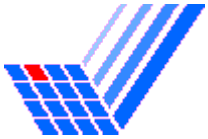
5th of June 2007



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4. Embedded Systems Lab Exercises

Fibonacci Numbers Example (10 Points)

Remember the Fibonacci numbers:

$$F(n) := \begin{cases} 0 & \text{if } n = 0 \\ 1 & \text{if } n = 1 \\ F(n-2) + F(n-1) & \text{if } n > 1 \end{cases}$$

Tasks:

- Download from „ls12-www.cs.uni-dortmund.de/edu/scripts-en.html“ the file „*leviKPN.zip“*. For installing the training module you have to unpack the zip file.
- Start the training module by executing the file „*leviKPN.jar“*.
- Create the following simple processes:
  - **Process *Init1* (input A, output B):** At the start it sends just once the integer value “1” on its output channel. Afterwards it executes in an infinite loop: Read one value from the input channel and put it on the output channel.
  - **Process *Init0* (input A, output B):** At the start it sends just once the integer value “0” on its output channel. Afterwards it has the same behaviour like process *init1*.
  - **2 X Process *Dup* (input A, output B,C):** It executes in an infinite loop: Read one value from the input channel and put the value on both output channels.
  - **Process *Add* (input A,B, output C):):** It executes in an infinite loop: Read one value from each input channel. Add the two values. Put the result on it output channel.
  - **Process Sink(input A):** In an infinite loop the process reads one value from the input channel per cycle.

- Develop a process network which produces the sequence of the Fibonacci numbers. Use the processes created in the previous task.

- Start the visualization and check if your process network is correct.

- Please fill in the questionnaire of the training module leviKPN.

Details about the usage of the teaching module you will find in the online help of the module!