

VciSimpleCrossbar Functional Description

This hardware component is a generic VCI crossbar, it contains two independant crossbars for VCI commands and VCI responses.

When several initiators try to reach the same target, the arbitration policy is round-robin. It gives the system designer a generic "communication black-box" with a parametrized number of VCI initiator ports (NB_INITIATOR), and a parameterized number of VCI target ports (NB_TARGET).

As any VCI advanced compliant interconnect, this component uses the MSB bits of the VCI ADDRESS field to route the command packets to the proper target, thanks to a routing table, implemented as a ROM. This routing table is build by the constructor from the informations stored in the [mapping table](#). It uses the VCI RSRCID field to route the response packet to the initiator.

Component definition

Available in source:trunk/soclib/desc/soclib/vci_simple_crossbar.sd

Usage

VciSimpleCrossbar has no other parameter than VCI ones, it may be used like others, see [SoclibCc/VciParameters](#)

```
Uses( 'vci_simple_crossbar', **vci_parameters )
```

VciSimpleCrossbar CABA Implementation

The caba implementation is in

- source:trunk/soclib/systemc/include/caba/interconnect/vci_simple_crossbar.h
- source:trunk/soclib/systemc/src/caba/interconnect/vci_simple_crossbar.cc

Template parameters

```
template<typename vci_param>
```

Constructor parameters

```
VciSimpleCrossbar(  
    sc_module_name name,  
    const soclib::common::MappingTable &mt,  
    size_t nb_initiator,  
    size_t nb_target );
```

Ports

- sc_in<bool> **p_resetn** : Global system reset
- sc_in<bool> **p_clk** : Global system clock
- soclib::caba::VciTarget<vci_param> **p_from_initiator[]** : Ports from VCI initiators

- soclib::caba::VciInitiator<vci_param> **p_to_target[]** : Ports to VCI targets