Comments on SpaceWire-PnP Protocol Definition Issue 2.1

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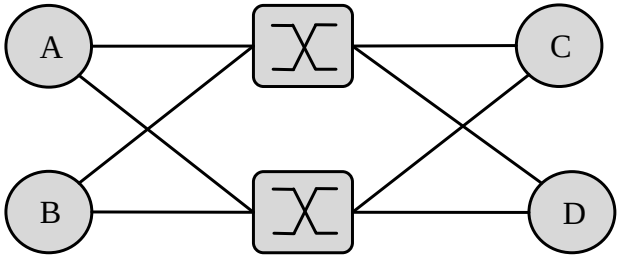
15th SpaceWire Working Group meeting

18-20 October 2010

ESTEC

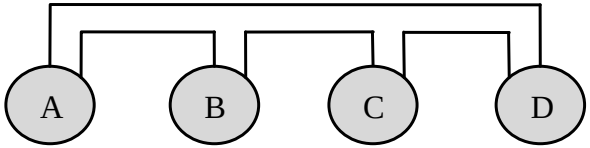
Restricted Node definition

- A node is defined as source or destination of a packet, which can be a processor, memory unit, sensor, EGSE or some other unit connected to a SpaceWire network
- It can have between 1 and 31 ports
- In 4.2.2 it is explicitly forbidden that nodes can have a routing function
- This restriction limits the generality of SpW network topologies and is not justified by the needs of the PnP protocol



(a)

Routing-centric topology with a redundant switch



(b)

Ring topology using nodes with routing capabilities

Examples of nodes with routing function

The concept of SpaceWire Nodes with routing function is actually already widely used:

- The SMCS332SpW (AT7911E) host interface chip includes a routing function between its 3 SpaceWire ports
- The Golden Gate ASIC developed by BAE which connects up to four SpaceWire ports through a PCI bus to the host processor contains also a routing function between the SpaceWire ports
- Virtual ports on NT Space router
- SpW-10X router (AT7910E) is used on several computer boards as interface to the SpaceWire network
  - its two FIFO ports that are used to inject and retrieve SpaceWire packets from the network
  - the router provides also a time tick and time counter interface
- The SpaceWire brick combines the routing function with the terminal function

Recommendation:

- This unnecessary restriction of possible topologies should be removed from the specification