

Arithmetic Instructions

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objectives



Learning Objectives

- **Arithmetic instructions**



System Requirements



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- **Ubuntu Linux 18.04 OS**



System Requirements

- **Ubuntu Linux 18.04 OS**
- **LDmicro**



Pre-requisites



Pre-requisites

- Working of One Shot instructions



Pre-requisites

- Working of One Shot instructions
- If not, please refer to the relevant tutorials in this series from <https://spoken-tutorial.org>



Arithmetic Instructions



Arithmetic Instructions

Four arithmetic instructions



Arithmetic Instructions

Four arithmetic instructions

- **ADD**



Arithmetic Instructions

Four arithmetic instructions

- ADD
- SUB



Arithmetic Instructions

Four arithmetic instructions

- ADD
- SUB
- MUL



Arithmetic Instructions

Four arithmetic instructions

- ADD
- SUB
- MUL
- DIV



Arithmetic Instructions

- It can handle only up to 16-bit signed integer values



Arithmetic Instructions

- It can handle only up to 16-bit signed integer values
- Floating point numbers are not handled by these instructions



How can we prevent PLC from evaluating the instruction on each cycle?



How can we prevent PLC from evaluating the instruction on each cycle?

We can do that by using a **One Shot** instruction



Assignment



Assignment

Replace an OSF in the place of OSR and observe the **result** variable

Observation:



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Replace an OSF in the place of OSR and observe the **result** variable

Observation:

- The value changes when the input goes from high to low



Assignment

Replace an OSF in the place of OSR and observe the **result** variable

Observation:

- The value changes when the input goes from high to low
- That is when the state of Xswitch goes from 1 to 0



When to use OSR/OSF?



When to use OSR/OSF?

- Use OSR, when you want the change in count to happen when the switch is pressed



When to use OSR/OSF?

- Use OSR, when you want the change in count to happen when the switch is pressed
- Use OSF, when you want the change to happen when the switch is released



Arithmetic Instructions



Arithmetic Instructions

- **SUB, MUL and DIV work similar to ADD**



Arithmetic Instructions

- SUB, MUL and DIV work similar to ADD
- **NOTE:**
DIV instruction gives quotient as the result



Arithmetic Instructions

- SUB, MUL and DIV work similar to ADD
- **NOTE:**
DIV instruction gives quotient as the result
- Explore these instructions on your own



Summary

- **Arithmetic instructions**



About the Spoken Tutorial Project

- Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Forum questions

- Questions in THIS Spoken Tutorial?
- Visit <https://forums.spoken-tutorial.org/>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer

You will have to register to ask questions



Forum for specific questions

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Software?
- Please visit the FOSSEE Forum
<https://forums.fossee.in/>
- Choose the Software and post your question



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THANK YOU!

For more Information, visit our website
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