VirtualDspinNetwork

1) Functional Description

The Virtual Dspin Network aims to connect a two-dimensionnal array of TSAR clusters together. It virtualizes two virtual channels (usually the primary channel and the memory-coherence channel) on two physical networks VirtualDspinArray of different size (usually one for command paquets and one for response paquets). It implements the optimized and confined broadcast protocol and the Hypertransport routing.

2) Component definition & usage

source:trunk/soclib/soclib/module/network_component/virtual_dspin_network/caba/metadata/virtual_dspin_network.sd?

3) CABA implementation

CABA sources

- interface : source:trunk/soclib/soclib/module/network_component/virtual_dspin_network/caba/source/include/virtual_dspin_net
- implementation : source:trunk/soclib/soclib/module/network_component/virtual_dspin_network/caba/source/src/virtual_dspin_network

CABA Template parameters

- int io_mask_size : Size in bits of IO checking
- int io_number_size : Size in bits of IO index
- int x_addressing_size : Size in bits of first coordinate addressing
- int y_addressing_size : Size of second coordinate addressing

- int cmd_data_size : Size in bits of command flits
- int cmd_io_mask_offset : Emplacement of IO checking in command paquets
- int cmd_io_number_offset : Emplacement of IO index in IO table in command paquets
- int cmd_x_addressing_offset : Emplacement of target x in first flit in command paquets
- int cmd_y_addressing_offset : Emplacement of target y in first flit in command paquets
- int cmd_eop_offset : Emplacement of eop checking in command paquets
- int cmd_broadcast_offset : Emplacement of broadcast checking in command paquets

- int rsp_data_size : Size in bits of response flits
- int rsp_io_mask_offset : Emplacement of IO checking in response paquets
- int rsp_io_number_offset : Emplacement of IO index in IO table in response paquets
- int rsp_x_addressing_offset : Emplacement of target x in first flit in response paquets
- int rsp_y_addressing_offset : Emplacement of target y in first flit in response paquets
- int rsp_eop_offset : Emplacement of eop checking in response paquets

- int in_fifo_size : Size of input fifos
- int out_fifo_size : Size of output fifos
- int x_min_offset : Emplacement of x_min for broadcast confinement
- int x_max_offset : Emplacement of x_max for broadcast confinement
- int y_min_offset : Emplacement of y_min for broadcast confinement

- int y_max_offset : Emplacement of y_max for broadcast confinement

CABA Constructor parameters

```
VirtualDspinNetwork(    sc_module_name insname,
                        int size_x,
                        int size_y,
                        clusterCoordinates<x_addressing_size, y_addressing_size> * aIO_table);
```

CABA ports

- sc_in<bool> p_clk; *Global system clock*
- sc_in<bool> p_resetn; *Global system reset*
- DspinOutput<cmd_data_size> *** p_out_cmd;** ***For each cluster and each virtual network : out command***
- DspinInput<cmd_data_size> *** p_in_cmd;** ***For each cluster and each virtual network : in command***
- DspinOutput<rsp_data_size> *** p_out_rsp;** ***For each cluster and each virtual network : out response***
- DspinInput<rsp_data_size> *** p_in_rsp;** ***For each cluster and each virtual network : in response***

4) TLMT implementation

The TLM-T implementation is not available yet.