

average.xce

Attributes

main_vars: x_in x_out x_cntrl

Description

`average.xce` can be used to produce the average value of a signal `x_in`, with `x_out` as the output. It is triggered by a clock signal `x_cntrl`. The average value of `x_in` computed for a given period (marked by positive clock edges of `x_cntrl`) is made available at the output (`x_out`) in the following period.

AC behaviour is not implemented.

The following circuit file shows how `average.xce` can be used. The output obtained is shown in Fig. 1.

```
begin_circuit
# triggering pulses:
  xelement type=clock y=clk x_high=1
+   t1=2m t2=8m dt1=0.001m dt2=0.001m i0=1 t0=0

# signal to be averaged:
  xelement type=srcac y=x a=1 f_hz=50 t0=0 dc=0.5

  xelement type=average x_in=x x_out=x_avg x_cntrl=clk

  outvar:
+   x=xvar_of_x
+   clk=xvar_of_clk
+   x_avg=xvar_of_x_avg
end_circuit

begin_solve
  solve_type=trns
  begin_output
    filename=xtest35.dat limit_lines=100000
    variables: x clk x_avg
  end_output
  method: itmax_trns=100000
+   forward_euler=yes
```

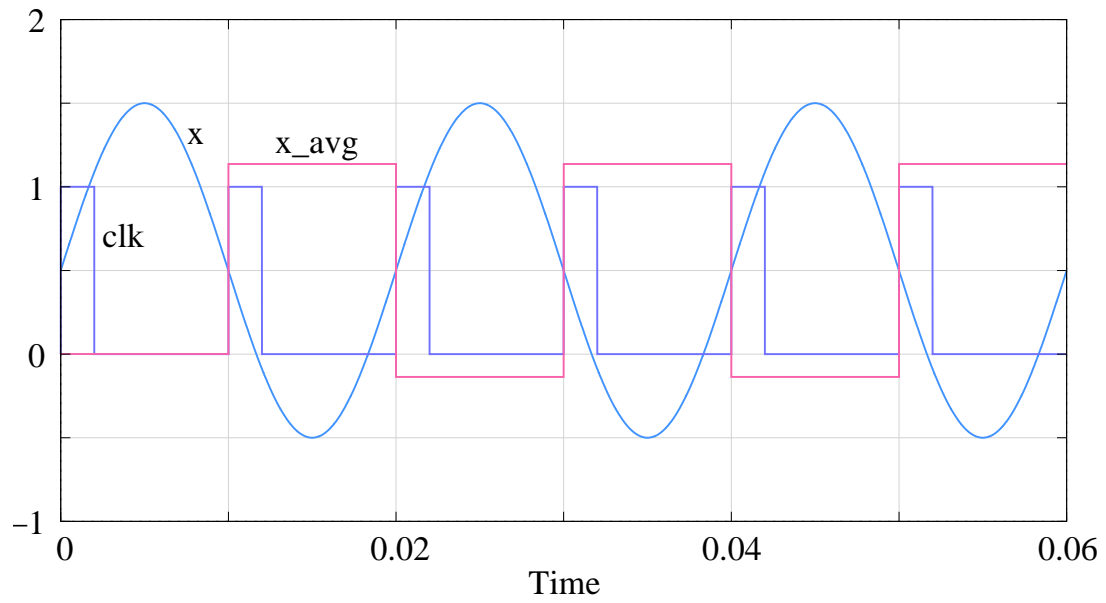


Figure 1: Waveforms obtained with `average.xce`.

```
+    t_start=0 t_end=60m delt_const_x=0.06m delt_min_x=0.1u
+    n_wrtiterno=1000
end_solve

end_cf
```