EXPANDING PORT COUNT USING A 4-PORT SPACEWIRE ROUTER

Session: SpaceWire Components

Long Paper

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The UT200SpW4RTR is a 4port SpaceWire router that is capable of operating at data rates from 2 to 200 Mbps, supporting path, logical, and group adaptive routing and offers an effective and simple solution to many networking requirements. This router also provides two 9-bit parallel host port interfaces, one for transmit and the other for receive. The UT200SpW4RTR is compliant to the SpaceWire Standard ECSS-E-ST-50-12C and will support the routing of all protocols listed in ECSS-E-ST-50-11C Draft 1.3.

A simple solution to increase port count can be accomplished by interfacing multiple 4-port routers together through the parallel host ports. The host ports can be interfaced together using a FPGA that will act as an arbiter, equipped with look up tables, between the multiple UT200SpW4RTR devices.

This presentation will show a notional block diagram of an expanded port count system, and the logic that will need to be implemented into the FPGA for proper system performance. Each component of the expanded system will be discussed in detail, such that the expanded port count system can be easily integrated into future systems.