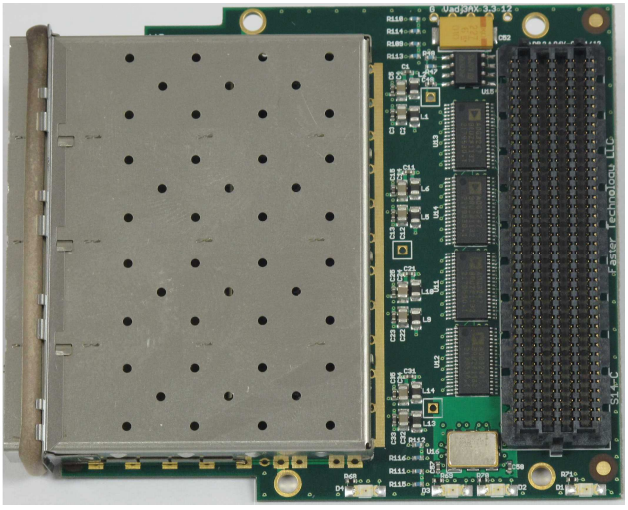
FM-S14 Quad SFP/SFP+ transceiver FMC

Quad 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
- One quad-SFP cage supports four (4) SFP/SFP+ transceiver modules
- Fully FMC compatible
- Supports a wide range of SFP and SFP+ transceivers with signaling rates up to 10Gb/sec
- 2.5 or 1.8 volt signaling (Rev C or newer)
- 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 an FPGA-based host board
- 2.5V or 1.8 volt signaling ensures compatibility with Virtex-6, Kintex-7, Virtex-7 and other FPGAs

Overview

The FM-S14 is an FPGA Mezzanine Card (FMC) module that provides up to four SFP/SFP+ module interfaces directly into Multi-Gigabit Transceivers (MGTs) of a Xilinx FPGA. Note: In 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-S14 supports the industry standard Small Form-factor Pluggable (SFP/SFP+) transceiver module interface.

The FM-S14 supports either 1.8 or 2.5 volt signaling to ensure interoperability across a wide range of Spartan, Virtex, Kintex, Artix and other FPGA families.

The FM-S14 is electrically compliant with the FMC standard. Due to the size of the quad SFP cage, the FM-S14 is classified as a mechanical superset of the FMC mechanical standards. Special attention should be paid to ensure that the FM-S14 is mechanically compatible if used with non-supported host carrier cards.

SFP Transceivers

The FM-S14 imposes no restrictions on SFP/SFP+ transceivers; any SFP/SFP+ transceiver that complies with the SFP and SFP+ Multi-Source Agreements (MSAs) can be mounted on the FM-S14. However, the FPGA host board on which the FM-S14 is mounted may impose restrictions on the SFP/SFP+ transceivers and clock frequencies. SFP transceivers must be ordered separately or from third party suppliers.

Clocks

The FM-S14 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 I^2C interface to the FMC module.

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FM-S14 Quad SFP/SFP+ transceiver FMC

FM-S14 Technical Specifications

Supported Media
- Fiber Optic SFP/SFP+ Transceivers - One (1) to four (4) pluggable SFP or SFP+ transceivers
- Copper SFP Transceivers - One (1) to four (4) pluggable SFP transceivers

FPGA Interface
- FMC High Pin Count (HPC) connector
  - Four (4) high-speed serial FMC links — DP0 – DP3 dual differential pairs
  - I^2C reference clock control — LA00 – LA01
  - Default frequency select switches — LA02 – LA03
  - SFP control signals (7 each) — LA04 – LA17
  - General purpose LEDs — LA18 – LA19

Reference clocks (2)
- GBTCLK0-M2C & GBTCLK1-M2C
- Default frequencies of 212.5, 250, 300, 312.5 MHz.

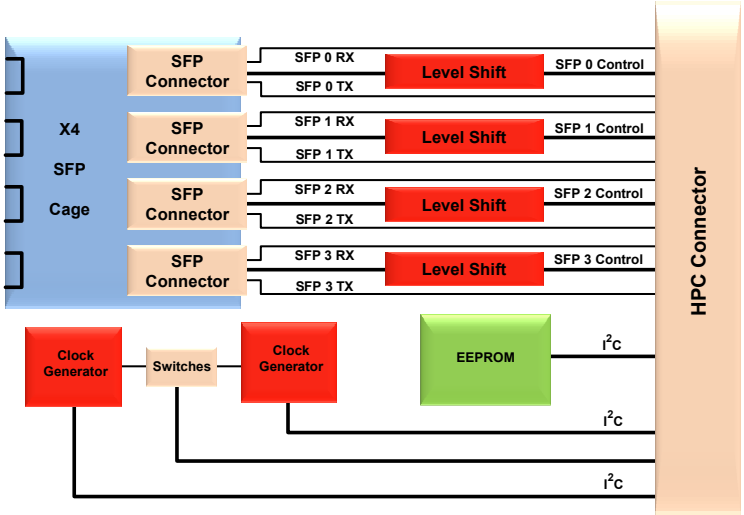
Supported Host boards

Spartan-6	Xilinx EK-S6-SP605
Virtex-6	Xilinx EK-V6-ML605
Kintex-7	Xilinx EK-K7-KC705
Virtex-7	Xilinx EK-V7-VC707

On-board serial EEPROM
- 256 Byte Serial PROM
- EEPROM interface — I^2C via FMC SCL / SDA interface; I^2C address via FMC GA0 / GA1

Miscellaneous
- FMC compliance — ANSI/VITA 57.1-2008 compatible

Block Diagram



Related Products

FM-S18	FMC compatible module with two quad SFP/SFP+ cages supporting up to eight (8) SFP or SFP+ Modules
FM-S28	FMC compatible module with two QSFP/ QSFP+ cages supporting up to two (2) QSFP or QSFP+ Modules for up to 40 Gigabits per second per QSFP+

Ordering Information

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

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