VciLocalRingNetwork

1) Functional Description

This hardware component is a VCI compliant ring, implemented as a combinational daisy-chain and well suited for FPGA implementations. It must only be used in clusterized architecture, to interconnect a limited number of VCI initiators and targets in a local sub-system. It contains two independent rings for VCI commands and VCI responses and is composed of three components :

- VciRingInitiatorWrapper : A VCI-RING protocol converter for a VCI initiator.
- VciRingTargetWrapper : A VCI-RING protocol converter for a VCI target.
- RingGateway : A ring interface with global interconnect.

Policy arbitration uses a circulating token which allows the wrappers to access the ring in a round-robin fashion.

2) Component definition & usage

source:trunk/soclib/soclib/module/network_component/vci_local_ring_network/caba/metadata/vci_local_ring_network.sd

3) CABA implementation

CABA sources

- interface :
  source:trunk/soclib/soclib/module/network_component/vci_local_ring_network/caba/source/include/vci_local_ring_n
- implementation :
  source:trunk/soclib/soclib/module/network_component/vci_local_ring_network/caba/source/src/vci_local_ring_netwo

CABA Constructor parameters

```
VciLocalRingNetwork( sc_module_name insname,                    // instance name
                     const soclib::common::MappingTable &mt,  // mapping table
                     const soclib::common::IntTab &ringid,    // global subsystem index
                     const int &wrapper_fifo_depth,           // wrapper fifo depth
                     const int &half_gateway_fifo_depth,      // half gateway fifo depth
                     int nb_attached_initiator,               // number of VCI initiators
                     int nb_attached_target);                 // number of VCI targets
```

CABA ports

- sc_in<bool> p_clk; *Global system clock*
- sc_in<bool> p_resetn; *Global system reset*
- soclib::caba::VciInitiator<vci_param>* p_to_target; *Ports to VCI targets*
- soclib::caba::VciTarget<vci_param> * p_to_initiator; *Ports to VCI initiators*
- soclib::caba::GateInitiator p_gate_initiator; *Port to gate target*
- soclib::caba::GateTarget p_gate_target; *Port to gate initiator*

4) TLMT implementation

The TLM-T implementation is not available yet.