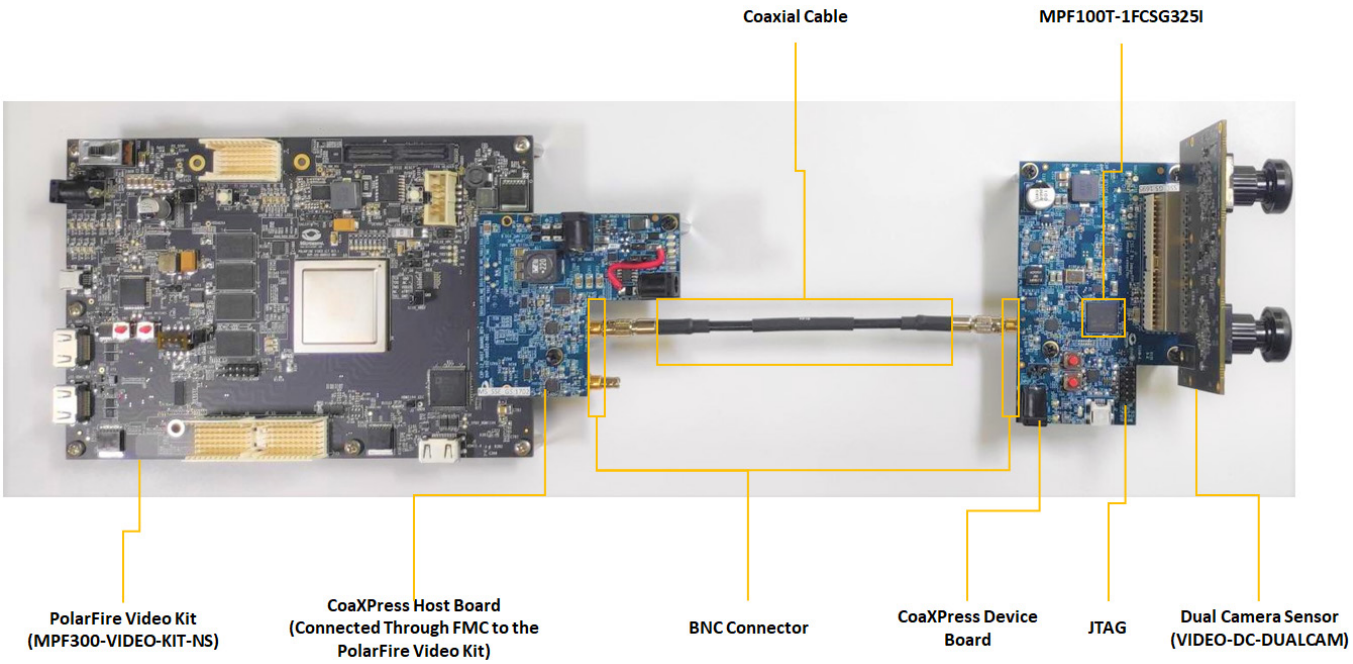
CoaXPress FMC Quickstart Card

Kit Contents - VIDEO-DC-CXP

Quantity	Description
1	CoaXPress device board with PolarFire FPGA with 100K LE MPF100T-1FCSG325I
1	CoaXPress host board
1	USB 2.0 A to Mini-B cable
1	FlashPro4
1	Coaxial HD-BNC to HD-BNC male-to-male cable
1	Quickstart card



Overview

Microchip's CoaXPress offering is a three-board solution that demonstrates high-speed transmission of high-resolution image data from a device to the host. It supports a 12.5G CoaXPress PHY and includes ready to use reference designs for quick prototyping.

Microchip's CoaXPress FMC daughter card is a hardware evaluation platform for evaluating and testing the CoaXPress protocol. The daughter card works with the PolarFire Video Kit (MPF300-VIDEO-KIT-NS) features the PolarFire FPGA device. This kit needs to be purchased separately. The kit is designed for effortless prototyping of popular imaging and video protocols including MIPI CSI-2 TX, MIPI CSI-2 RX, HDMI 1.4 TX, HDMI 2.0, DSI, and HD/3G/6G/12G SDI. With a 300K logic element (LE) PolarFire FPGA with DDR4 and SPI-flash, the kit is ideally suited for mid-bandwidth imaging and video applications.

Hardware Features

The hardware features are:

Device Board

- 12.5G CoaXPress PHY
- 100k LE PolarFire device in FCSG325 package
- Amphenol FCI connector
- One Micro BNC connectors –TX
- JTAG – programming (FP4)

Host Board

- 12.5G CoaXPress PHY
- HPC FMC connector
- Two Micro BNC connectors – RX and TX

Jumper Settings

The CoaXPress FMC daughter card comes with the following default jumper settings.

Jumper	Description	Factory Default
J7	CXP device board	Short 2–3
J19	CXP host board	Open

Programming

Microchip's PolarFire CoaXPress FMC daughter card provides programmability using the FlashPro4/5 hardware. IAP programming and debug support is also provided in the board. The PolarFire video kit must be programmed before use. An .stp file is available at https://www.microsemi.com/existing-parts/parts/150887. For more information about programming procedures, see Documentation Resources.

Running the Demo

The CXP device board comes with a pre-programmed MIPI to CoaXPress bridge. The images captured from the camera over MIPI CSI-2 are converted to CoaXPress packets by the CoaXPress IP and

transmitted over the Micro BNC connector.

To run the demo, set up the board as outlined in the following steps. For detailed instructions, refer to DG0884: PolarFire FPGA 12.5G video over CoaXPress Demo Guide.

1. Connect the FMC connector J11 on CXP host board to the FMC connector J14 on the PolarFire video kit.
2. Insert the dual-camera module (part of the PolarFire Video kit) into J1 on the CXP device board. Ensure to remove the camera lens caps.
3. Connect the Micro BNC cable from BNC_HST1 on the CXP host board to the BNC1 connector on CXP-12 device board.
4. Connect the 12 V power supply to the J20 connector on the PolarFire video kit.
5. Connect the HDMI cable from J1 HDMI_TX to the HDMI port of the display monitor.
6. Power on the PolarFire video kit by sliding SW4 to the ON position.

Software and Licensing

The Libero® SoC PolarFire Design Suite is required for designing with the PolarFire Video Kit. Libero SoC PolarFire Design Suite offers high productivity with its comprehensive, easy-to-learn, easy-to-adopt development tools for designing with Microsemi's low power Flash FPGAs and SoC. The suite integrates industry standard Synopsys Synplify Pro® synthesis and Mentor Graphics ModelSim® simulation with best-in-class constraints management and debug capabilities.

Download the latest Libero SoC PolarFire release:

https://www.microsemi.com/product-directory/design-resources/1750-libero-soc

A Gold license is required to program the PolarFire Video Kit. A Software ID letter enclosed with the kit contains Software ID and instructions on how to generate a Libero Gold license. For more information, see https://www.microsemi.com/existing-parts/parts/150804.

Documentation Resources

For more information about the CoaXPress FMC daughter card, including schematics and user's guides, see the documentation at https://www.microsemi.com/existing-parts/parts/150887.

Support

For Technical Support, please login and create a case using the support portal at https://soc.microsemi.com/Portal/Default.aspx.

Microsemi sales offices, including representatives and distributors, are located worldwide.

Microsemi Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com

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