



# **TLM 2.0 AT with Optional Extension System Example**

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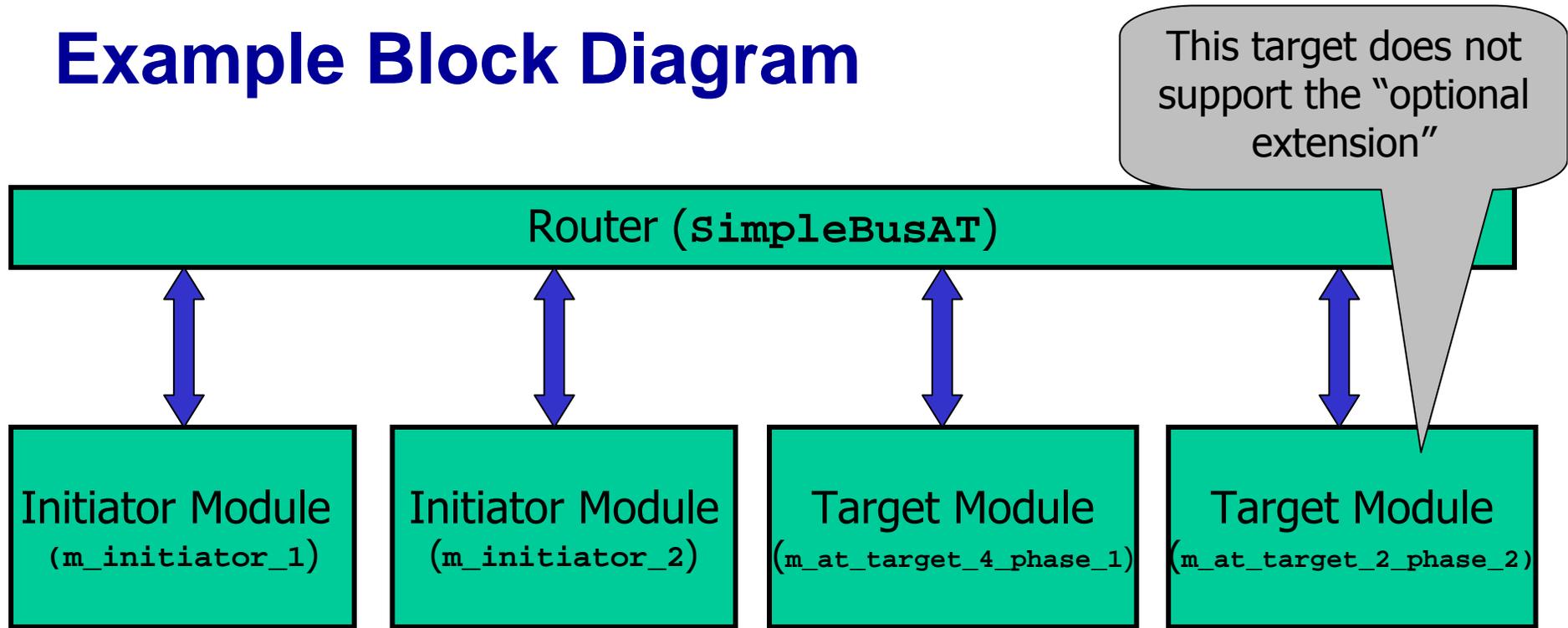
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# AT with Optional Extension Example

- **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



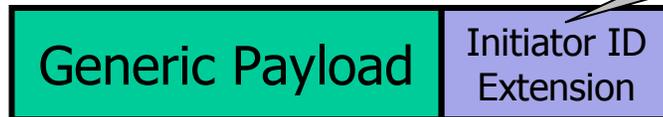
# Example Block Diagram



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'

↑ TLM 2 GP



# How to run this example (Linux)

- Set `SYSTEMC_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`' entry 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

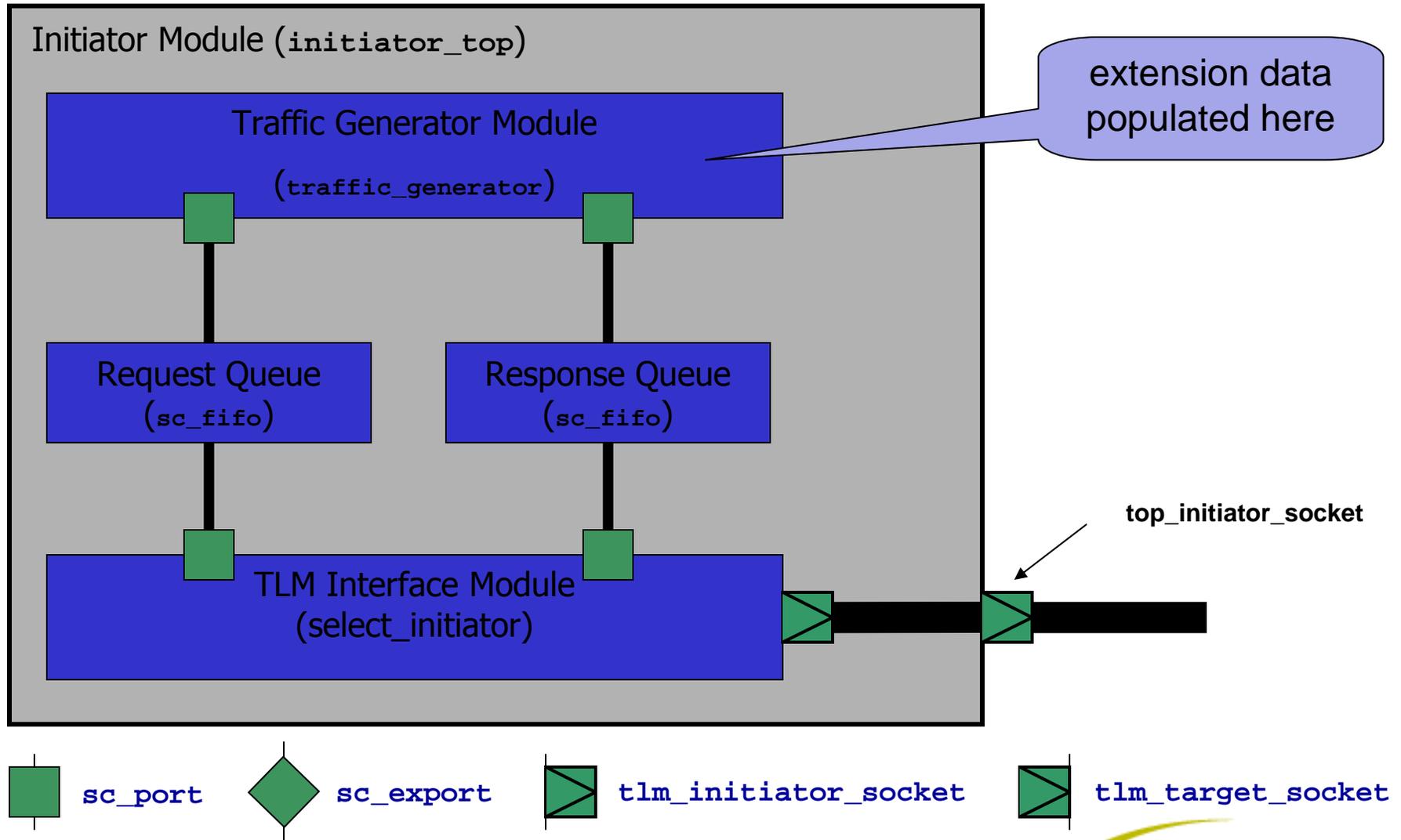
Info: at_target_2_phase.cpp: 1824 ns - nb_transport_fw

...
```

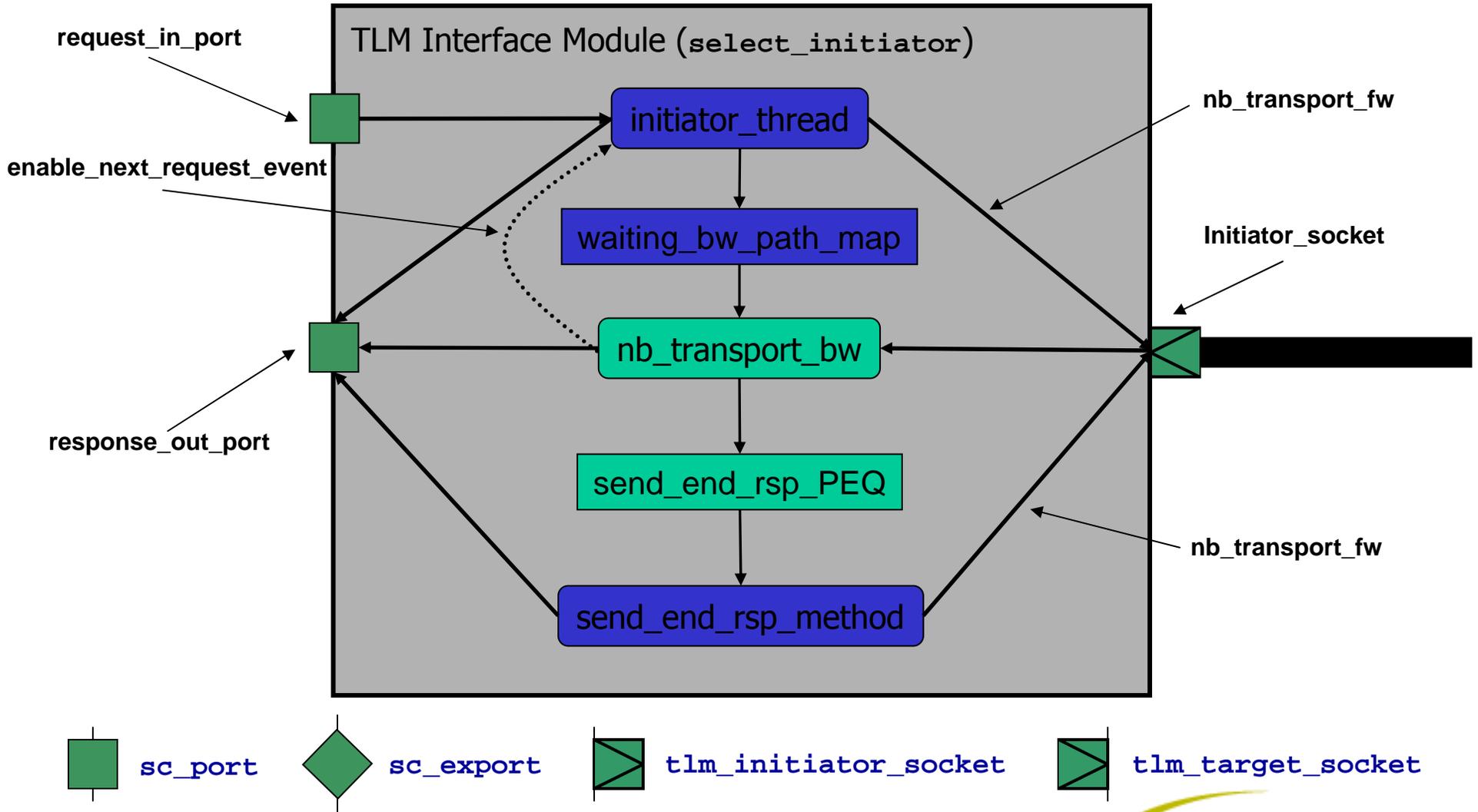
Initiator ID: 101  
Printed from  
At\_target\_4\_phase

Initiator ID not printed  
from  
at\_target\_2\_phase\_2

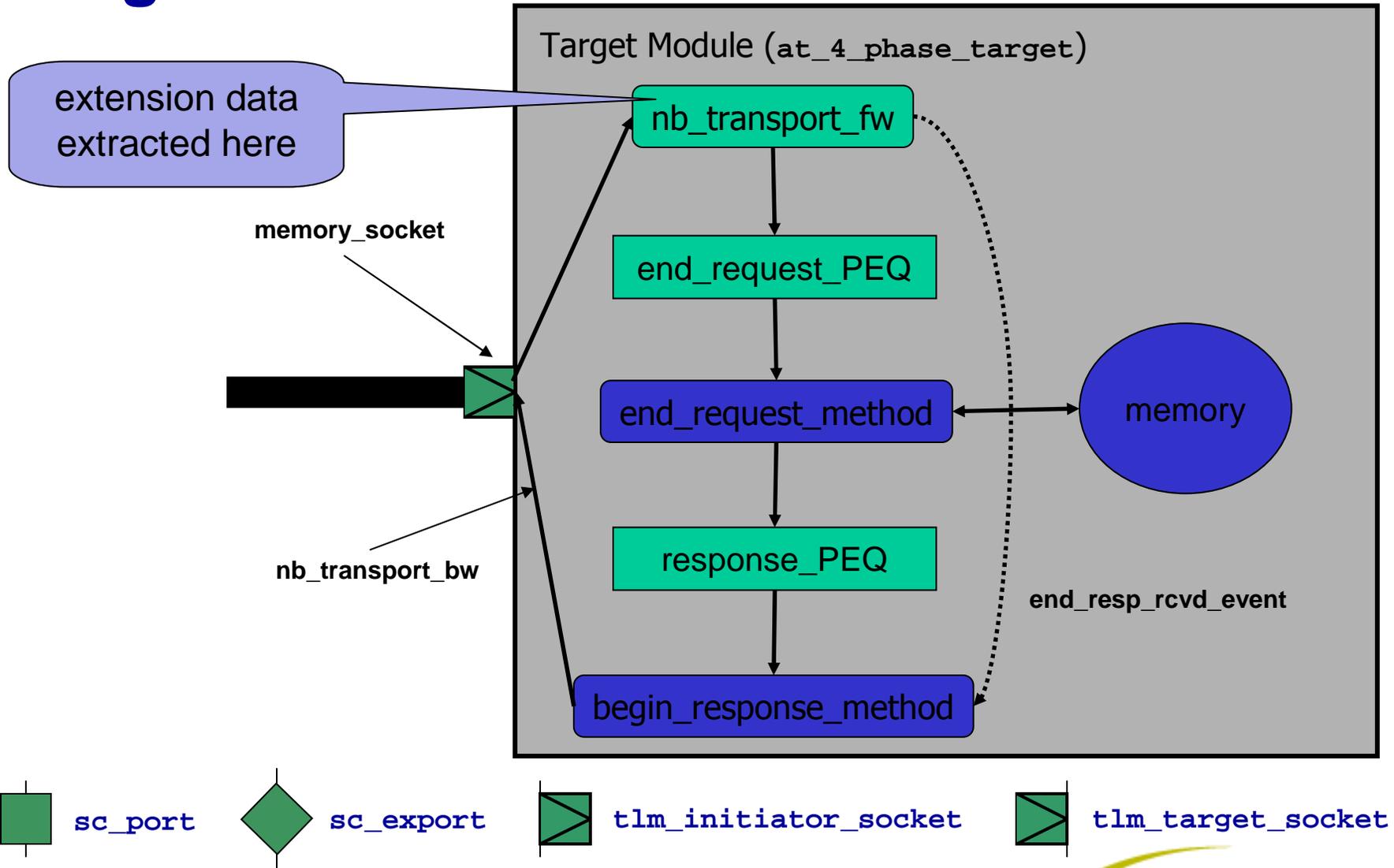
# Initiator Module



# TLM Interface Module



# Target Module



# Router Component

