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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 USXGMII FMC, including schematics and user's guides, see the documentation at <https://www.microsemi.com/existing-parts/parts/150889>.

Support

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

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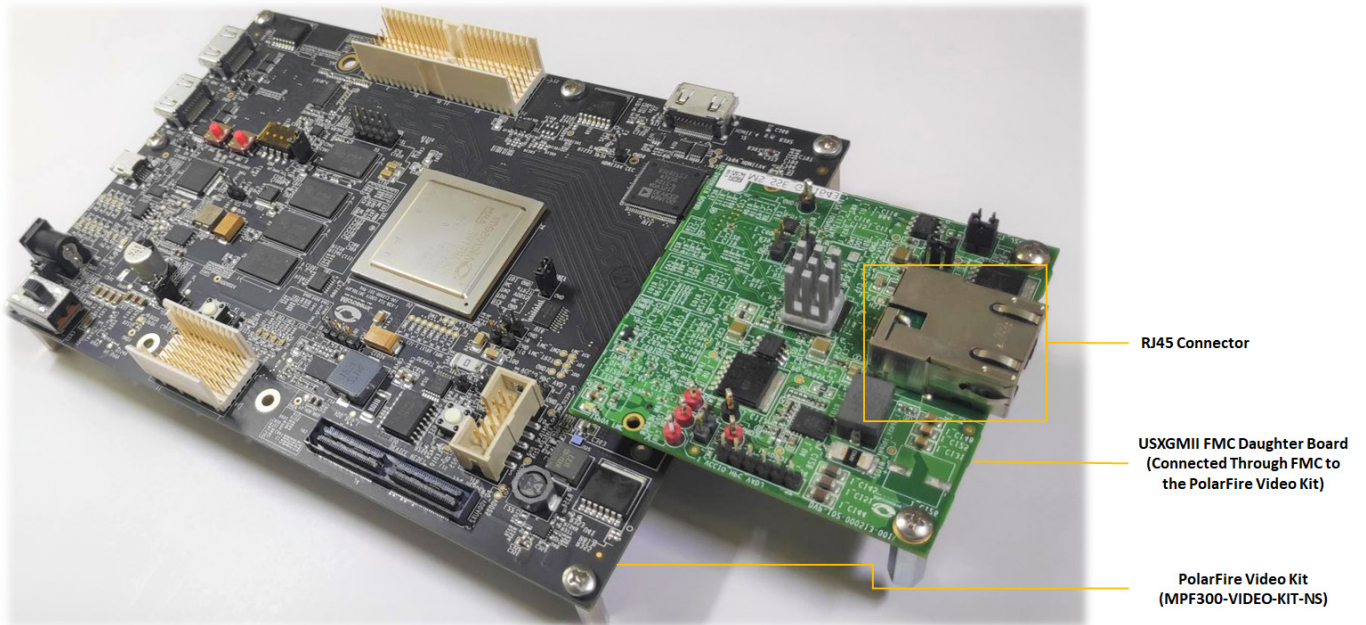
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USXGMII FMC Kit Quickstart Card

Kit Contents - VIDEO-DC-USXGMII

Quantity	Description
1	USXGMII FMC Card
1	Quickstart card



Overview

Microchip's USXGMII solution is a 2-board solution and supports 10 Gbps/5 Gbps/2.5 Gbps/1 Gbps/100 Mbps rates.

The USXGMII FMC daughter card is a hardware evaluation platform for evaluating and testing the quad rate PHY IP. The daughter card works with the PolarFire Video Kit, which 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 USXGMII. 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:

- Quad rate PHY (10 Gbps/5 Gbps/2.5 Gbps/1 Gbps/100 Mbps)
- RJ45 connector

Programming

The PolarFire Video Kit must be programmed before use. A programming file is available at <https://www.microsemi.com/existing-parts/parts/150889>. For more information about programming procedures, see [Documentation Resources](#).

Running the Demo

To run the demo, set up the board as outlined in the following steps. For detailed instructions, refer to DG0885: PolarFire FPGA USXGMII Demo Guide.

1. Connect a USXGMII compliant traffic generator or checker equipment and a host PC to the LAN over CAT6 cables.

Note: This demonstration uses the Spirent TestCenter Chassis Model: SPT - N4U as the USXGMII compliant traffic generator or checker.

2. Connect the host PC to the PolarFire Video kit through J12 using a USB mini cable.
3. Connect the FMC connector J11 on USXGMII board to the FMC connector J14 on the PolarFire Video Kit
4. Connect the RJ45 connector on the USXGMII board to the connector on a USXGMII compliant traffic generator/checker equipment.
5. Connect the 12 V power supply to the J20 connector on the PolarFire Video Kit
6. Power on the PolarFire Video Kit by sliding the SW4 to the ON position.
7. Power-up the Host PC and the USXGMII compliant traffic generator or checker equipment .
8. Configure the USXGMII compliant traffic generator or checker to advertise 10GBASE-T traffic.
9. Launch TeraTerm to use the third available FlashPro5 Port and a baud rate of 115200.

10. Reset the design or power cycle the PolarFire video kit.
11. Observe the UART messages for the completion of PHY initialization, AN enabled between the external PHY and USXGMII, MAC configuration, and the 10G clock configured message.

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