Design and Implementation of a Statistics Surveillance Module for an MPSoC Demonstrator System
Enabled by ever decreasing structure sizes, modern System on Chips (SoC) integrate a large amount of different processing elements, making them Multi-Processor System on Chips (MPSoC). These systems typically have no peripherals for direct interaction (such as Monitor and keyboard) which makes it difficult to get information about the status of the application running. For an MPSoC demonstrator system implemented on an FPGA it is necessary to have a means of observing what is happening in the system and to gather statistics about the executed software.

**Goal**

The goal of this work is to implement a module that allows to gather statistics of an application executed on an MPSoC demonstrator system, as well as to create tests to validate the behavior of the implemented hardware.

**Prerequisites**

To successfully complete this project, you should already have the following skills and experiences:

- Good programming skills in a hardware description language i.e. VHDL or (System)Verilog
- Solid Python programming skills
- Basic C programming skills
- Basic knowledge of embedded systems architecture
- Self-motivated and structured work style

**Learning Objectives**

By completing this project, you will be able to:

- Design and implement a complex hardware module in SystemVerilog
- Create tests to validate hardware modules
- Adopt embedded software to utilize a hardware module
- Document your work in form of a scientific report and a presentation

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