GRESB
Ethernet Spacewire Bridge

AEROFLEX GAISLER

Introduction

The GRESB bridge is developed to facilitate rapid development and testing of equipment with SpaceWire interfaces. It provides three bi-directional SpaceWire links with a maximum bit rate of 100 Mbit/s and six "virtual" links that are interfaced through TCP sockets. Each SpaceWire link can be individually configured with respect of transmission bit rate. When a packet arrives to the GRESB bridge on any of the links (real or virtual) it is forwarded to the link specified in the routing table. This allows a developer to generate SpaceWire test data on a workstation and send the data with TCP/IP to the bridge where it is sent out on the appropriate link. In the same manner data received on each of the three SpaceWire links can be routed to the workstation or to other SpaceWire equipment. The aggregate throughput of the bridge is 25 Mbit/s when connected to a 100 Mbit/s full duplex ethernet network.

The GRESB can also be used together with GRMON, providing a transparent connection to the on-chip DSU in LEON systems using the SpaceWire RMAP protocol. The GRESB is delivered with a CAN 2.0B bus interface, allowing transmission and reception of data over the CAN 2.0B bus.

SpaceWire equipment developed at different sites can easily communicate with each other over any IP network, for example the Internet, using two GRESB bridges. A tunnel server and client are provided with the GRESB so that the users can rapidly start their development.

GRESB is delivered in a robust aluminium enclosure, with power supply and documentation. Multiple bridges can be attached to the same network to access any number of SpaceWire interfaces.

Software

A host software package for communication with the GRESB is provided in full source code to let users modify and adapt the software to their own needs. The host software can be compiled on Windows/Cygwin and Linux/Unix hosts.

SpaceWire is a communications network for use onboard spacecraft. Further information on SpaceWire is available at the ESA SpaceWire website: www.spacewire.esa.int

Specifikation

Size: 160 x 160 x 30 mm
Power: +5V DC, external power supply included

SpaceWire Ports:
- Compliant to ECSS-E50-12A
- Number of SpaceWire Links: 3
- Maximum speed: 100 Mbit/s
- Maximum packet size: 128 kByte
- Connectors: 9-pin micro miniature D-type (default), 9-pin D-type (option)
- LVDS signalling: Using Xilinx LVDS I/O

Ethernet Port:
- RJ 45
- 10/100 Mbit/s

CAN 2.0B bus Port:
- Connector: 9-pin D-type
- 125, 250, 500, 1000 kbit/s

Optional SpaceWire cables:
- Type: Twisted shielded pairs with overall shield
- Length: 2 m
- Connectors: 9-pin micro miniature D-type (default), or 9-pin D-type (option)

CONTACT INFORMATION

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