

# Template Week 3 – Hardware

Student number: 563064

## Assignment 3.1: Examine your phone

What processor is in your phone?

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

How much RAM is in it?

How much storage does your phone have?

What operating system is running on your phone?

Approximately how many applications do you have installed?

Which application do you use the most?

Can your phone be charged with what type of plug?

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

## Assignment 3.2: Examine your laptop

What processor is in your laptop?

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

How much RAM is in it?

How much storage does your laptop have?

Which operating system is running on your laptop?

Approximately how many applications do you have installed?

Which application do you use the most?

Can your laptop be charged with what type of plug?

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

### Assignment 3.3: Power to the laptop

What is the input voltage?

What is the output voltage?

How many watts can your power adapter deliver?

Is the input voltage AC or DC?

Is the output voltage AC or DC?

AC/DC what is that?







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

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://pcpartpicker.com/list/F3YTBq>

| Component                    | Selection  | Base      | Promo | Shipping | Tax | Price       | Where       |       |
|------------------------------|--|-----------|-------|----------|-----|-------------|-------------|-------|
| CPU                          |  AMD Threadripper 3990X 2.9 GHz 64-Core Processor                                   | \$2795.95 |       |          |     | \$2795.95   | amazon.com  | Buy X |
| CPU Cooler                   |  Corsair iCUE H150i ELITE CAPELLIX XT 65.57 CFM Liquid CPU Cooler                   | \$124.99  |       | FREE     |     | \$124.99    | corsair.com | Buy X |
| Motherboard                  |  Asus ROG ZENITH II EXTREME ALPHA EATX sTRX4 Motherboard                            | \$1989.00 |       |          |     | \$1989.00   | amazon.com  | Buy X |
| Memory                       |  G.Skill Trident Z RGB 128 GB (4 x 32 GB) DDR4-3600 CL18 Memory                     | \$249.99  |       | Prime    |     | \$249.99    | amazon.com  | Buy X |
|                              | + Add Additional Memory  |           |       |          |     |             |             |       |
| Storage                      |  Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive                   | \$154.00  |       | \$5.00   |     | \$159.00    | amazon.com  | Buy X |
| Storage                      |  Samsung 990 Pro 2 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive                   | \$154.00  |       | \$5.00   |     | \$159.00    | amazon.com  | Buy X |
|                              | + Add Additional Storage   |           |       |          |     |             |             |       |
| Video Card                   |  Asus ROG STRIX GAMING OC GeForce RTX 4090 24 GB Video Card                         | \$3199.99 |       | \$8.99   |     | \$3208.98   | amazon.com  | Buy X |
|                              | + Add Another Video Card   |           |       |          |     |             |             |       |
| Case                         |  Lian Li O11 Vision ATX Mid Tower Case  | \$129.99  |       | FREE     |     | \$129.99    | amazon.com  | Buy X |
| Power Supply                 |  Corsair SF1000 (2024) 1000 W 80+ Platinum Certified Fully Modular SFX Power Supply | \$199.99  |       | Prime    |     | \$199.99    | amazon.com  | Buy X |
| Operating System             | + Choose An Operating System   |           |       |          |     |             |             |       |
| Monitor                      | + Choose A Monitor   |           |       |          |     |             |             |       |
| 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  |           |       |          |     |             |             |       |
|                              |  |           |       |          |     | Base Total: | \$8997.90   |       |
|                              |  |           |       |          |     | Shipping:   | \$18.99     |       |
|                              |  |           |       |          |     | Total:      | \$9016.89   |       |

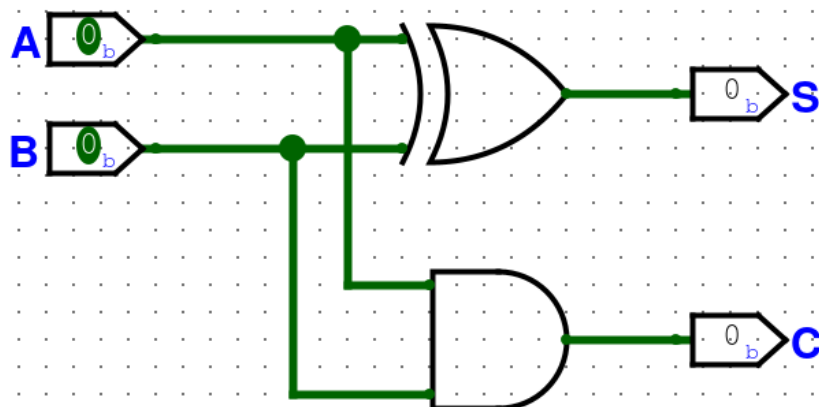
### Bonus point assignment – week 3

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.

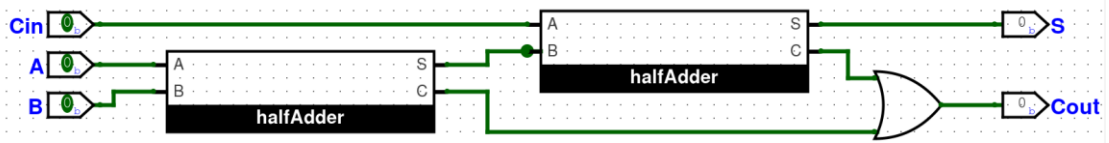
Half adder:

Artur Kapustin 563064



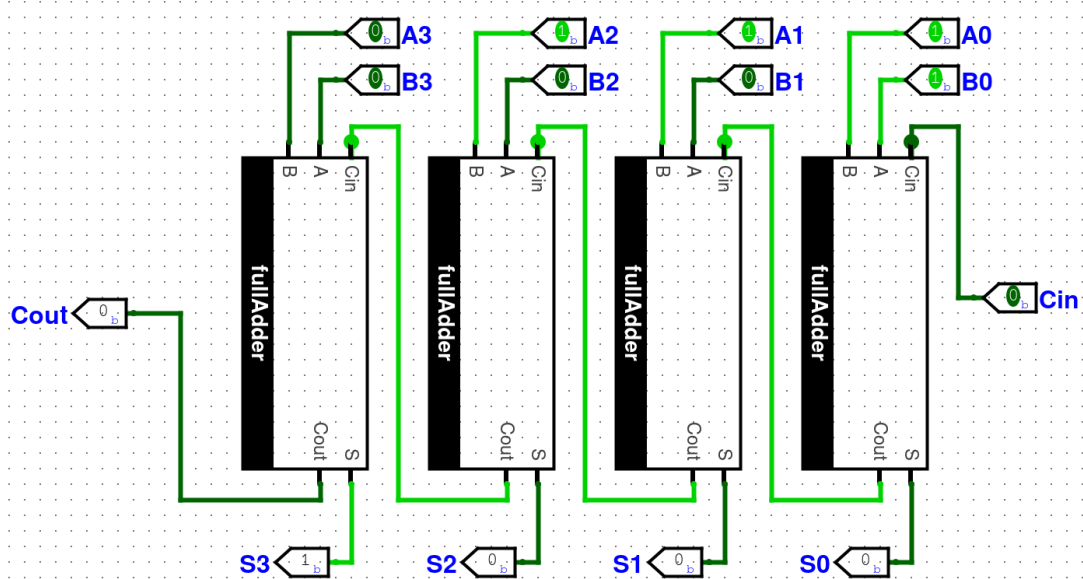
Full adder:

Artur Kapustin 563064



4bit adder:

Artur Kapustin 563064



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