

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_caba.h
implementation source:trunk/soclib/soclib/module/network_component/virtual_dspin_network/caba/source/src/virtual_dspin_network_caba.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_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.