Template Week 3 – Hardware

Student number:564604

Assignment 3.1: Examine your phone

- What processor is in your phone?

The apple A14 Bionic chip

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

- The A14 Bionic uses the ARMv8.5-A ISA, which is a 64-bit architecture

How much RAM is in it?

- 6GB

How much storage does your phone have?

- 128GB

What operating system is running on your phone?

- IOS version 18.2

Approximately how many applications do you have installed?

- 70 applications

Which application do you use the most?

- Timer

Can your phone be charged with what type of plug?

- Lightning cable (wired charging)

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

- lightning port
- speaker
- sim tray

Assignment 3.2: Examine your laptop

What processor is in your laptop?

My laptop has an **Intel(R) Core(TM) i5-10310U CPU @ 1.70GHz** processor, with a maximum boost clock speed of **2.21 GHz**.

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

laptop has an **Intel(R) Core(TM) i5-10310U CPU @ 1.70GHz** processor, with a maximum boost clock speed of **2.21 GHz**.

How much RAM is in it?

16 GB of installed RAM

How much storage does your laptop have?

512GB

Which operating system is running on your laptop?

WNDOWS 11

Approximately how many applications do you have installed?

20

Which application do you use the most?

MICROSOFT WORD

Can your laptop be charged with what type of plug?

YES, WITH A USB C POWER DELIVERY

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

- **USB-A ports** (for peripherals like flash drives).
- **USB-C port** (for fast data transfer or charging).
- **HDMI port** (for external displays).
- **Headphone jack** (for audio output).
- **Ethernet port** (for wired internet).
- **SD card reader** (optional on some models).

Assignment 3.3: Power to the laptop

What is the input voltage?

The input voltage for your Lenovo laptop power adapter is typically **100-240V AC**

What is the output voltage?

The output voltage of Lenovo laptop power adapters generally ranges from **15V to 20V DC**

How many watts can your power adapter deliver?

The power adapter for your Lenovo laptop typically delivers 65W

Is the input voltage AC or DC?

The **input voltage** for the power adapter is **AC**

Is the output voltage AC or DC?

The **output voltage** from the power adapter to your Lenovo laptop is **DC**

AC/DC what is that?

- **AC (Alternating Current)**: This is the type of electrical current that periodically reverses direction. It's what you get from wall outlets.
- DC (Direct Current): this current flows in a single direction. It's used to power most electrical devices, including laptops

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

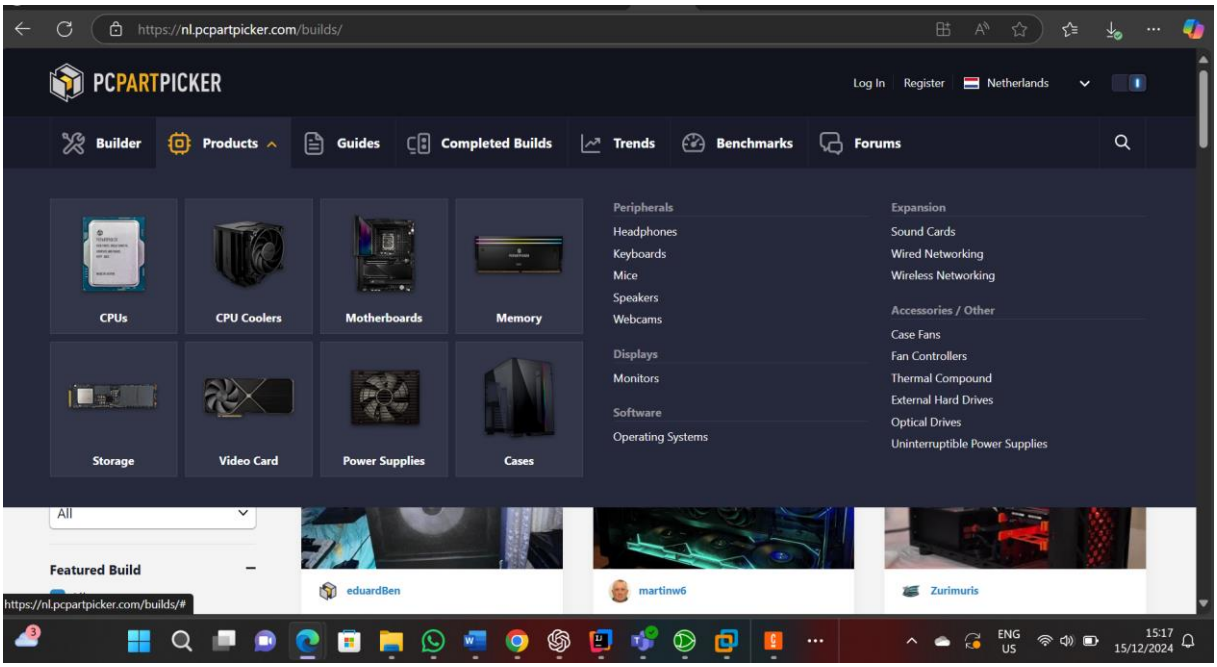
- Yes, reversing the polarity of the output voltage can be very harmful to your Lenovo laptop. While some laptops may have protection circuits, applying reversed polarity can cause short circuits or damage internal components.

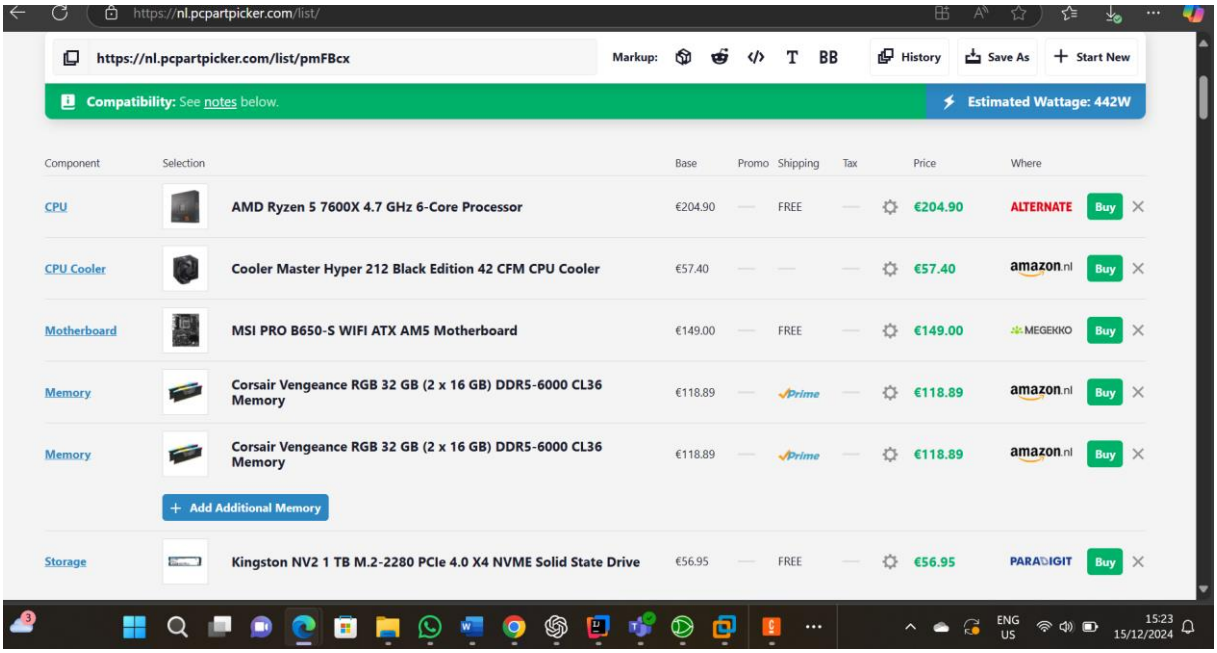
You forgot your power adapter; your laptop normally needs 15 watts. You will be loaned a power adapter that can deliver 50 watts. Voltage, polarity, etc. are all the same compared to the original power adapter. You can connect the borrowed power adapter to your laptop. What will happen? Also explain why you think that.

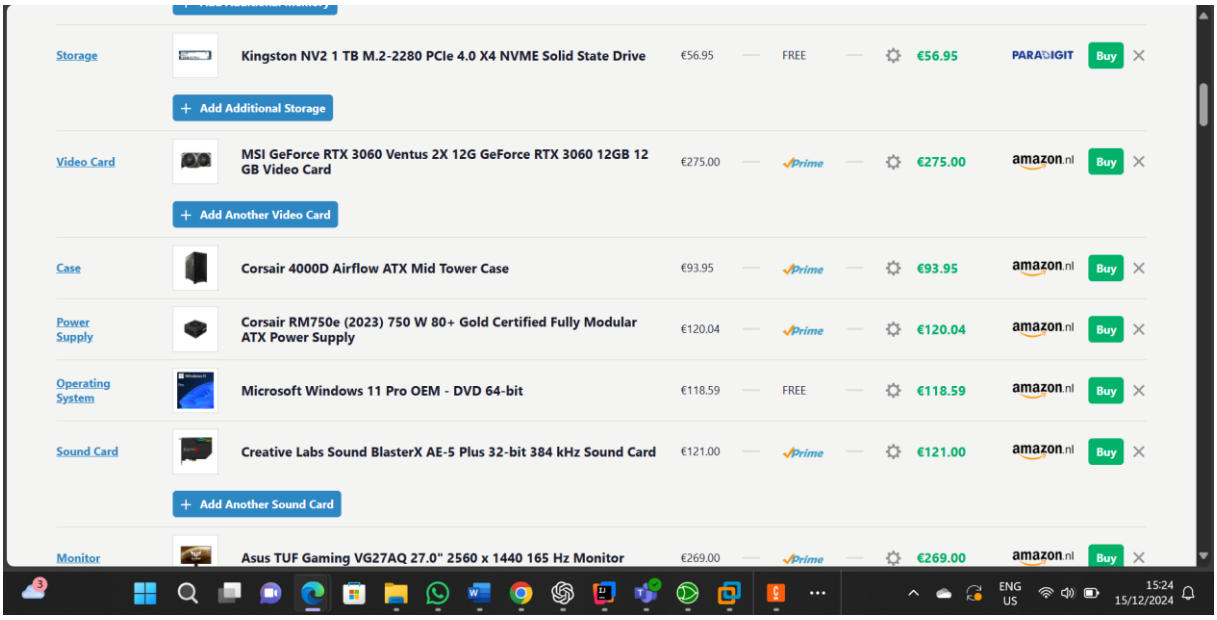
- Yes, reversing the polarity of the output voltage can be very harmful to your Lenovo laptop. While some laptops may have protection circuits, applying reversed polarity can cause short circuits or damage internal components.
- Why
- The laptop will only draw the amount of power it needs (e.g. 15W) from the adapter. The adapter has the capacity to supply up to 50W meaning it can provide more than enough power without pushing excess power to the laptop

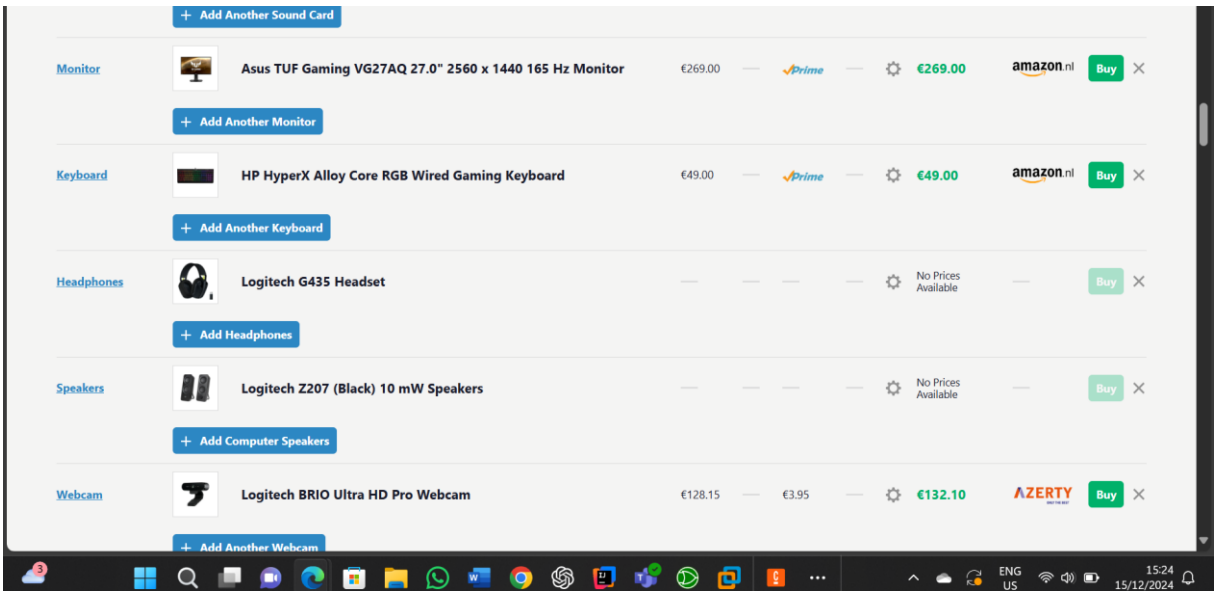
Assignment 3.4: Build your dream PC

Screenshots PC configuration + motivation:


https://nl.pcpartpicker.com/builds/
PCPARTPICKER
Log In
Register
Netherlands
Builder
Products
Guides
Completed Builds
Trends
Benchmarks
Forums
CPUs
CPU Coolers
Motherboards
Memory
Storage
Video Card
Power Supplies
Cases
Peripherals
Headphones
Keyboards
Mice
Speakers
Webcams
Displays
Monitors
Software
Operating Systems
Expansion
Sound Cards
Wired Networking
Wireless Networking
Accessories / Other
Case Fans
Fan Controllers
Thermal Compound
External Hard Drives
Optical Drives
Uninterruptible Power Supplies
All
Featured Build
eduardBen
martinw6
Zurimuris
https://nl.pcpartpicker.com/builds/#
ENG
US
15:17
15/12/2024


https://nl.pcpartpicker.com/list/
https://nl.pcpartpicker.com/list/pmFBcx
Markup:
History
Save As
Start New
Compatibility: See notes below.
Estimated Wattage: 442W
Component
Selection
Base
Promo
Shipping
Tax
Price
Where
CPU
AMD Ryzen 5 7600X 4.7 GHz 6-Core Processor
€204.90
FREE
€204.90
ALTERNATE
Buy
CPU Cooler
Cooler Master Hyper 212 Black Edition 42 CFM CPU Cooler
€57.40
€57.40
amazon.nl
Buy
Motherboard
MSI PRO B650-S WIFI ATX AM5 Motherboard
€149.00
FREE
€149.00
MEGEKKO
Buy
Memory
Corsair Vengeance RGB 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory
€118.89
Prime
€118.89
amazon.nl
Buy
Memory
Corsair Vengeance RGB 32 GB (2 x 16 GB) DDR5-6000 CL36 Memory
€118.89
Prime
€118.89
amazon.nl
Buy
Add Additional Memory
Storage
Kingston NV2 1 TB M.2-2280 PCIe 4.0 X4 NVME Solid State Drive
€56.95
FREE
€56.95
PARADIGIT
Buy
ENG
US
15:23
15/12/2024

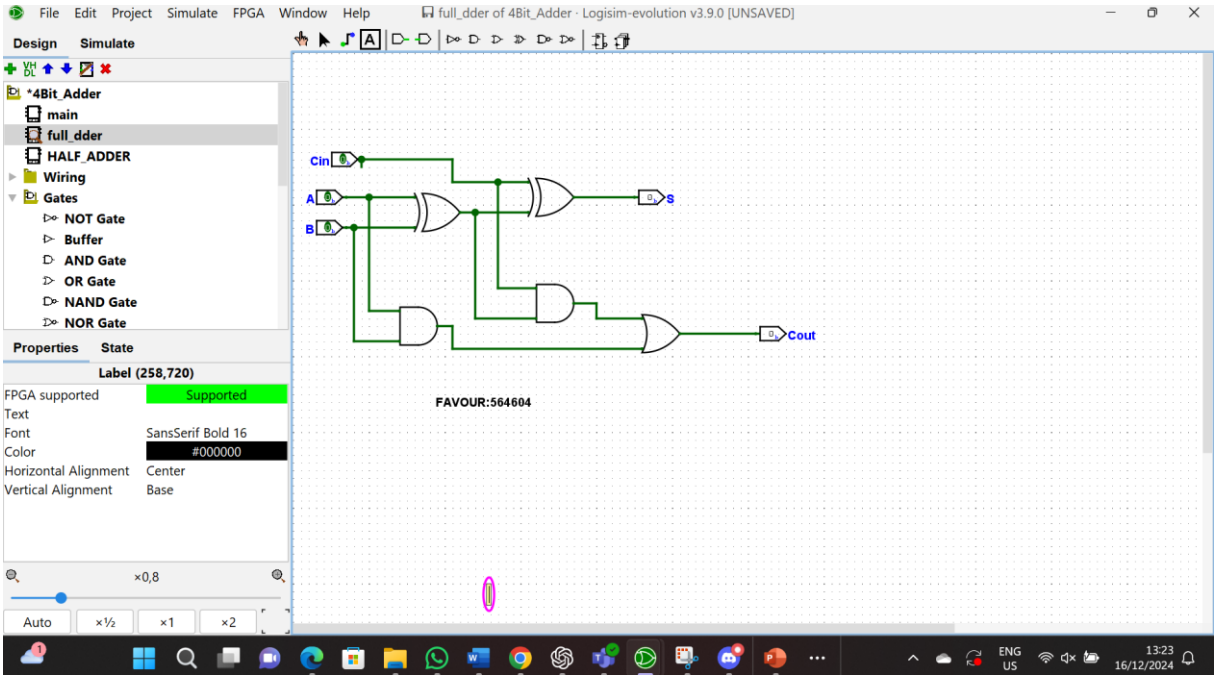


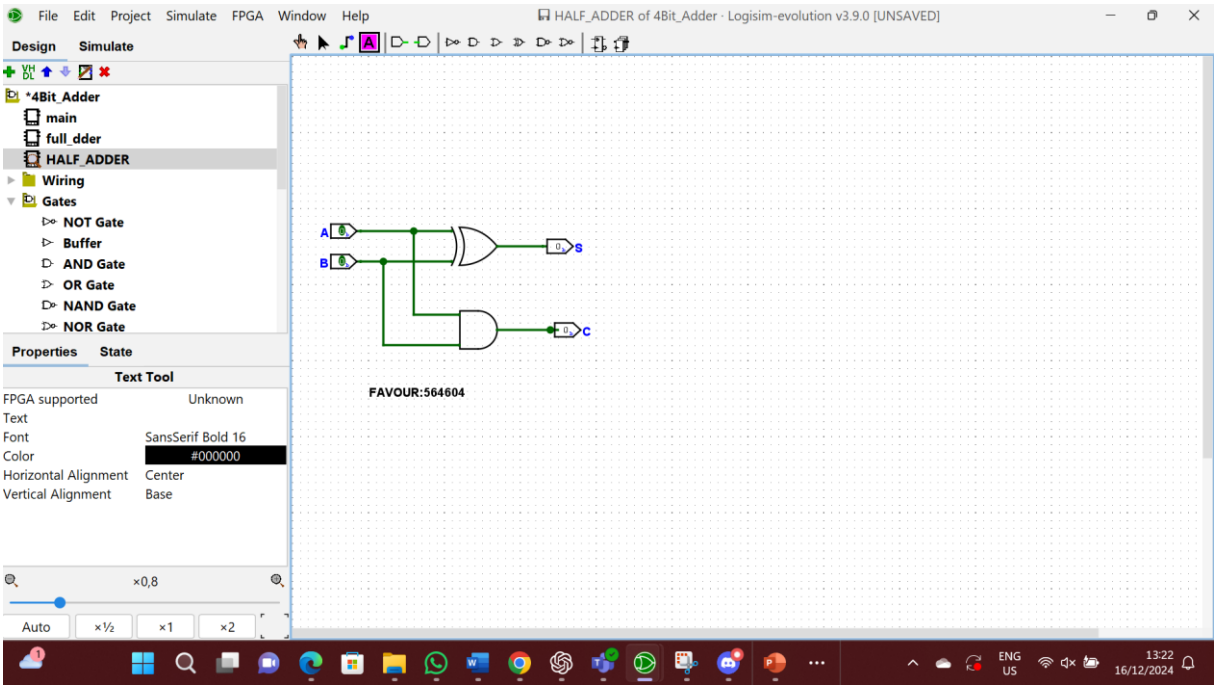


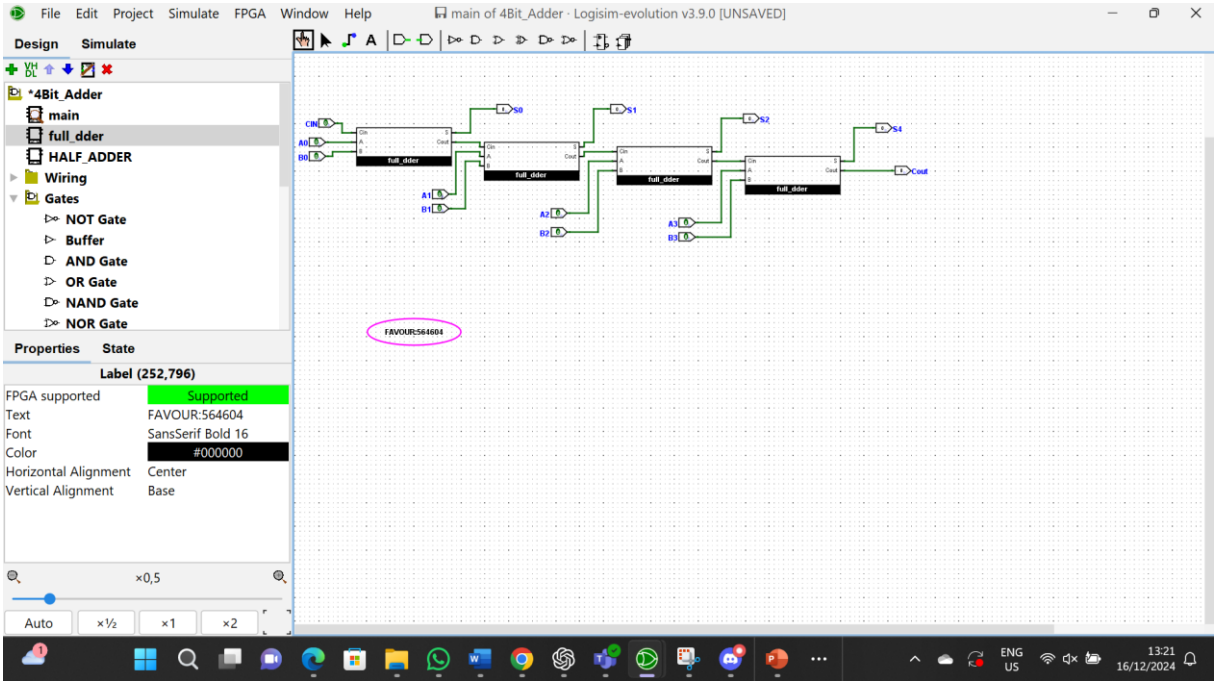
Bonus point assignment – week 3

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 export three PNG pictures of the separate finished designs. See the PowerPoint slides of week 3.

Paste the three exported PNG pictures in here.


File Edit Project Simulate FPGA Window Help
full_dder of 4Bit_Adder · Logisim-evolution v3.9.0 [UNSAVED]
Design
Simulate
*4Bit_Adder
main
full_dder
HALF_ADDER
Wiring
Gates
NOT Gate
Buffer
AND Gate
OR Gate
NAND Gate
NOR Gate
Properties
State
Label (258,720)
FPGA supported
Supported
Text
Font
SansSerif Bold 16
Color
#000000
Horizontal Alignment
Center
Vertical Alignment
Base
×0,8
Auto
×½
×1
×2
Cin
A
B
S
Cout
FAVOUR:564604
ENG
US
13:23
16/12/2024


File Edit Project Simulate FPGA Window Help
HALF_ADDER of 4Bit_Adder · Logisim-evolution v3.9.0 [UNSAVED]
Design
Simulate
*4Bit_Adder
main
full_dder
HALF_ADDER
Wiring
Gates
NOT Gate
Buffer
AND Gate
OR Gate
NAND Gate
NOR Gate
Properties
State
Text Tool
FPGA supported
Unknown
Text
Font
SansSerif Bold 16
Color
#000000
Horizontal Alignment
Center
Vertical Alignment
Base
×0,8
Auto
×½
×1
×2
A
B
S
C
FAVOUR:564604
ENG
US
13:22
16/12/2024



Ready? Save this file and export it as a pdf file with the name: **week3.pdf**