

FM-S18 Octal SFP/SFP+ transceiver FMC

Octal fiber-optic and/or copper interfaces for Gigabit Ethernet and other high-speed serial protocols

Features

- Industry standard, modular FPGA I/O in FMC (VITA 57) module
- High-speed serial fiber optic or copper connections into an FPGA's MGT interfaces
- Two quad-SFP cage supports eight (8) SFP/SFP+ transceiver modules
- FMC compatible
- Supports wide range of SFP and SFP+ transceivers with signaling rates up to 10Gb/sec
- 2.5 volt signaling
- Two programmable reference clocks

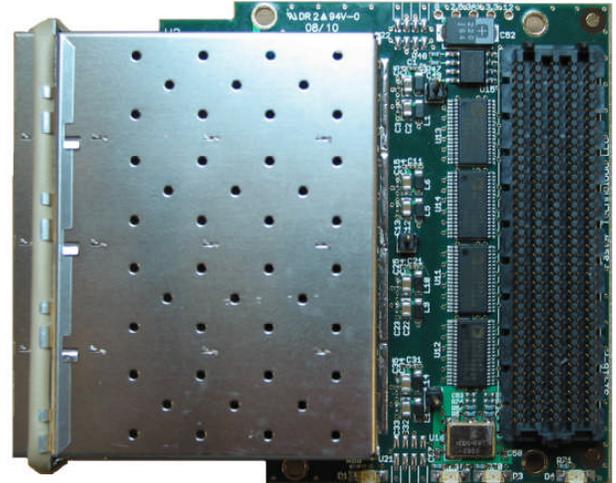
Benefits

- Direct connections between SFP/SFP+ transceivers and host FPGA ensures maximum throughput and minimum latency
- Easily interfaces high-density, high-speed I/O to FPGA-based host board
- 2.5V signaling ensure compatibility with Virtex-6 FPGAs

Overview

The FM-S18 is an FPGA Mezzanine Card (FMC) module that provides up to eight SFP/SFP+ module interfaces directly into Multi-Gigabit Transceivers (MGTs) of a Xilinx FPGA. Note: On various Xilinx FPGA families, Xilinx refers to these high-speed serial links as RocketIO ports, GTHs, GTXs, and GTPs. For simplicity, in this product brief they will collectively be referred to as MGTs. The FM-S18 supports the industry standard small form-factor pluggable (SFP) transceiver module interface.

The FM-S18 utilizes 2.5V signaling to ensure interoperability across the Spartan-6 and Virtex-6 FPGA families, as well as with previous generations of the Virtex family.



The FM-S18 is electrically compliant with the FMC standard. Due to the size of the quad SFP cages, the FM-S18 is classified as a mechanical superset of the FMC mechanical standards. Special attention should be paid to ensure that the FM-S18 is mechanically compatible if used with non-supported host carrier cards.

SFP Transceivers

The FM-S18 imposes no restrictions on SFP/SFP+ transceivers; any SFP/SFP+ transceiver that complies with the SFP or SFP+ Multi-Source Agreements (MSAs) can be mounted on the FM-S18. However, the FPGA host board on which the FM-S18 is mounted may impose restrictions on the SFP/SFP+ transceivers and clock frequencies. SFP transceivers must be ordered separately or purchased from third party suppliers.

Clocks

The FM-S18 provides two reference clocks that are available as inputs to the FPGA on the baseboard. The clocks provide programmable frequencies from 15.48 to 1300 MHz. One of the four default frequencies can be selected using switches on the FMC module. Other frequencies are programmable from the host board's FPGA via an I²C interface to the FMC module.

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FM-S18 Technical Specifications

Supported Media

- Fiber Optic SFP/SFP+ Transceivers - One (1) to eight (8) pluggable SFP or SFP+ transceivers
- Copper SFP Transceivers - One (1) to eight (8) pluggable SFP transceivers

FPGA Interface

- | | |
|--|-----------------------------------|
| FMC High Pin Count (HPC) connector | DP0 – DP7 dual differential pairs |
| Eight (8) high-speed serial FMC links | LA00-LA01 |
| I ² C reference clock control | LA02-LA03 |
| Default frequency select switches | LA04 – LA17 |
| Primary SFP control signals (7/SFP) | LA18-LA19 |
| Primary LEDs | LA20-LA23 |
| Secondary SFP control signals (7/SFP) | HA00-HA01 |
| Secondary LEDs | |

Reference Clocks (2)

- GBTCLK0-M2C & GBTCLK1-M2C
- Default frequencies of 212.5, 250, 300, 312.5 MHz.

Supported Host boards

- | | |
|-----------|----------------------|
| Spartan-6 | Xilinx EK-S6-SP605-G |
| Virtex-6 | Xilinx EK-V6-ML605-G |

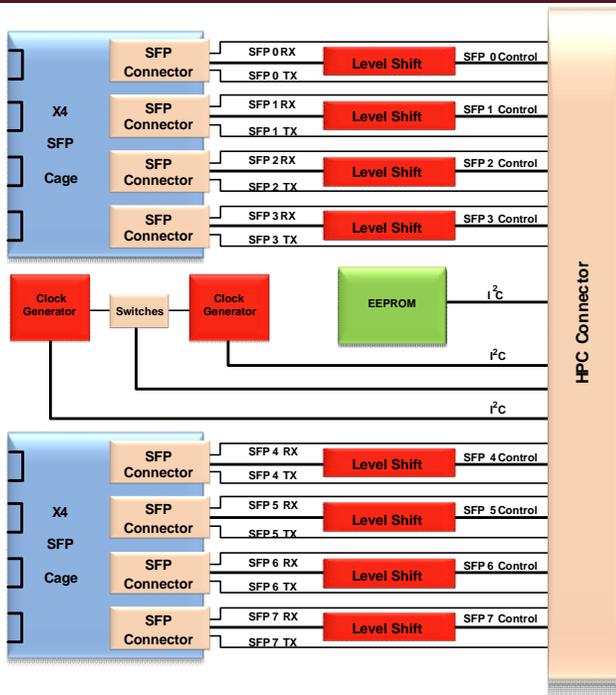
On-board serial EEPROM

- 256 Byte Serial PROM
- EEPROM interface
- I²C via FMC SCL / SDA interface
- I²C address via FMC GA0 / GA1

Miscellaneous

- FMC compliance
- ANSI/VITA 57.1-2008 compatible

Block Diagram



Related Products

- FM-S14** FMC compliant module with one quad SFP/SFP+ cage supporting up to four (4) SFP or SFP+ Modules

Ordering Information

- FM-S18** FMC compatible module with two quad SFP/SFP+ cage to support up to eight (8) SFP or SFP+ Modules