

SCILAB / X2C demos for dsPIC33F/EP, PIC24F and PIC32

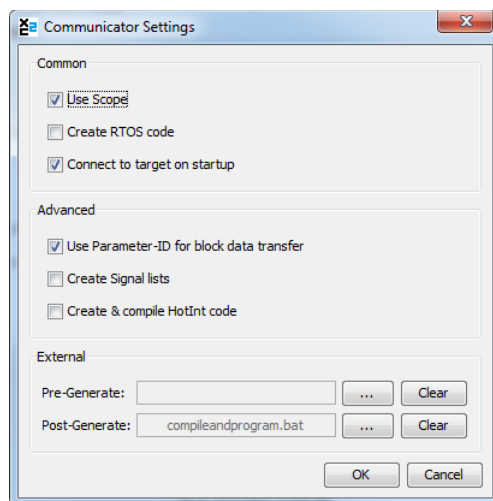
requirements:

please read the GettingStarted.pdf and the X2Copen.DOC.pdf that is included in the X2C download package (www.mechatronic-simulation.org)

Software versions used:

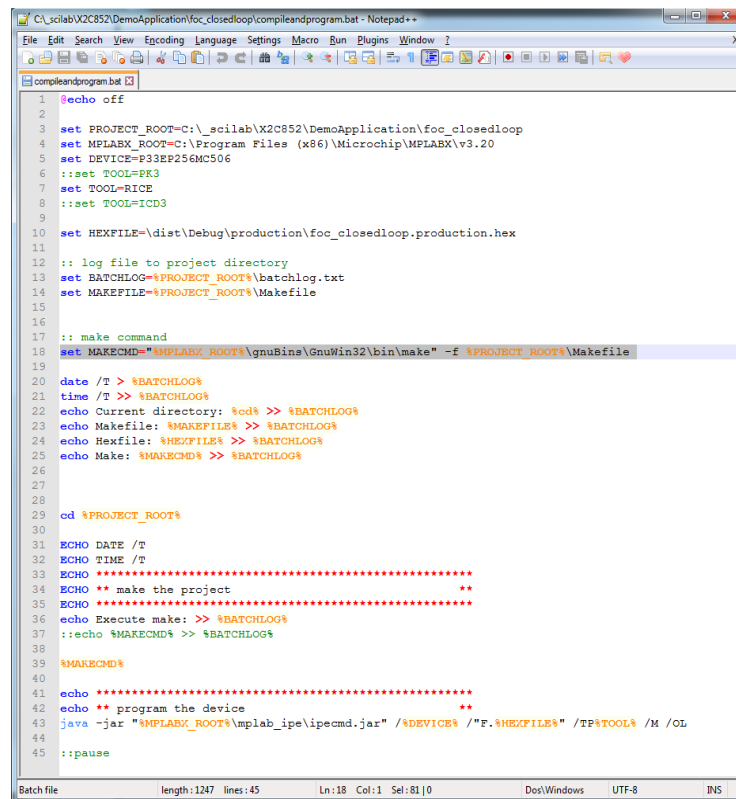
SCILAB 5.5.2 (www.scilab.org)
X2C 852 (www.mechatronic-simulation.org)
MPLAB X 3.20 (www.microchip.com/mplabx)
XC16 1.25 (www.microchip.com/xc)
X2C MCHP Library and demos V1.0 (www.sim2tronic.com)

Additionally to the X2C documentation a post-process script “compileandprogram.bat” was created that automatically compiles the project and programs it onto the hardware:



to adapt the scripts to your system you have to adjust:

```
PROJECT_ROOT =  
MPLABX_ROOT =  
set TOOL = RICE           :: RICE = RealICE, PK3 = PICKit3, ICD3 =ICD3
```



```
1 #echo off
2
3 set PROJECT_ROOT=C:\scilab\X2C852\DemoApplication\loc_closedloop
4 set MPLABX_ROOT=C:\Program Files (x86)\Microchip\MPLABX\v3.20
5 set DEVICE=P33EP256MC506
6 ::set TOOL=PK3
7 set TOOL=RICE
8 ::set TOOL=ICD3
9
10 set HEXFILE=dist\Debug\production\loc_closedloop.production.hex
11
12 :: log file to project directory
13 set BATCHLOG=%PROJECT_ROOT%\batchlog.txt
14 set MAKEFILE=%PROJECT_ROOT%\Makefile
15
16
17 :: make command
18 set MAKECMD="%MPLABX_ROOT%\gnuBins\GnuWin32\bin\make" -f %PROJECT_ROOT%\Makefile
19
20 date /T > %BATCHLOG%
21 time /T >> %BATCHLOG%
22 echo Current directory: %cd% >> %BATCHLOG%
23 echo Makefile: %MAKEFILE% >> %BATCHLOG%
24 echo Hexfile: %HEXFILE% >> %BATCHLOG%
25 echo Make: %MAKECMD% >> %BATCHLOG%
26
27
28 cd %PROJECT_ROOT%
29
30
31 ECHO DATE /T
32 ECHO TIME /T
33 ECHO *****
34 ECHO ** make the project **
35 ECHO *****
36 echo Execute make: >> %BATCHLOG%
37 ::echo %MAKECMD% >> %BATCHLOG%
38
39 %MAKECMD%
40
41 echo *****
42 echo ** program the device **
43 java -jar "%MPLABX_ROOT%\mplab_ipe\ipecmd.jar" /%DEVICE% /"F.%HEXFILE%" /T/%TOOL% /M /OL
44
45 ::pause
```

!!! ATTENTION
WHEN WORKING WITH THE X2C COMMUNICATOR ALWAYS MAKE SURE
THERE IS ONLY ONE MODEL OPEN

1. C:\scilab\X2C845\DemoApplication\Blinky_dsPIC33EP256MC_MicrostickPlus\
 1. HARDWARE:
2. C:\scilab\X2C845\DemoApplication\Blinky_dsPIC33EP256MC_X2Cdemoboard 3.X
 1. HARDWARE: X2C Demoboard with a dsPIC33EP256MC502
3. C:\scilab\X2C845\DemoApplication\Blinky_Microchip_dsPIC33Fxxxx_MicrostickPlus\
4. C:\scilab\X2C845\DemoApplication\Blinky_PIC24Fxxxx_MicrostickPlus.X\
5. C:\scilab\X2C845\DemoApplication\dsPIC33EP_X2Clib\

This is the Library project to compile a X2C Library that includes all sourcefiles of X2C

- all blocks in all data formats
- communication
- housekeeping

compiled with optimization “s”
SCOPE SIZE=4000

6. \foc_closedloop\

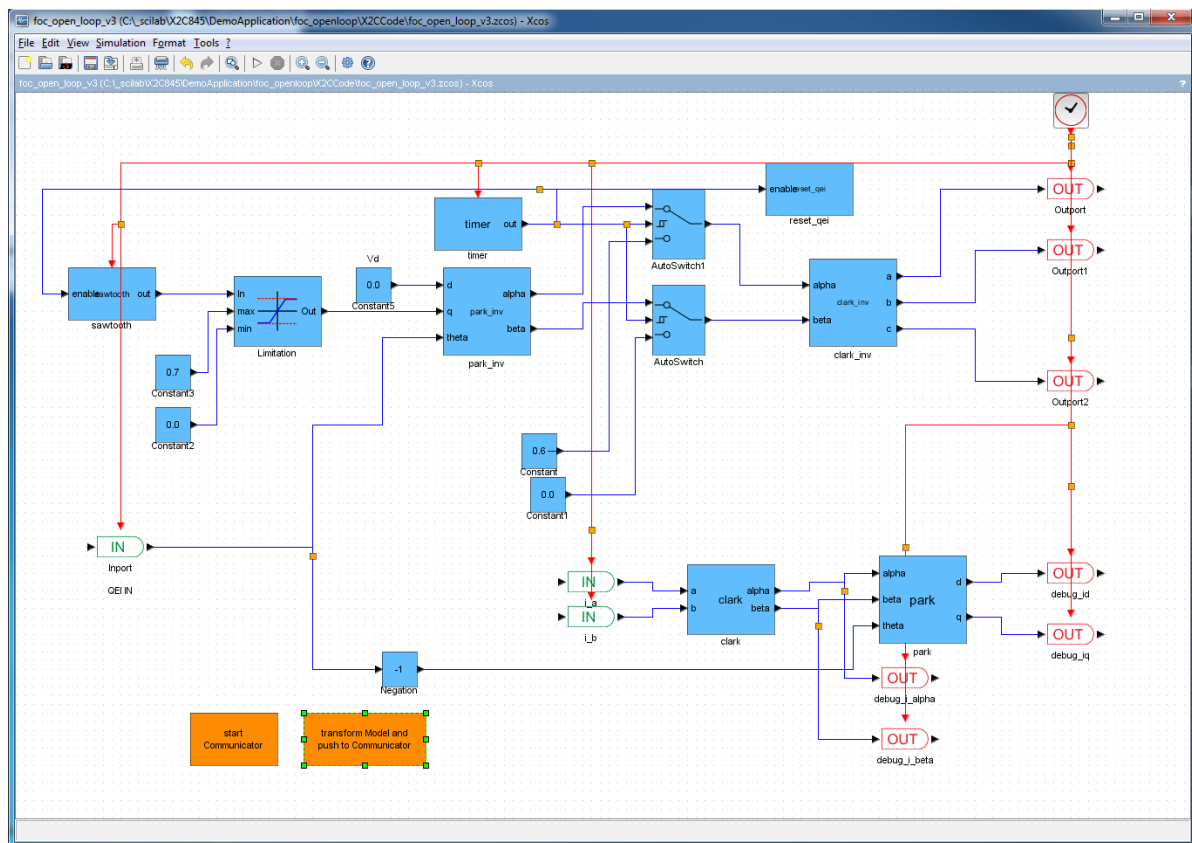
1. HARDWARE: MCLV-2 (DM330021-2) in ExternalOPAMP (MA330031-2) configuration using the long Hurst motor with QEI sensor (AC300022).
Jumper settings for “Current” and “UART”

7. \foc_closedloop_pos\

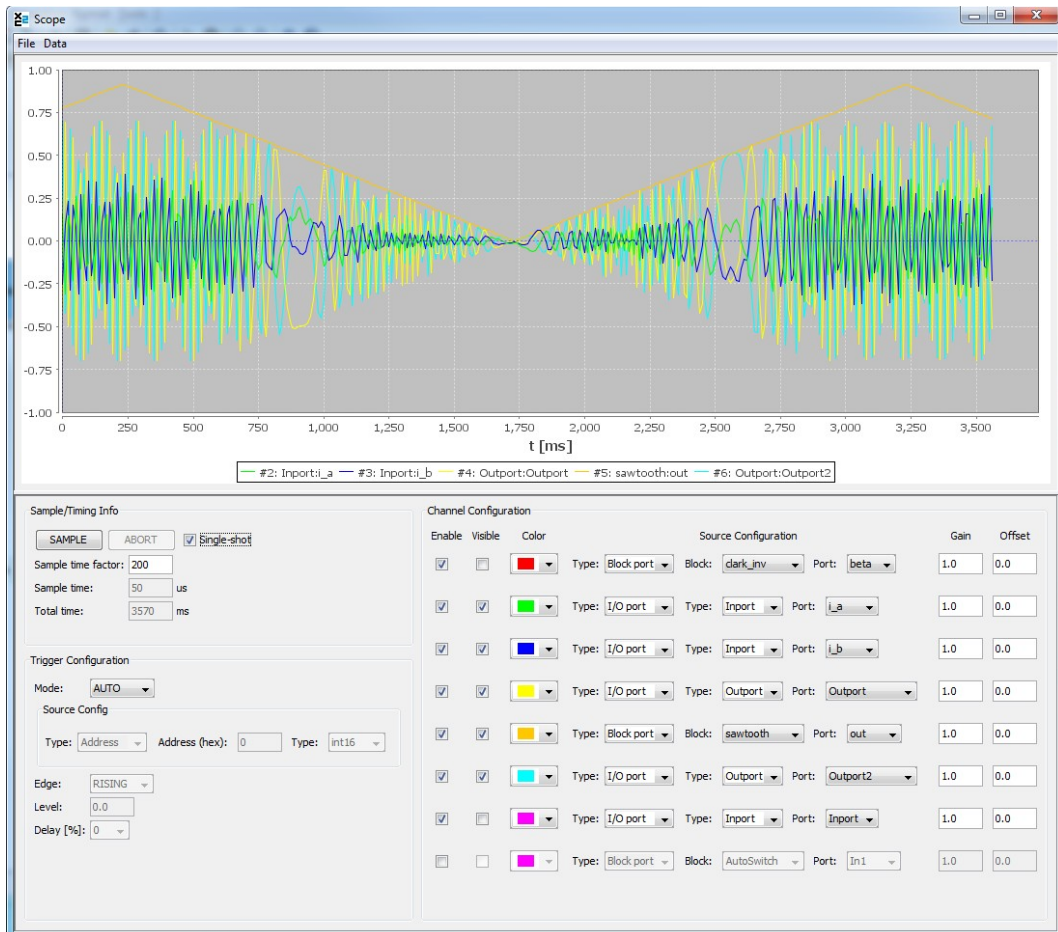
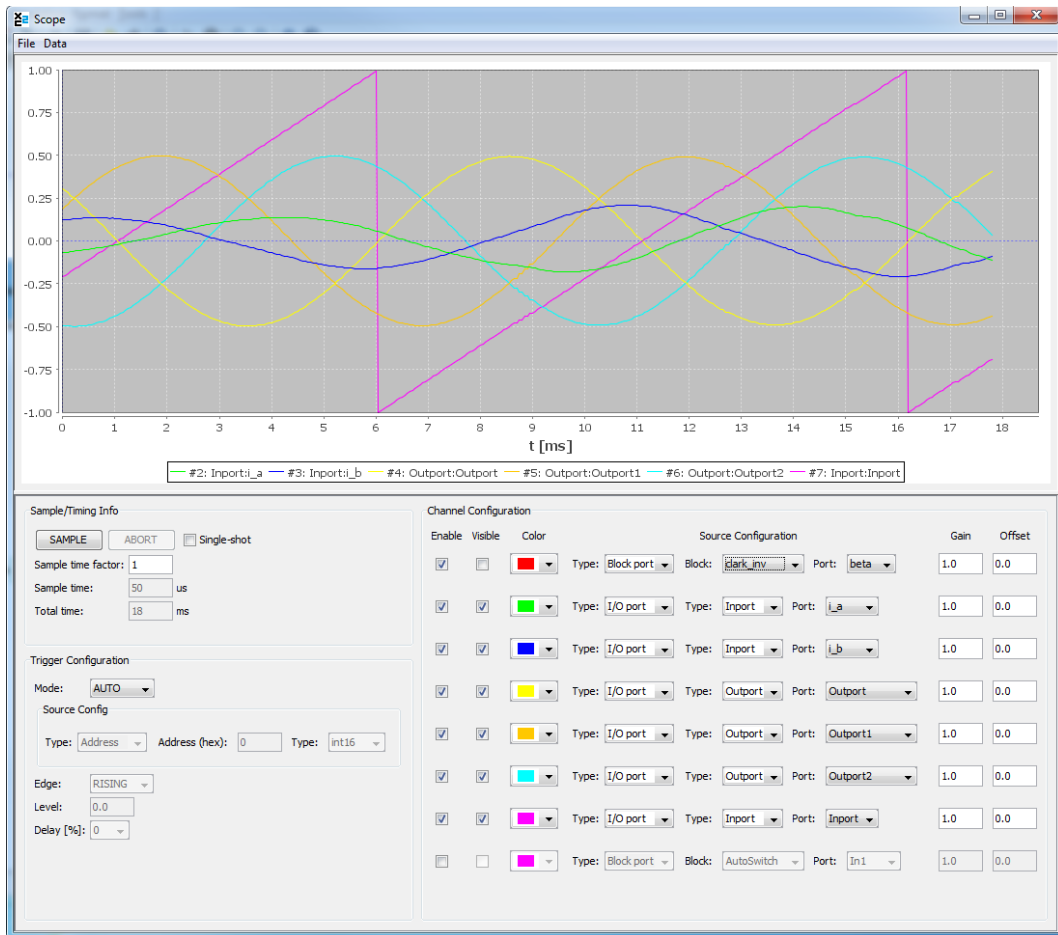
1. HARDWARE: MCLV-2 (DM330021-2) in ExternalOPAMP (MA330031-2) configuration using the long Hurst motor with QEI sensor (AC300022).
Jumper settings for “Current” and “UART”

8. \foc_openloop\

1. HARDWARE: MCLV-2 (DM330021-2) in ExternalOPAMP (MA330031-2) configuration using the long Hurst motor with QEI sensor (AC300022).
Jumper settings for “Current” and “UART”
2. SCILAB
model



scope



9. \foc_openloop_const\

1. HARDWARE: MCLV-2 (DM330021-2) in ExternalOPAMP (MA330031-2) configuration using the long Hurst motor with QEI sensor (AC300022).
Jumper settings for “Current” and “UART”

10. \sim_FOC_closedloop_x2c\

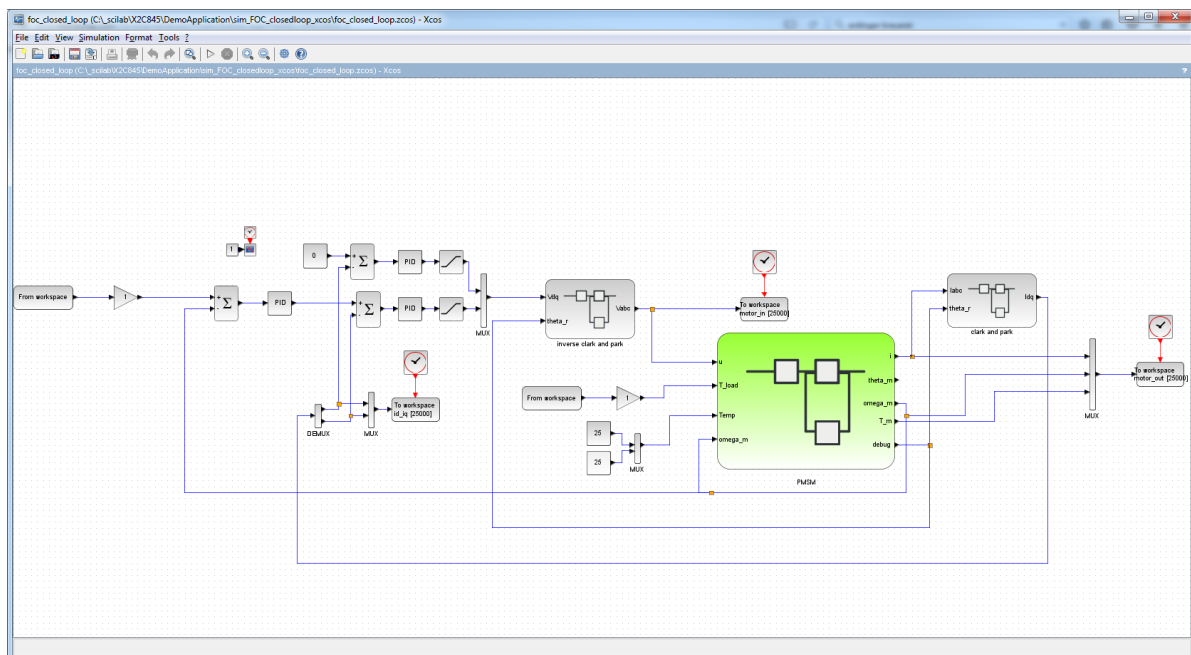
1. HARDWARE: none (simulation only)
go with the SCILAB file browser into the directory \sim_FOC_closedloop_x2c\
execute “run.sce”

!!! ATTENTION DON'T START THE SIMULATION OUT OF THE MODEL WINDOW

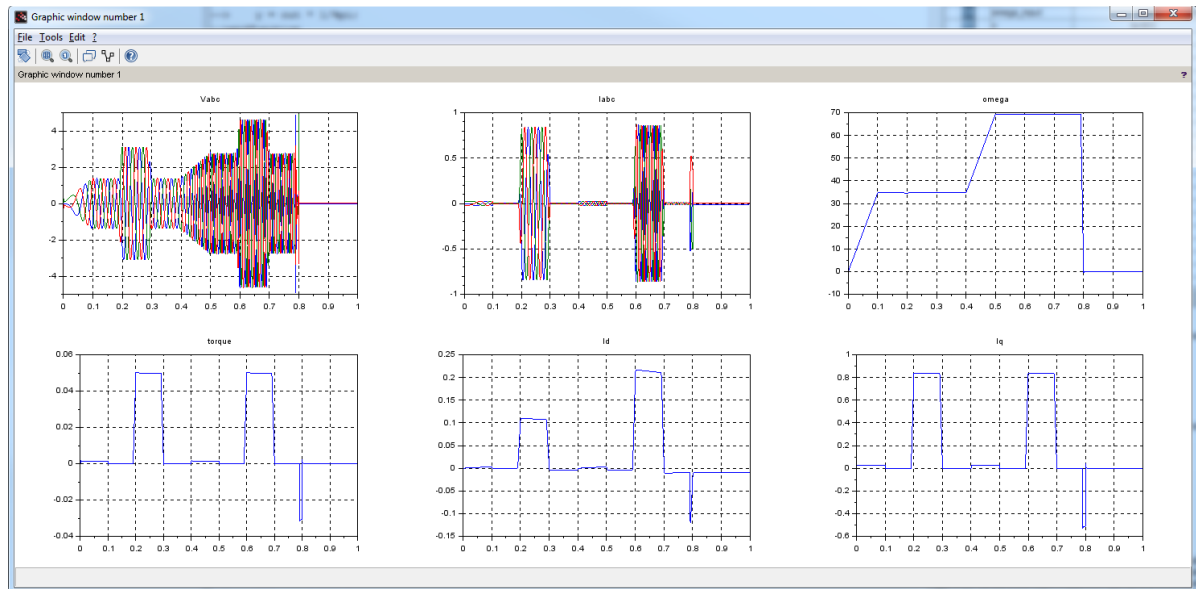
simulation with open scope windows is very slow

11. \sim_FOC_closedloop_xcos\

1. HARDWARE: none (simulation only)
2. SCILAB
to simulate execute the “run.sce” script in SCILAB
model:



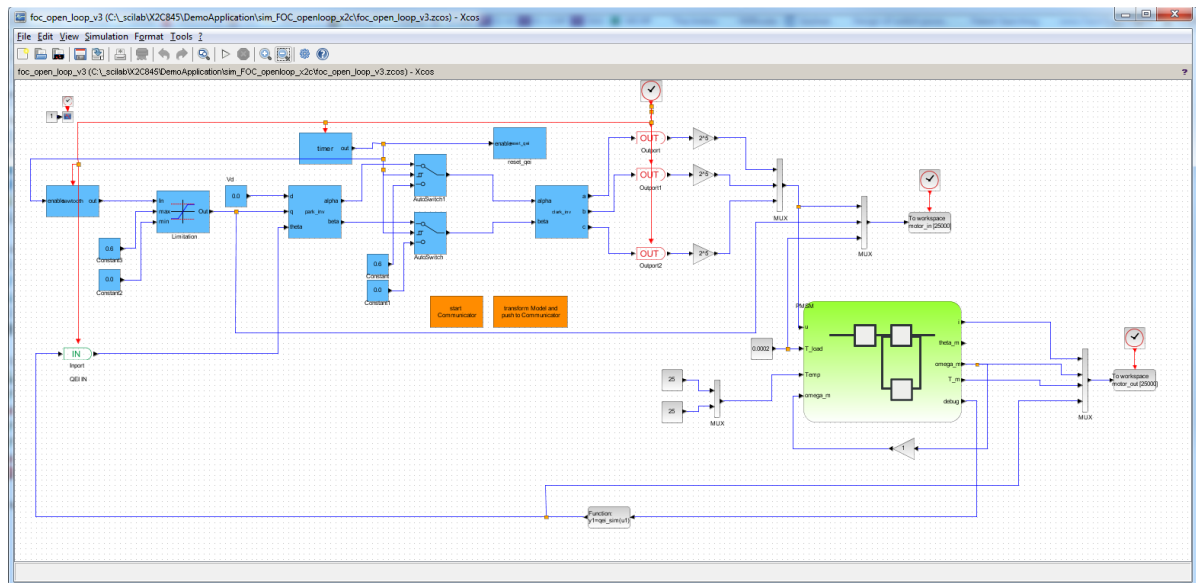
simulation:



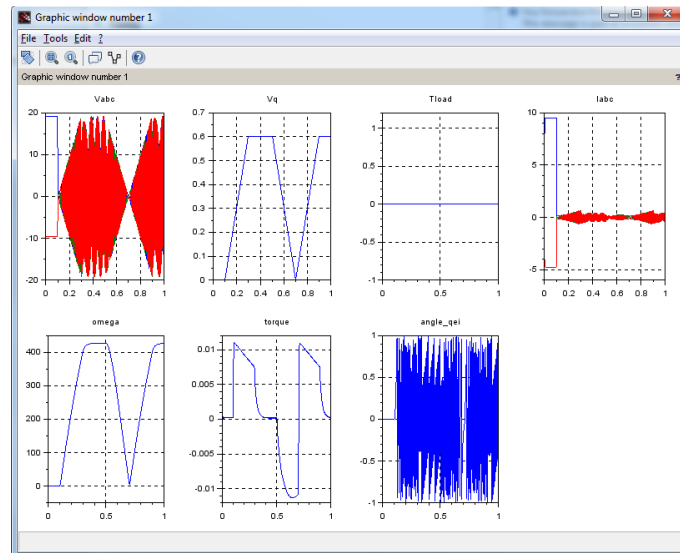
12. \sim FOC openloop_x2c\

1. HARDWARE: none (simulation only)
2. SCILAB

to simulate execute the “run.sce” script in SCILAB model



simulation

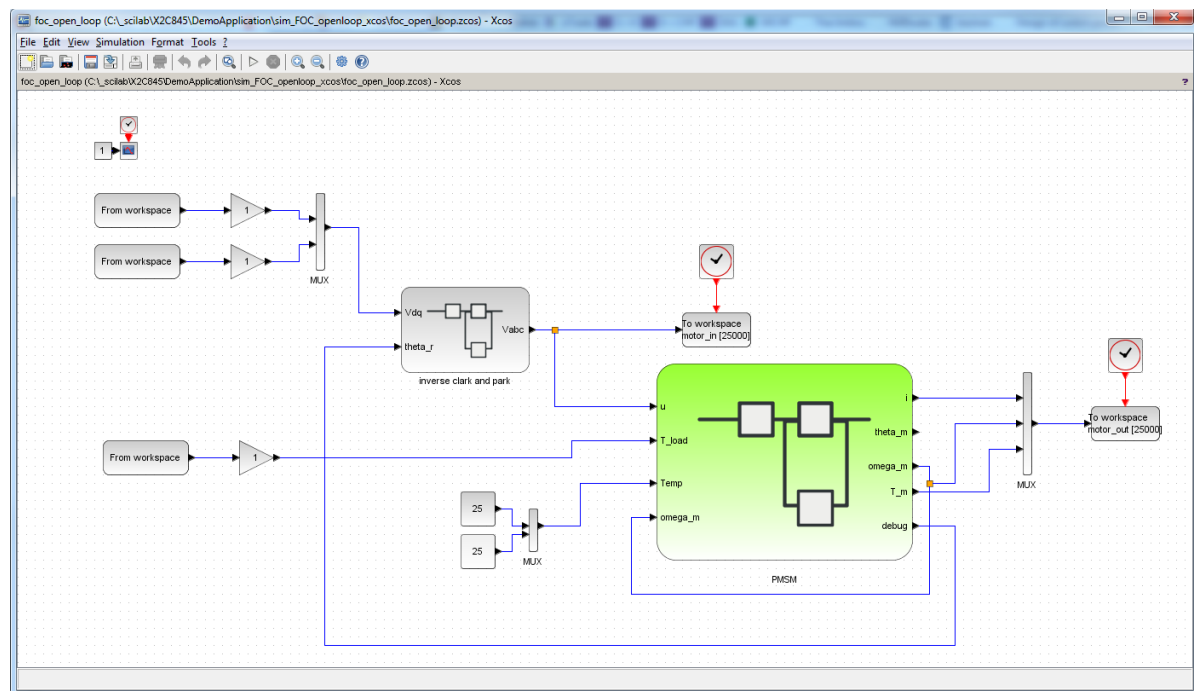


13. sim FOC openloop xcoss

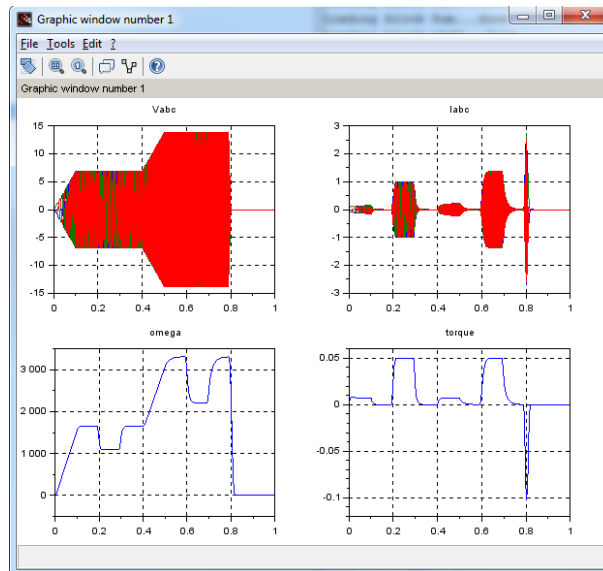
1. HARDWARE: none (simulation only)

2. SCILAB

to simulate execute the “run.sce” script in SCILAB model



simulation



14. \X2CHarmonyDemo\

1. HARDWARE: PIC32MZ Startkit DM320007 + MEB2 DM320005-2 + MCP2200 extension AC320101

15. \X2CHarmonyDemo_CDC\

1. HARDWARE: PIC32MZ Startkit DM320007 + MEB2 DM320005-2

issue tracking:

20.1.2016 ChB X2C 852

- simulation model can't generate code
- MAC solution untested?
- Model transfer issue from communicator model = null