Median

FPGAHS Lab - SystemC Median  
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# Goals

* Get started with TLM 2
* Use TLM to describe a Median Filter with internal Memory.
* Develop a SystemC Module according to the functional Model.

# Setup

A template code is provided on the GitHub System in the repository:

median.systemc

Please clone this repository to a working directory. You will find template code for this task and a Makefile there.

The folder contains the following files:

* median\_module.h and median\_module.cpp contains the module implementing the median filter algorithm.
* memory.h and memory.cpp contains the memory module that is used to store the image internally.
* median\_tb.h and median\_tb.cpp contains the testbench for the complete module.
* main.cpp specifies the executable program that combines all modules to a complete simulation.
* Makefile is a pre-defined config file for the make command that holds the settings for building this project.
* systemc.median.pro is the project file for QT creator. Open it with qtcreator systemc.median.pro &.

## Task Description

1. Implement a module that filters an image stored inside a given memory module. Develop the module median\_module that implements the median filter algorithm. The module needs to read and write from the memory.
2. Build and run the project with QT creator or using the command line and make. Check the output for errors and warnings.

# Questions

* What can be described with TLM?
* What is the generic payload?
* What is the difference between blocking and non-blocking protocols?