Exercise 5: SystemC and Virtual Prototyping

Exercise on `sc_fifo`

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The source code to start this execise is available here:
`https://github.com/TUK-SCVP/SCVP.Exercise5`

Task 1

Kahn Process Networks

Figure 1 shows an example for a *Kahn Process Network* (KPN). It consits of three processes and has no inputs and one output e. The process **Add** reads one integer number from each input a and c and writes the sum of both numbers to its output ($b = a + c$). The **Split** process copies its input to two FIFOs (a and d) and to the output signal e. The process **Delay** writes its input d to its output c. Two FIFOs are inizialized with single values: $b = 1$ and $c = 0$.
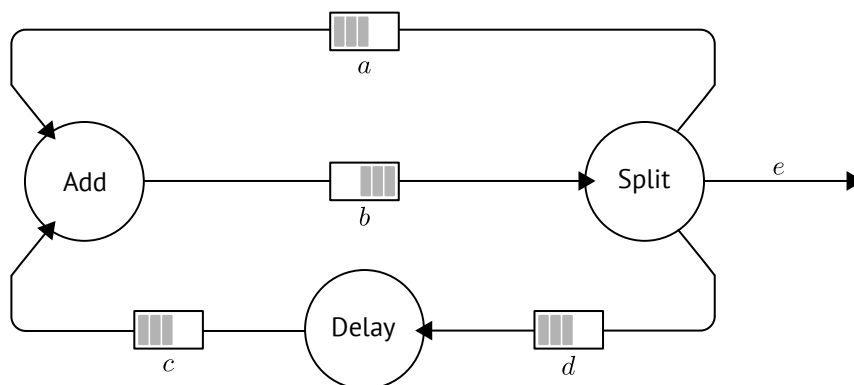

Fig. 1: Simple Kahn Process Network

The task for this exercise is to implement this KPN in SystemC using `sc_fifo<T>` and `SC_THREADS` for the processes. Please use a fifo size of 10, `unsinged int` as template type T and blocking `read()` and `write()` for accessing the FIFOs. The output e should be printed by the **Split** process. The **Split** process should stop the simulation after 10 prints. Initialize the FIFOs b and c in the SC_CTOR.

What is this KPN doing?