

Getting Started with SystemC


These instructions are to access the SystemC libraries using either the department's Linux or Windows servers, or your own Windows machine using Visual Studio.

1. Linux Access

- SSH onto `systemc.ece.iastate.edu`. Create a working directory for SystemC, and download and decompress the example files from the class website ([link](#)). This will create three folders containing the following SystemC examples, each of which can be compiled by typing `make` in the command prompt:
 - *Simple_Hello_SystemC*: this is a simple hello world example for SystemC.
 - *normal-instantiation*: this code generates a deadlock inside the 'b' module. You can see this in the output, since 'b' is never done waiting.
 - *invtrted-instantiation*: this is the same example as before, but inverting the order of instantiation.
 - *normal-instantiation-zeroTime*: this is the same as normal-instantiation, but this time instead of using an immediate notify, this code uses a `.notify(0)`. This `.notify(0)` forces the simulator to move forward in time and notify in the next time cycle. This prevents 'b' from deadlocking.
- Inside the code directory is `Makefile.defs`, which can also be found at `/usr/local/systemc-2.2.0/examples/sysc/Makefile.defs` for future reference. Please look at it for more information on exactly how to compile your SystemC sources. This file is heavily commented for your own convenience.
- To make sure you understand how to compile SystemC source code download the FIFO example from the course webpage ([link](#)) and then compile and run it.

2. Windows Access (deprecated as of 1/1/09)

- 1) Use Remote Desktop Software to connect to `auntie.ece.iastate.edu`
- 2) Start Microsoft Visual Studio .NET 2003
- 3) Create a new project.
 - Go to File->New->Project...
 - Choose the "Win32 Console Project" under the Visual C++ Project type.
 - Change the location field to a directory on your U:\ drive (e.g. "U:\SystemC") and name the project. Click OK.
 - Select "Application Settings" and check the box next to "Empty project". Click Finish.
- 4) Add the SystemC libraries.
 - Go to Project->Add Existing Item.
 - Type "`C:\SystemC\systemc-2.0.1\msvc60\systemc\Debug*.obj`" into the filename field and hit the Tab key.

- Click on the sc_attribute.obj file and then press CTRL+A to select all of the .obj files. Click Open.
 - Click View->Solution Explorer.
 - Click the file "sc_isdb_trace.obj" in the Solution Explorer window on the right. Hit the delete key to remove it from the project.
- 5) Add source files to the project.
- Click Project->Add Existing Item to add existing cpp files. You can find the simple fifo example in auntie at: "C:\SystemC\systemc-2.0.1\examples\systemc\simple_fifo"
 - - OR -
 - Create and save a new cpp file and add it to the project.
- 6) Setup the compiler to use the SystemC libraries.
- Click Tools->Options and then Projects->VC++ Directories.
 - Select "Include files" from the drop-down menu under "Show directories for:"
 - Click the  button from the left to add a new line.
 - Click the "..." button to select a new path or type in the full path "C:\SystemC\systemc-2.0.1\src"
 - Select "Library files" from the drop-down menu under "Show directories for:". Add a new line like before.
 - Enter the full path "C:\SystemC\systemc-2.0.1\msvc60\systemc\Debug". Click OK.
 - Make sure the project is selected in the Solution Explorer (topmost item under the "Solution" line).
 - Go to Project->Properties and then C/C++->Language.
 - Make sure "Enable Run-Time Type Info" is set to "Yes (/GR)".
 - Then go to Linker->Input and set the Additional Dependencies line to "systemc.lib". You will have to type this into the text box.
 - Then go to General (under "Configuration Properties" in the same dialog box) and change the 'Intermediate Directory' and 'Output Directory' to "C:\temp\<isuid>", where <isuid> is your username.
 - Click OK to exit the property pages.
- 7) Build and execute the SystemC executable.
- Go to Build->Build Solution.
 - Once the project has compiled successfully, go to Debug->Start Without Debugging to run the program.
- 8) *****IMPORTANT***** Before logging off, delete your folder and files created in c:\temp. Remember that everyone has access to this 'temp' folder.