GPCA Formal Verification

- Kindly read the paper to understand the logic of verification : http://www.umsec.umn.edu/publications/Compositional-Verification-Medical-Device-System
- Watch the video http://crisys.cs.umn.edu/downloads/gpca/CPS-PI-CompVer-presentation.ppsx for a short demo of the verification.
- For the Architectural Model Verification, download http://crisys.cs.umn.edu/downloads/gpca/AADL.zip
- For Behavioral Model Verification download http://crisys.cs.umn.edu/downloads/gpca/Verification.zip and the models with their properties are grouped by their subsystems within Behavoiral_Models_Verification folder.
    - Before running verification, please execute the following commands in Matlab command window
    - >> load('buses-uint8.mat')
    - >> run('model load parameters.m'

Tool Download

Architectural Model Verification

Prior to the following installation, please make sure you have JAVA latest version and Cygwin/MingW.

1. Download https://github.com/agacek/jkind/releases/tag/v1.4.2
2. Download YICES 1 http://yices.csl.sri.com/download.shtml
3. Download OSATE http://www.aadl.info/aadl/osate/stable/2.0.3/products/
4. Expand all of jkind.zip, osate.zip, C:\apps\yices-1.0.36-i686-pc-mingw32.zip into a local 'apps' directory
5. Modify the PATH variable to point to C:\apps\jkind;\C:\apps\yices-1.0.36-i686-pc-mingw32\yices-1.0.36\bin
6. Download latest version of AGREE dropins.zip from https://github.com/smaccm/smaccm/releases and unzip them in the dropins folder within OSATE folder (local 'apps' directory). If there is no dropins folder, create one and put these unzipped dropin jar files.

Behavioral Model Verification

You need Matlab Simlink/Stateflow and Simlunk Design Verifier license to perform the verification.