FMC-SpaceWire/SpaceFibre Board

The FMC-SpaceWire/SpaceFibre board is an FPGA Mezzanine Card which is designed to extend the capabilities of an FPGA development board by adding support for SpaceWire and SpaceFibre interfaces. The board has four SpaceWire ports with accompanying status LEDs, and two SpaceFibre ports.

Key Features
- **Standard FMC High Pin Count (HPC) connector**
- **4x SpaceWire connectors with tri-colour status LEDs**
- **2x SpaceFibre connectors**
- **On-board 125MHz oscillator**
- **Optional external clock input – 2x SMA connectors**
- **Switch for setting different connections of the SpaceWire signals on the FMC HPC connector**
- **20x GPIO pins**

Figure 1 FMC-SpaceWire/SpaceFibre Board

Hardware Overview

A block diagram of the FMC-SpaceWire/SpaceFibre Board is shown in Figure 2. The board has four SpaceWire ports with accompanying status LEDs, two SpaceFibre ports, a 125 MHz LVDS clock, two switch banks to configure the SpaceWire LVDS pinout and a HPC connector. The SpaceWire signals are connected to the FMC connector pins via LVDS buffers, while all of the SpaceFibre signals are AC-coupled.

An on-board oscillator with LVDS-type output is available to supply a 125MHz clock to the carrier board. This clock can be used as a reference clock for the SpaceFibre interface design. The SpaceWire LEDs are available for indication of status or data transfer and are

driven by an IO expander through an I^{2}C bus. The I^{2}C bus also controls the output enable of the LVDS buffers.
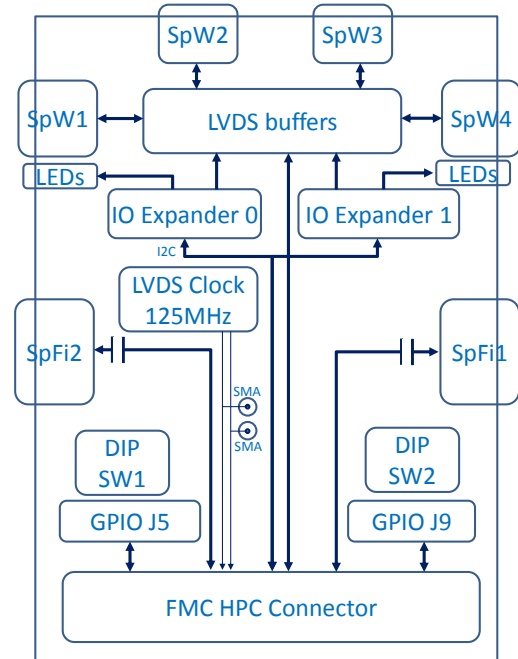

Figure 2 FMC-SpaceWire/SpaceFibre Board hardware overview

Two DIP switches, SW1 and SW2, can be used to change the connection of the SpaceWire LVDS pairs to different LVDS pins on the FMC HPC connector.

There are two rows of GPIO pins which are connected to the FMC connector and are available for test purposes.

First class support: As with all of STAR-Dundee's products, a year's support and maintenance is included with the FMC-SpaceWire/SpaceFibre Board. Support is provided directly from the team that developed the product allowing us to respond quickly with answers to technical questions, give assistance with application development, and resolve any problems quickly.

Specifications
Size:
- Single width PCB board approx 102mm by 68mm.

SpaceWire Ports:
- Compliant to ECSS-E50-12A and ECSS-E-ST-50-12C.
- Number of SpaceWire Ports: 4
- Connectors: 9-pin micro-miniature D-type

SpaceFibre Ports:
- 2 SpaceFibre ports, SpaceFibre EGSE connectors.
- Compliant with the latest draft of the SpaceFibre standard.

Note: This board works with the Microsemi RTG4 Dev Kit - HPC1 and HPC2.