The TLM 2.0 Loosely Time (LT) with DMI System Example

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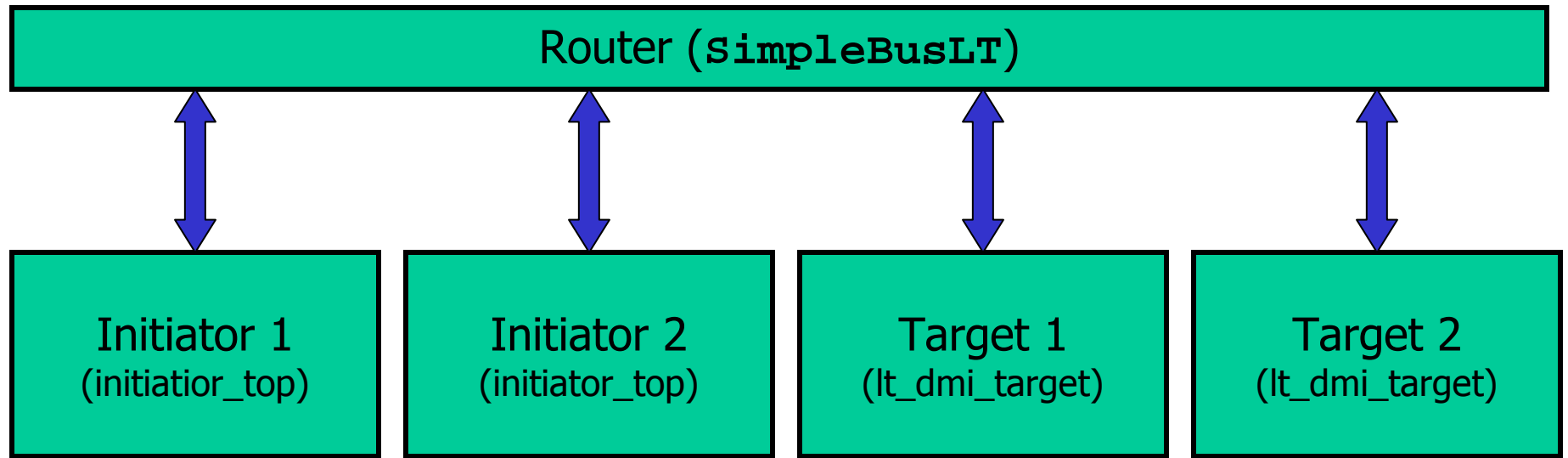**ESLX, Inc.**

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AT Minimum System Example Use Cases

- **Virtual Development Platform**

- **Initial Hardware/Software Partitioning**

- **Initial Architectural Performance Analysis**

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Approximately Timed (AT) Block Diagram

How to run this example (Linux)

- **Set** `SYSTEMC_HOME`

- `cd examples/tlm/lt_dmi/build-unix`

- `make clean`

- `make`

- `make run`

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How to run this example (MSVC)

- **Open a explorer window on `examples/tlm/lt_dmi/build-windows`**

- **Launch `lt_dmi.sln`**

- **Select 'Property Manager' from the 'View' menu**

- **Under 'lt_dmi > Debug | Win32' select 'systemc'**

- **Select 'Properties' from the 'View' menu**

- **Select 'User Macros' under 'Common Properties'**

- **Update the '`SYSTEMC`' entry and apply**

- **Build and run**

Expected Output (`expected.log`)

Info: lt_dmi_target.cpp: 0 s - toggle_dmi_method
    Target: 201 invalidate_direct_ptr (0, 4096);

Info: dmi_memory.cpp: 0 s - invalidate_dmi_ptr
    Initiator:101 DMI Pointer not invalidated for (0, 4096)

Info: dmi_memory.cpp: 0 s - invalidate_dmi_ptr
    Initiator:102 DMI Pointer not invalidated for (0, 4096)

Info: lt_dmi_target.cpp: 0 s - toggle_dmi_method
    Target: 202 invalidate_direct_ptr (0, 4096);

Info: dmi_memory.cpp: 0 s - invalidate_dmi_ptr
    Initiator:101 DMI Pointer not invalidated for (268435456, 268439552)

Info: dmi_memory.cpp: 0 s - invalidate_dmi_ptr
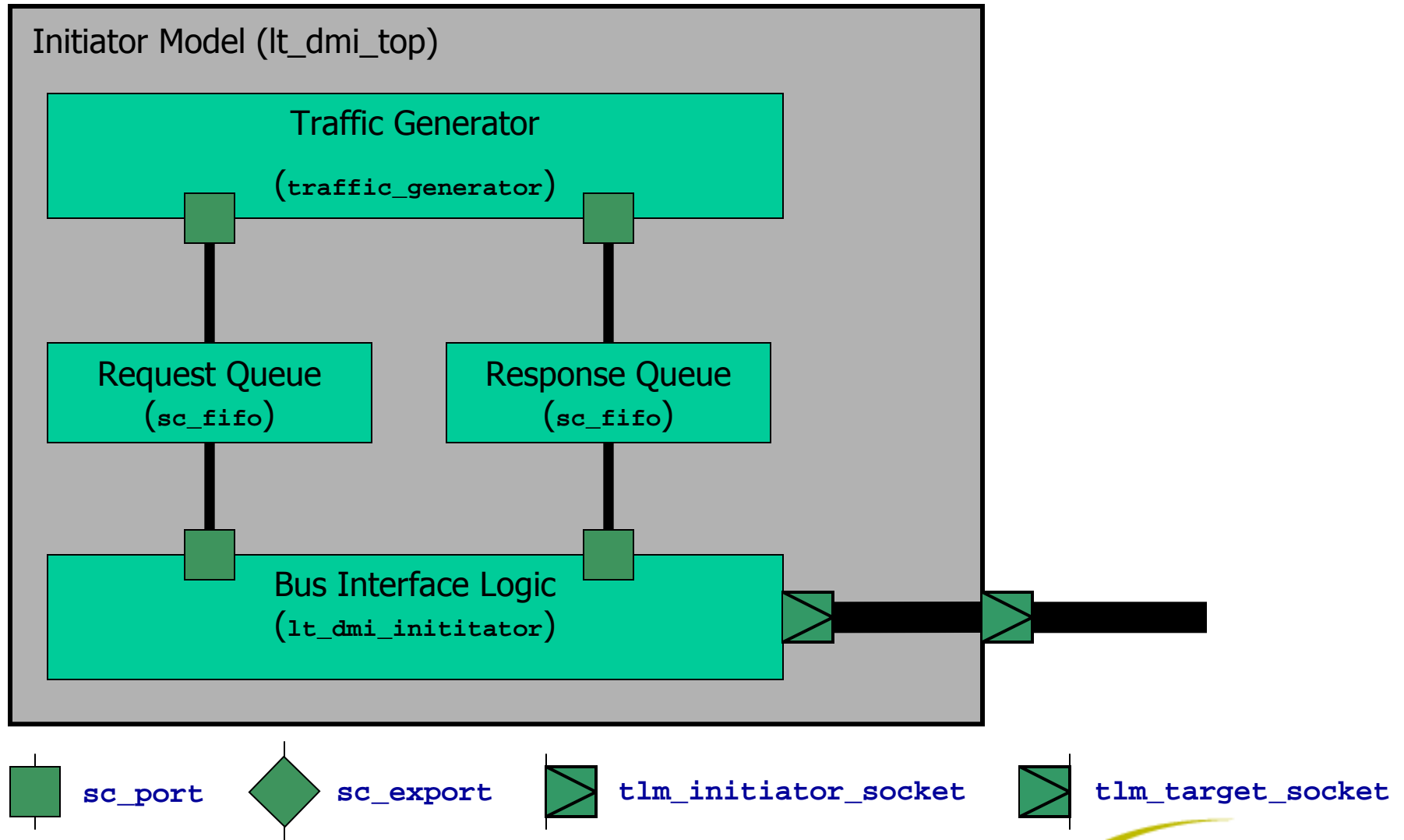   Initiator:102 DMI Pointer not invalidated for (268435456, 268439552)

Info: traffic_generator.cpp: 0 s - traffic_generator_thread
    Initiator: 101 Starting Traffic

Info: traffic_generator.cpp: 0 s - traffic_generator_thread
    Initiator: 102 Starting Traffic

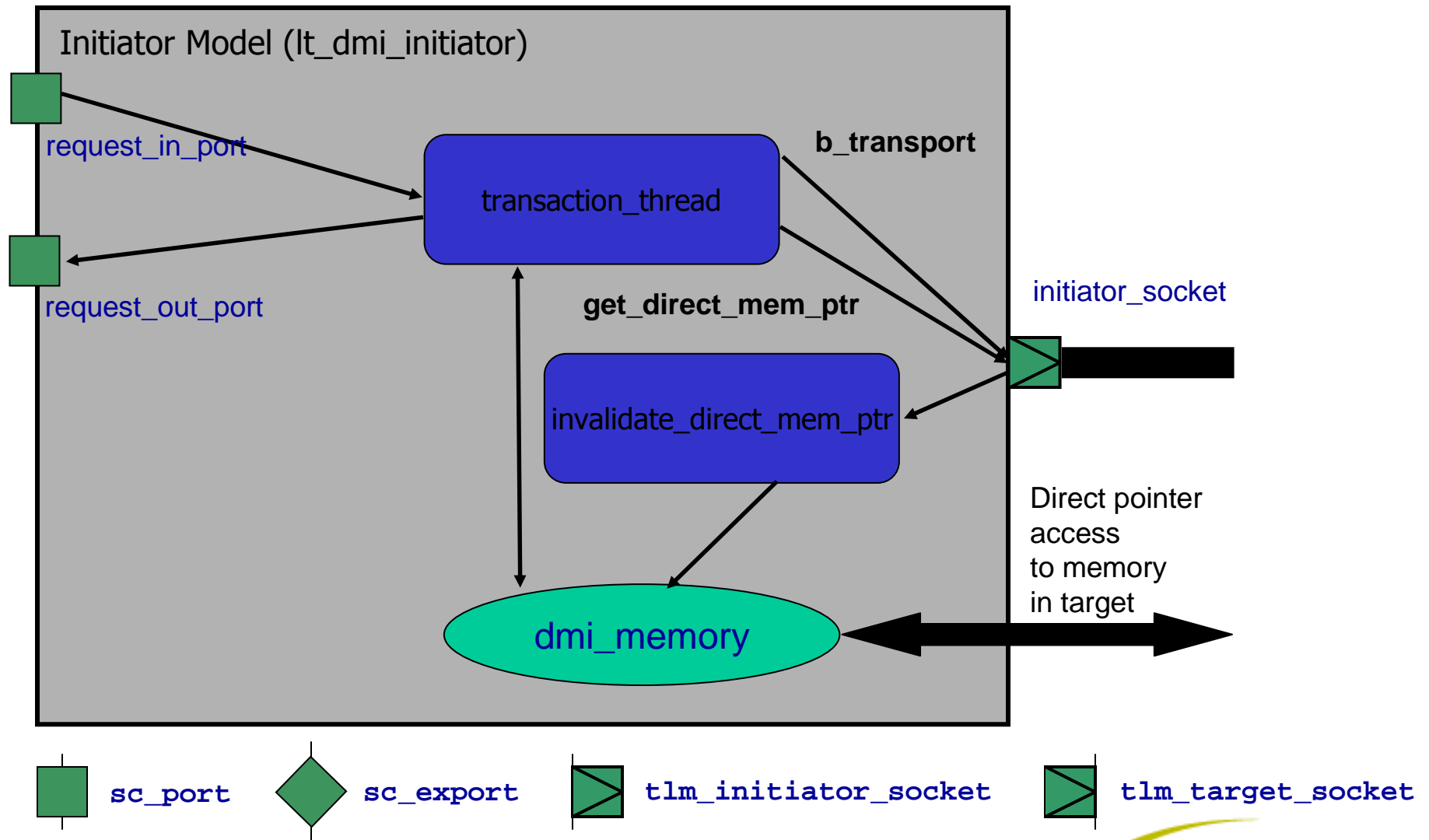Info: lt_dmi_initiator.cpp: 0 s - initiator_thread
    Initiator: 101 b_transport with delay of 0 s);

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Initiator Component

Initiator Model (lt_dmi_top)

Traffic Generator

(`traffic_generator`)

Request Queue
(`sc_fifo`)

Response Queue
(`sc_fifo`)

Bus Interface Logic

(`lt_dmi_inititator`)

■ `sc_port`   ◆ `sc_export`   ▷ `tlm_initiator_socket`   ▷ `tlm_target_socket`

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Bus Interface Logic

Initiator Model (lt_dmi_initiator)

request_in_port

request_out_port

transaction_thread

b_transport

get_direct_mem_ptr

invalidate_direct_mem_ptr

initiator_socket

dmi_memory

Direct pointer
access
to memory
in target

sc_port   sc_export   tlm_initiator_socket   tlm_target_socket

Target Component

Target Module (`lt_dmi_target`)

Direct pointer access from an initiator

b_transport

start_dmi_base_address_flag

memory

toggle_dmi_method

invalidate_direct_mem_ptr

get_direct_memo_ptr

■ sc_port   ◆ sc_export   ▷ tlm_initiator_socket   ▷ tlm_target_socket

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Router Component

Router Model (`simpleBusLT<2,2>`)

initiator sockets (2)

target sockets (2)

sc_port sc_export tlm_initiator_socket tlm_target_socket

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