TRANSACTION GENERATOR 2 USAGE

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1 PACKAGE CONTENTS

1.1 Directory structure

`hw_lib/`	Network-on-Chip hardware models
`  fifo/`	Fifos used by Mesh_2D
`  mesh_2d/`	Mesh_2D NoC models
`  packet_codec/`	Packet codec used by Mesh_2D
`scripts/`	Scripts for Modelsim
`transaction_generator_2/`	Main simulator source files
`work_libs/`	Working directory for Modelsim
`Makefile`	Main makefile
`test.xml`	Example input file for TG
`pe_lib.xml`	Example processing element library for TG

1.2 Included Network-on-Chips

Class	Type	Description
Mesh_2D	vhd	Synthesizeable VHDL RTL model of a two dimensional mesh.
	sc_rtl_1	SystemC RTL model. Uses sc_logic and sc_lv for logic.
	sc_rtl_2	SystemC RTL model. Uses bool and sc_bv for logic.

2 PREREQUISITES

2.1 Mandatory prerequisites

Transaction Generator 2 needs a terminal environment with following tools and libraries. Tested in Windows XP with Cygwin and in Debian Squeeze.

Make	Tested with version 3.80
gcc	Tested with version 3.4.3
Boost c++ libraries	Transaction Generator 2 utilizes many libraries from Boost. At least version 1.42.0 is needed. Currently only header files are needed. (www.boost.org)
SystemC	Tested with version 2.2.0 (www.systemc.org)
OSCI TLM	Tested with version 2.0.1 (www.systemc.org)

2.2 Optional prerequisites for mixed-language simulation

Transaction Generator 2 can be used easily with Network-on-Chips described in other languages than SystemC. Package's makefile has necessary commands for simulation with Modelsim SE.

Modelsim SE	Tested with versions 6.4c and 6.5

3 USAGE

3.1 Setting environment

Transaction Generator 2 is makefile driven and it's designed to be used from the directory it is extracted to. Makefile found in packages root needs to be adapted to the used environment by setting following variables to point correct directories if used c++ compiler can't find them already.

```
# Boost's header files
BOOST_INC      = ???/boost_1_42_0/include
# OSCI TLM headers
TLM_INC        = ???/tlm-2009-07-15/include/tlm
# SystemC header files
SC_INC         = ???/systemC/include
```

3.2 Compilation

Makefile's default objective is to compile all files and create executeable file `sctg` (or `sctg.exe`).

```
$ make
```

3.3 Running simulation

`sctg` needs one parameter which is the xml source file containing the application model.

```
$ ./sctg test.xml
```

3.4 Mixed language simulation with Modelsim

Makefile assumes Modelsim's binaries are found in $PATH.

Create Modelsim's working libraries with vlib

```
$ make modelsim_libs
```

Compile Mesh_2D VHDL source files with vcom

```
$ make mesh_vhd
```

Compile all SystemC source files with sccom

```
$ make sccom
```

Link with sccom

```
$ make link
```

Running the simulation

```
$ make sim
```