

# ***Digital Design (DD)***

## ***Exercise 3***

7 segment Display – Single Digit

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# 7 Segment Display – Single Digit

Basic – Team Task



# TASK DESCRIPTION

## Qualitatively

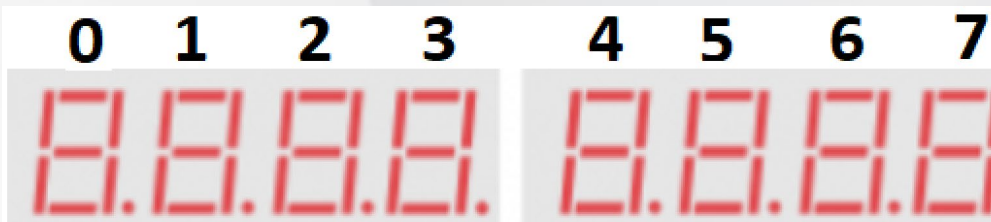
- If the CPU Reset button is pressed, all digits of the 7 segment display are switched OFF.
- If the switch SW(15) is switched ON, the  $digit_{place}$  digit show the number  $digit_{number}$

## Quantitatively:

The  $digit_{place}$  can be calculated as follows

$$digit_{place} = abs(Team\ number - 2)$$

$digit_{place}$  position:



The  $digit_{number}$  is the team number

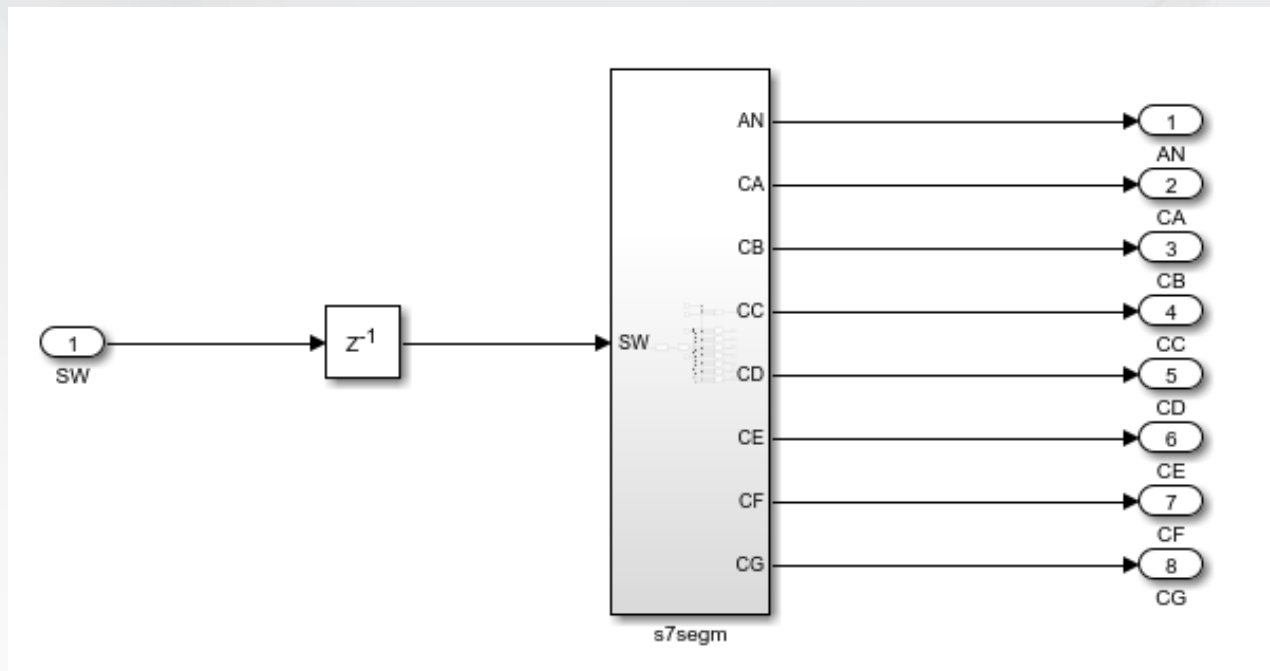


# ARCHITECTURE COMPONENTS

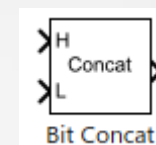
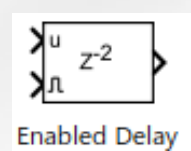
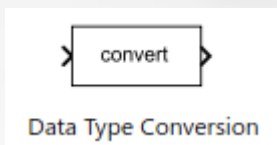
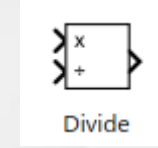
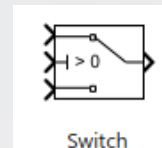
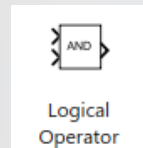
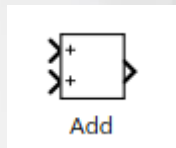
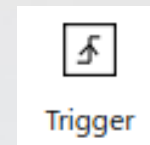
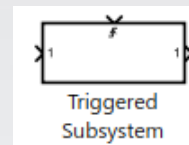
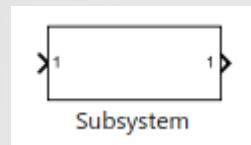
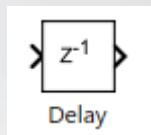
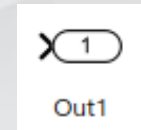
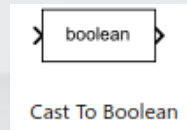
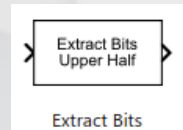
S7segm\_top.vhd → top level

S7segm.vhd → Block is used to generate the proper anode and cathode signals for the dedicated digits of the 7 segment display

<https://digilent.com/reference/programmable-logic/nexys-4-ddr/reference-manual>



# USEFUL BLOCKS



# ANODE CATHODE CONTD.



Figure 18. Common anode circuit node.

<https://digilent.com/reference/programmable-logic/nexys-4-ddr/reference-manual>

- Send the **codable** Simulink graphic (\*.slx) in a zipped file in a **“graph”** folder
- Add a small video (mp4) **„7segm\_single\_dig\_basic\_video“** to the zip file in a **„video“** folder to demonstrate the right behavior
  - To compress a HQ video from your mobile phone, you could use a tool for video compression:
  - E.g.: <https://video-verkleinern.online-umwandeln.de/>

