Prerequisite

- ✓ Linux based PC (Ubuntu is recommended)
- ✓ USB-CAN adaptor (PCAN-USB of PEAK-System): this device is used to communicate between the simulator and the vehicle dynamics simulator, TORCS.

How to Install

1. Install PCAN-Basic API (Linux) after downloading at http://www.peak-system.com/Software-APIs.305.0.html?&L=1
2. Install the vehicle dynamics simulator, TORCS, which is located in Vehicle-Dynamics-Simulator-master directory. To install TORCS, refer to http://torcs.sourceforge.net/
3. Install Eclipse
4. Add packages(Simulator/design/eclipse_packages/*.jar) to the directory "eclipse/dropins"
5. Make a new workspace
6. Copy the Simulator folder to the workspace that is created by 4
7. Using "make" command, you can run the makefile which is a script file to compile the parser source file into executable file.

How to Start

1. Prepare two PCs and two PCAN-USB adaptors
   - You can purchased PCAN-USB at http://www.peak-system.com/PCAN-USB.199.0.html?&L=1
   - One PC is for CPSim and the other one is for TORCS.
   - Connect two PCs with PCAN-USB and a CAN cable.
2. Run our design tool
   - Run eclipse with workspace that you chose in installing simulator.
3. Create a new project
   - In order to validate a new system using CPSim, create a new project as general.
   - Now, you have to make "configuration file" in the project folder.
   - For this, right click the created project folder in the "Package Explore" tab.
   - Then, create a file that has extension "hxml".
4. Configure a whole system
   - After the configuration file is created, you can find a CAN bus on the screen.
   - When you move your mouse on the CAN bus and right click, you can add a car selecting the menu "Add Car".

- Similarly, if you choose the menu “Add ECU” or “Remove ECU”, you can add an ECU on the system or remove from the system.
- Moreover, if you right click on the ECU and choose the “Add SWC”, you can add a task.
- Each component can be placed anywhere by dragging.

5. Describe specific properties
   - After designing a whole system, like step 3, describe task properties including timing parameters.
   - If you click on the one of the SWC, “Properties” tab might be shown at the right side of the screen.
   - In this tap, you can set various parameters such as ‘period’, ‘deadline’, ‘worst case execution time’, etc.
   - If a task uses data produced by or provides data to other component, it can be set as ‘Recv from’ or ‘Send to’ property.

6. Run Simulator
   - After all settings are done, you can run simulator as right clicking background area and choosing “Run Simulator”.