Scilab/Scicos Code Generator for Xenomai + CanFestival

We provide innovative software solutions for the design and the development of real-time embedded systems, with a special focus on multi-core hardware platforms.
About Scilab/Scicos

• Scilab:
  • The Open Source platform for numerical computation
  • Site: http://www.scilab.org

• Scicos:
  • Open-Source Block diagram modeler/simulator
  • Simulation of the dynamics of hybrid systems
  • Automatic code generation
  • Site: http://www.scicos.org
Target configuration

• Automata A1:
  • Industrial PC (PC104) with Celeron 400 MHz
  • SJA1000 CAN-Bus controller
  • 2 Ethernet interfaces
  • Site: http://www.automataweb.com

• WAGO 752
  • I/O Module with CANOpen support
  • Site: http://www.wago.com
How it works

Host PC

- WAGO Input
- UDP Input
- WAGO Output
- UDP Output

C Code for Xenomai + Canfestival

gcc

Binary

Target

- Digital Input
- Digital Output
- WAGO Digital In/Out
- CAN Bus
- PC 104
- Linux + Xenomai + Canfestival
Simple example

- Target and PC connected through Ethernet
- The target:
  - Runs Linux+Xenomai+Canfestival
  - Digital inputs connected to digital outputs
  - Runs the code generated by Scilab/Scicos, that sends digital inputs through Ethernet
- The PC:
  - Runs Scilab/Scicos, that reads data from Ethernet and shows via scope
Simple example: the target

- The target runs the code generated starting from the following diagram:
Simple example: the PC

- The PC runs the following diagram using Scilab/Scicos:
Simple example: data

- This is what the PC receives: