

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_network.h
- implementation :
source:trunk/soclib/soclib/module/network_component/virtual_dspin_network/caba/source/src/virtual_dspin_network.c

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_resetrn`; *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.