

# 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?](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](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](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_resetrn          | Global system reset                                      |
| DspinOutput<cmd_data_size> | * <b>p_out_cmd</b> | For each cluster and each virtual channel : out command  |
| DspinInput<cmd_data_size>  | * p_in_cmd         | For each cluster and each virtual channel : in command   |
| DspinOutput<rsp_data_size> | * <b>p_out_rsp</b> | For each cluster and each virtual channel : out response |
| DspinInput<rsp_data_size>  | * p_in_rsp         | For each cluster and each virtual channel : in response  |

## 4) TLMT implementation

The TLM-T implementation is not available yet.