TLM 2.0 AT with Optional Extension System Example

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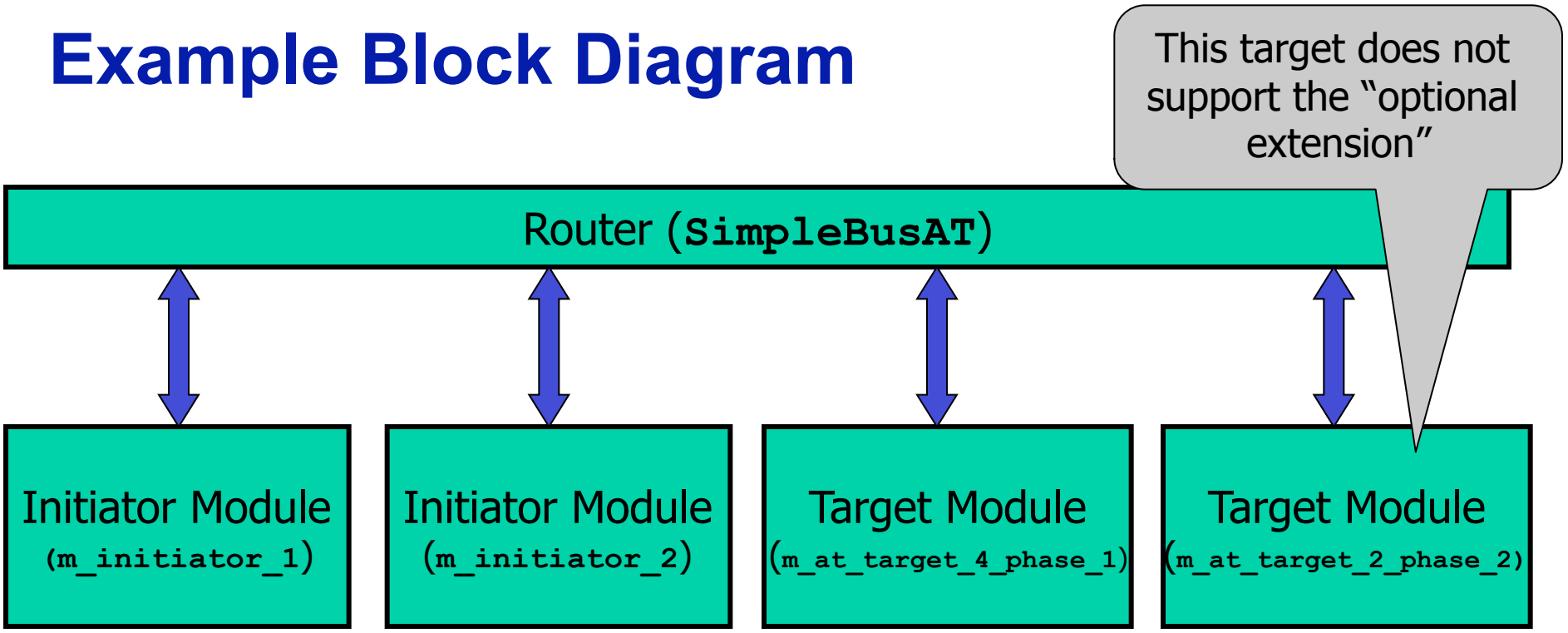
AT with Optional Extension Example

- **The Goal is to Illustrate:**
  - Application of TLM 2.0 in a real system
  - Use of an optional extension
  - Option of the non-blocking style
    - This style has been previously referred to as "4 phase"
    - Most complex version of non-blocking/AT style
- **Possible Applications:**
  - Architectural Verification
  - Software Verification
  - Early Performance Validation

Example Block Diagram



Extension enabled in initiators and m_at_target_4_phase_1 via compiler directives, not used by m_at_target_2_phase_2

This extension carries a string containing the initiators 'ID'

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How to run this example (Linux)

- Set **`SYSTEMC_HOME`** and **`TLM_HOME`**
- **`cd examples/tlm/at_extension_optional/build-unix`**
- **`make clean`**
- **`make`**
- **`make run`**

How to run this example (MSVC)

- Open a explorer window on **`examples/tlm/at_extension_optional/build-windows`**
- Launch **`at_extension_optional.sln`**
- Select **'Property Manager'** from the **'View'** menu
- Under **'at_extension_optional > Debug | Win32'** select **'systemc'**
- Select **'Properties'** from the **'View'** menu
- Select **'User Macros'** under **'Common Properties'**
- Update the '**`SYSTEMC`**' and '**`TLM`**' entries and apply
- Build and run

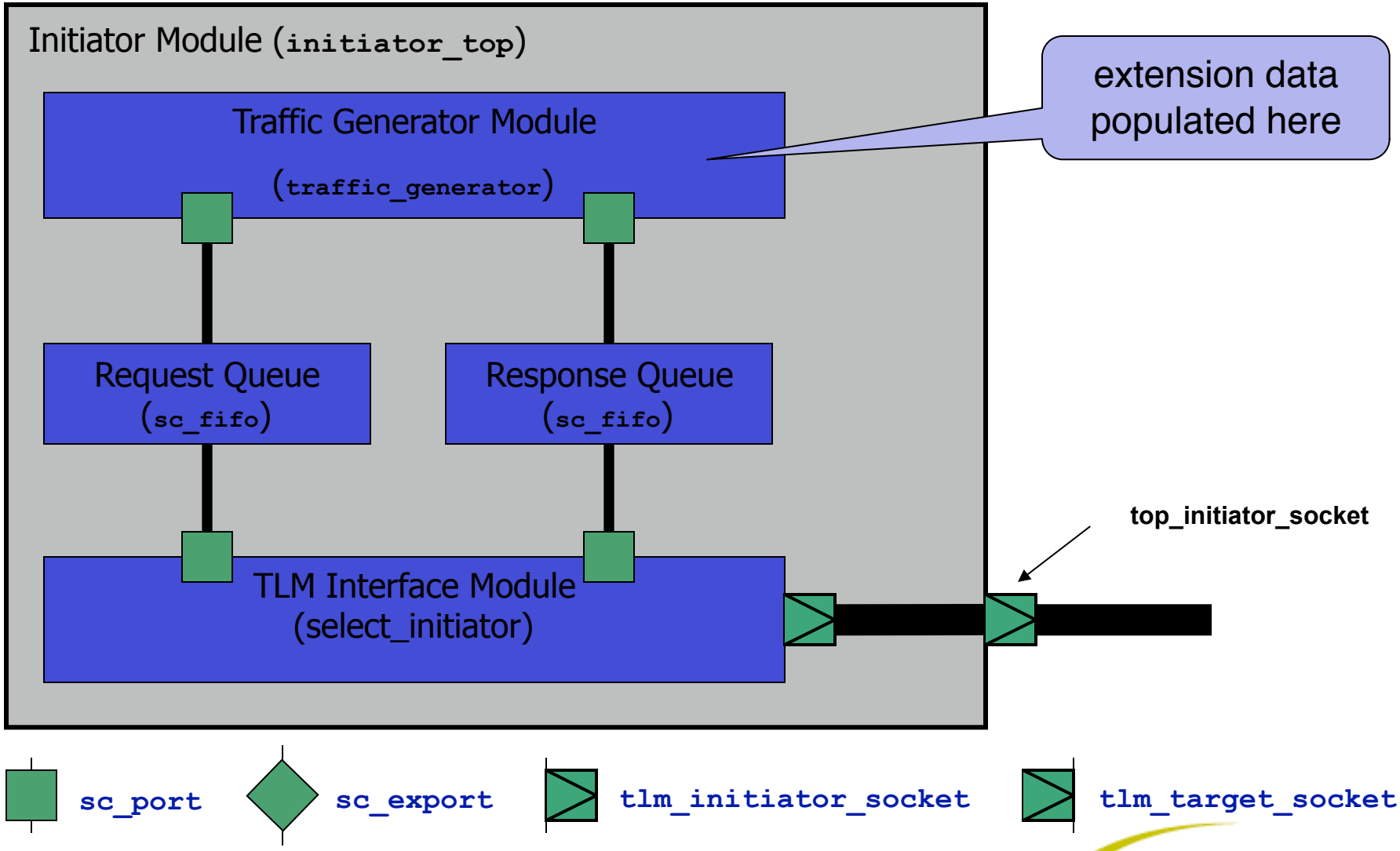
Expected Output (expected.log)

```
Info: select_initiator.cpp: 0 s - initiator_thread
      Initiator: 102 starting new transaction for Addr:0x00000200
      Initiator: 102 nb_transport_fw (GP, BEGIN_REQ, 0 s)

Info: select_initiator.cpp: 0 s - initiator_thread
      Initiator: 102 ACCEPTED (GP, BEGIN_REQ, 0 s)
      Initiator: 102 transaction waiting end-request on backward-path

Info: at_target_4_phase.cpp: 0 s - nb_transport_fw
      Target: 201 extension data: 'Initiator ID: 101

...
Info: at_target_4_phase.cpp: 10 ns - end_request_method
      Target: 201 starting end-request method
      Target: 201 transaction moved to send-response PEQ
      Target: 201 nb_transport_bw (GP, END_REQ, 0 s)

Info: at_target_4_phase.cpp: 10 ns - end_request_method
      Target: 201 ACCEPTED (GP, END_REQ, 0 s)

...
Info: select_initiator.cpp: 1824 ns - initiator_thread
      Initiator: 101 starting new transaction for Addr:0x10000100
      Initiator: 101 nb_transport_fw (GP, BEGIN_REQ, 0 s)

Info: select_initiator.cpp: 1824 ns - initiator_thread
      Initiator: 101 ACCEPTED (GP, BEGIN_REQ, 0 s)
      Initiator: 101 transaction waiting end-request on backward-path

Info: at_target_2_phase.cpp: 1824 ns - nb_transport_fw

...
```

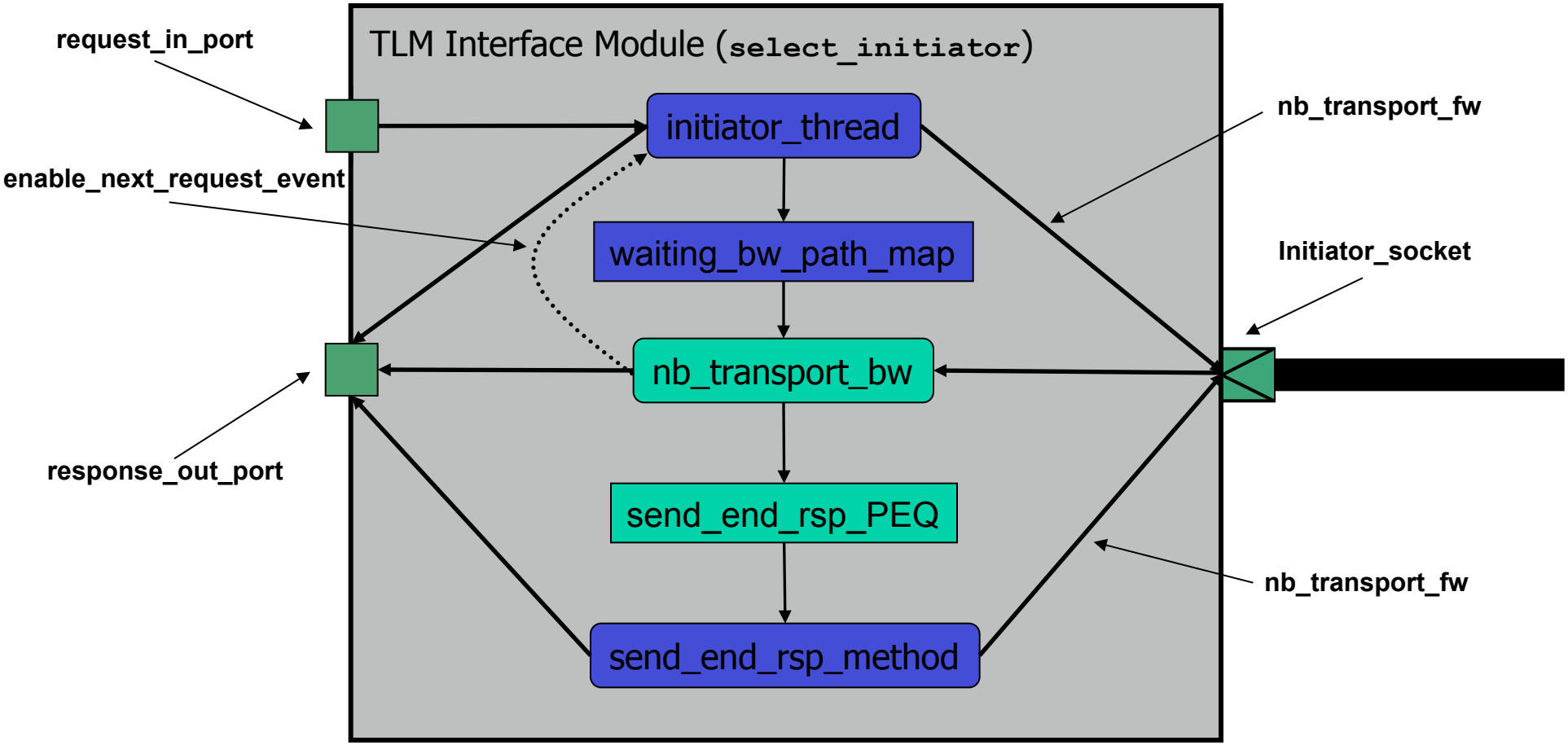
Initiator ID: 101
Printed from
At_target_4_phase

Initiator ID not printed
from
at_target_2_phase_2

Initiator Module



TLM Interface Module



sc_port sc_export tlm_initiator_socket tlm_target_socket

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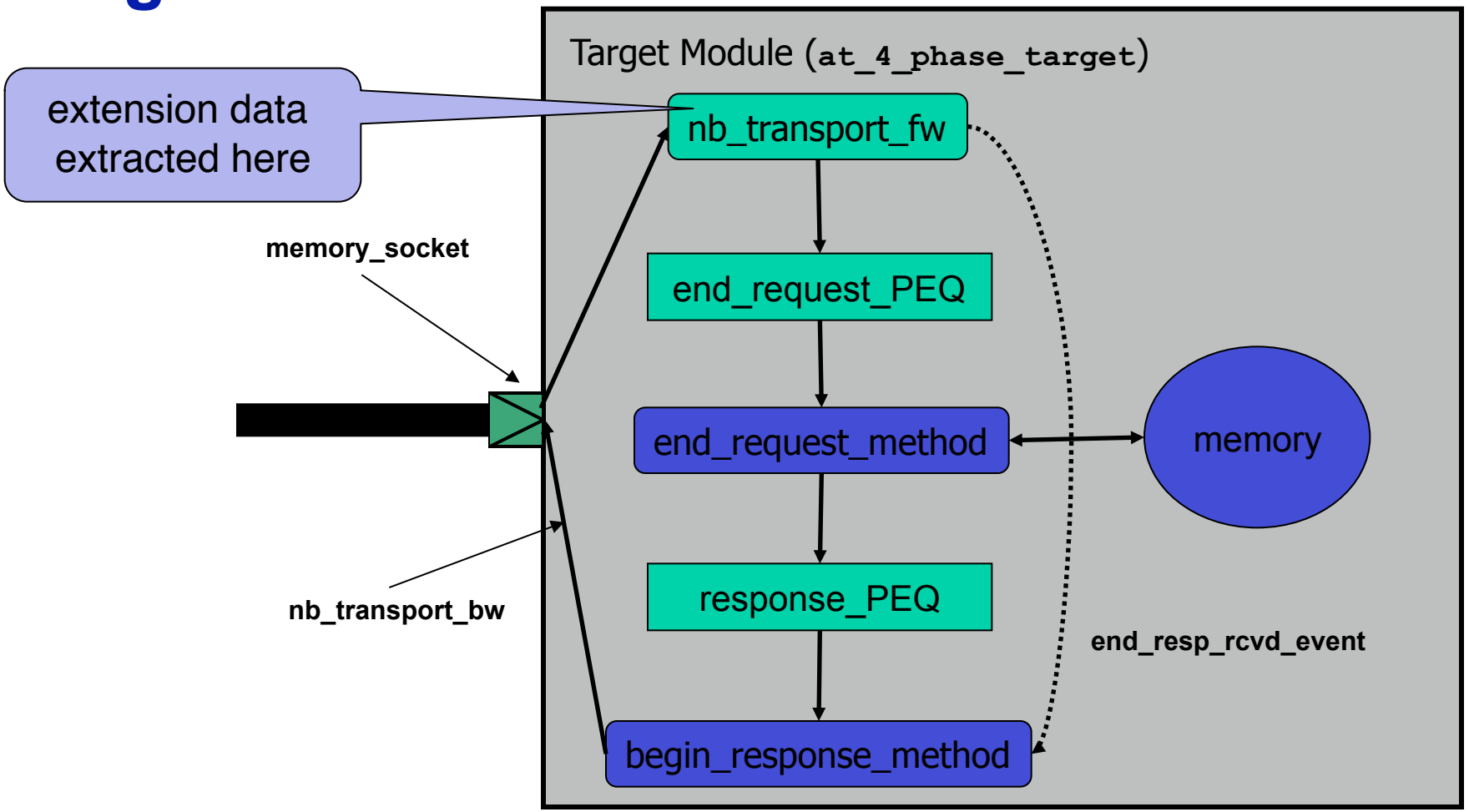
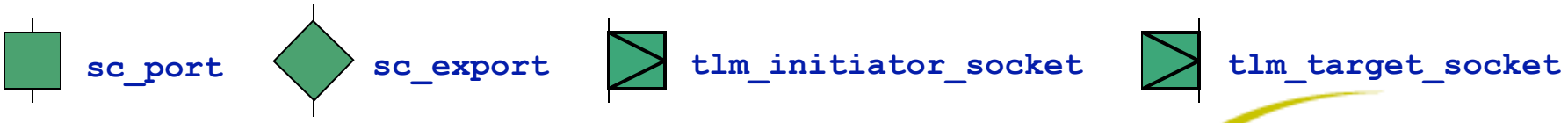
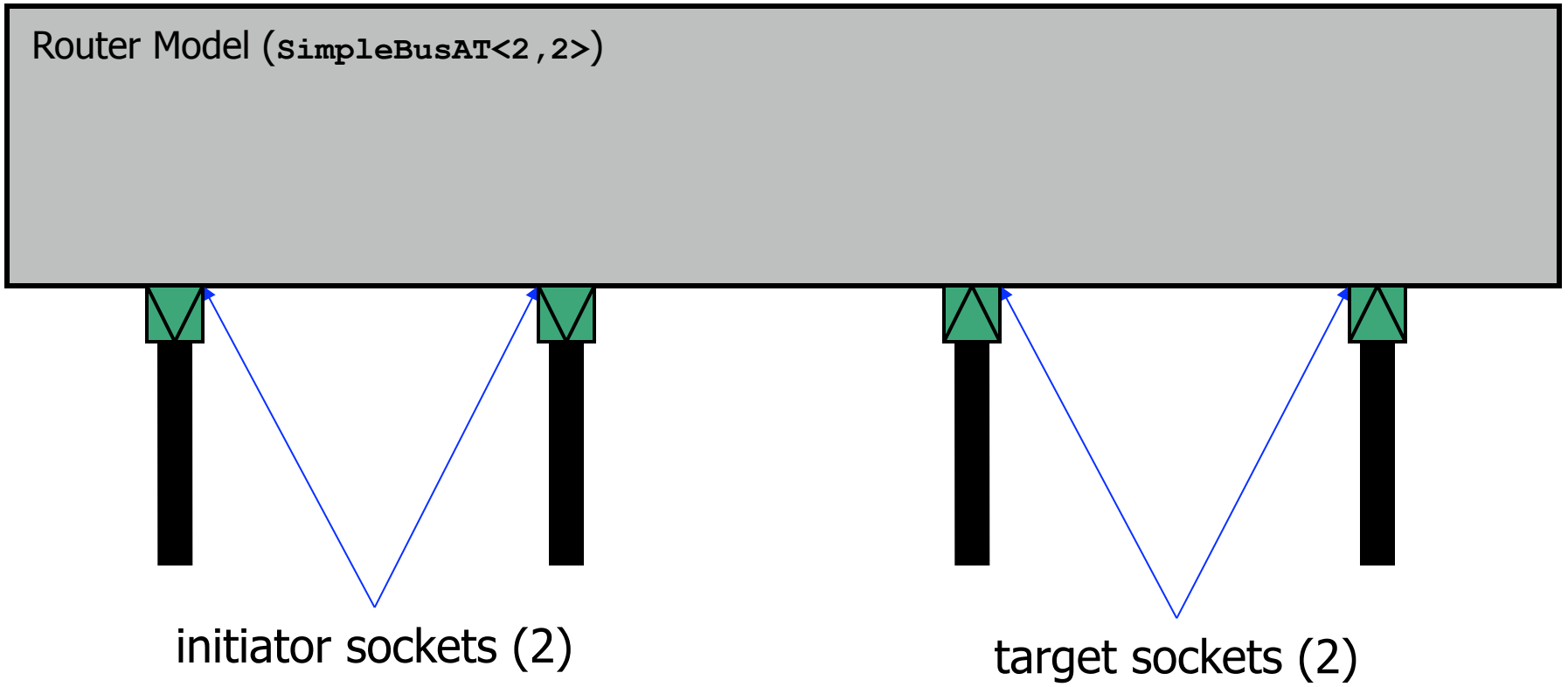
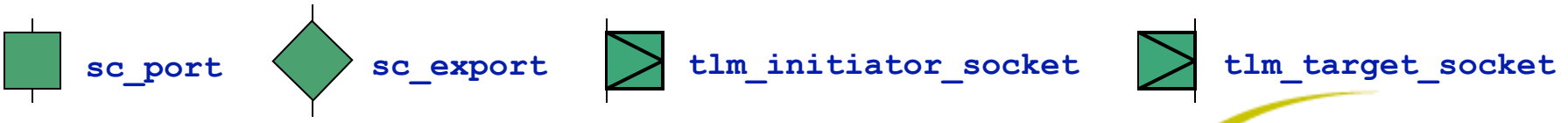
Target Module





Router Component





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