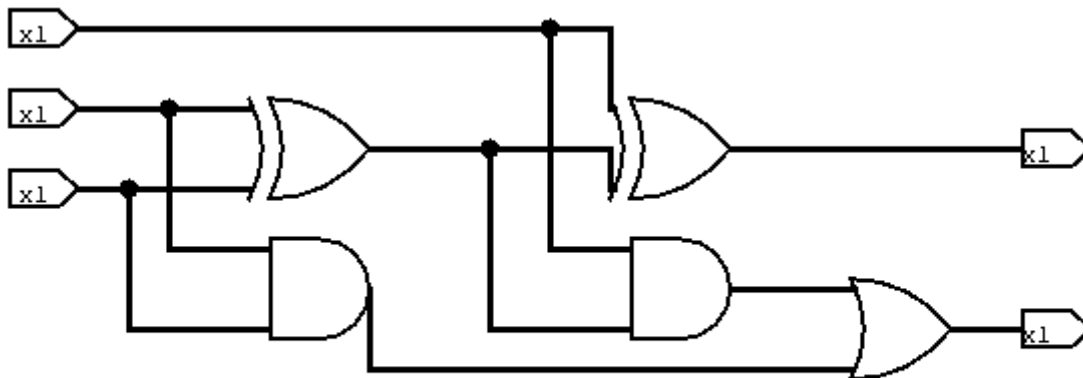
Assignment 3.5: Adders

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 (with display for fun)