Template Week 3 – Hardware

Student number: 561004

Assignment 3.1: Examine your phone

What processor is in your phone? – A15 Bionic chip

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used? – ARMv8-A IS

How much RAM is in it? – 6GB

How much storage does your phone have? – 256GB

What operating system is running on your phone? – iOS 18.0

Approximately how many applications do you have installed? – 30

Which application do you use the most? – Social media applicaitons

Can your phone be charged with what type of plug? – Lightning cable

Which I/O ports can you visually see on your phone? – Only the charger port

Assignment 3.2: Examine your laptop

What processor is in your laptop? – Apple M3 Chip

To which architecture family does this processor belong? In other words, which Instruction Set Architecture (ISA) is used? - ARMv9-A ISA

How much RAM is in it? – 16GB

How much storage does your laptop have? – 500GB

Which operating system is running on your laptop? – macOS Sonoma 14.6.1

Approximately how many applications do you have installed? – 55

Which application do you use the most? – Safari

Can your laptop be charged with what type of plug? – MagSafe 3

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

- MagSafe 3 Port (charging port)
- 2 USB-C ports
- Headphone Jack
- HDMI port
- Card slot

Assignment 3.3: Power to the laptop

What is the input voltage? – 100V to 240V

What is the output voltage? – 20.5V

How many watts can your power adapter deliver? – 67W

Is the input voltage AC or DC? – AC

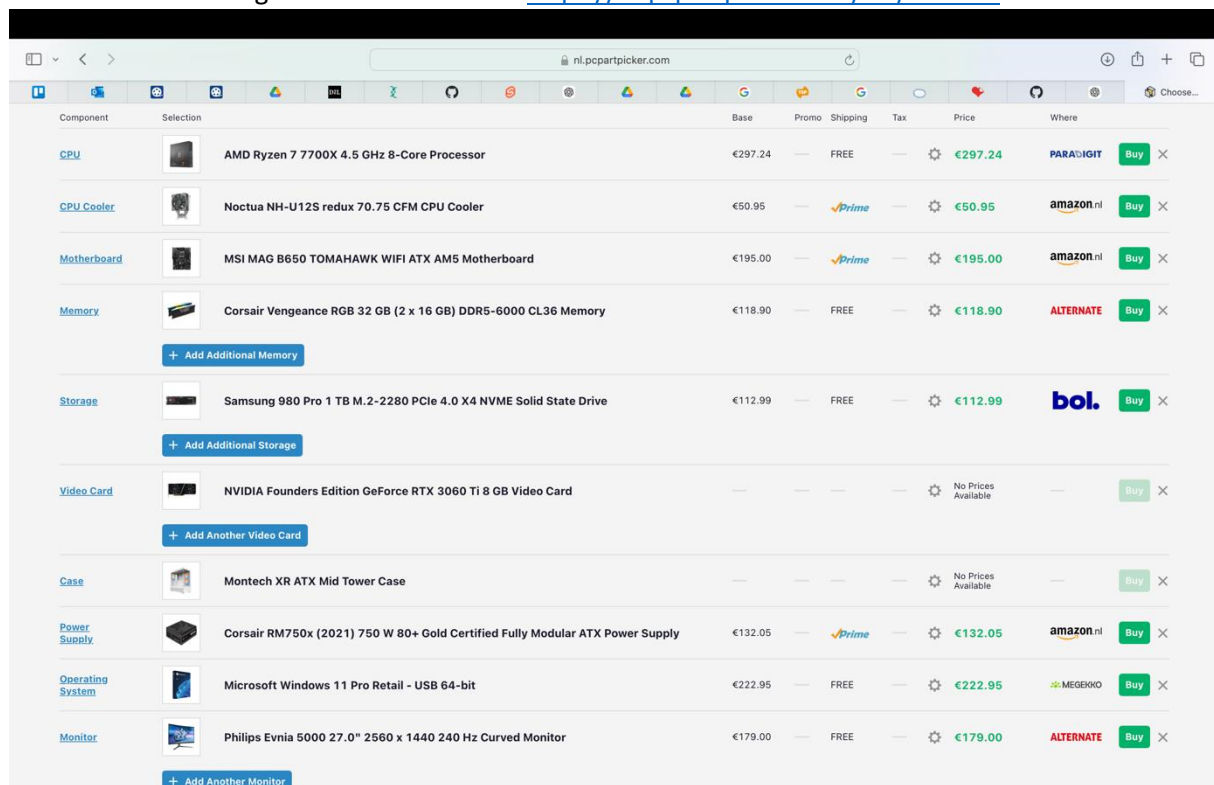Is the output voltage AC or DC? – DC

AC/DC what is that?

- AC (Alternating Current) – The direction of the electric current changes back and forth
- DC (Direct Current) – The direction of the electric current flows in one direction
- Or in other words, AC/DC is a rock band

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

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.

Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation: https://nl.pcpartpicker.com/list/CRGht3

Motivation: This PC would be enough to handle programming and light gaming.
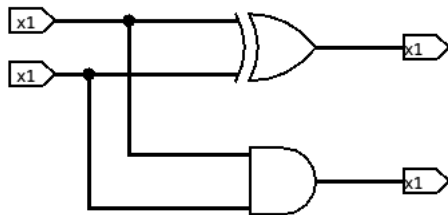
Bonus point assignment – week 3

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.

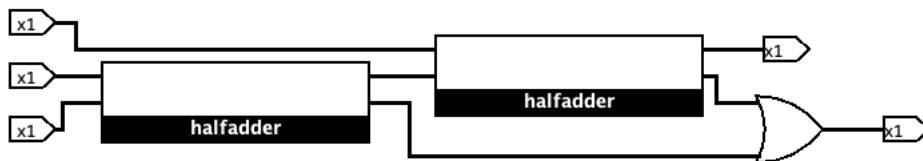Paste the three exported PNG pictures in here.

Raya Hristova – 561004
Half adder

Raya Hristova – 561004
Full adder

Raya Hristova – 561004
4-bit adder