

## 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 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>.

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](mailto:sales.support@microsemi.com)  
[www.microsemi.com](http://www.microsemi.com)

Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Learn more at [www.microsemi.com](http://www.microsemi.com).

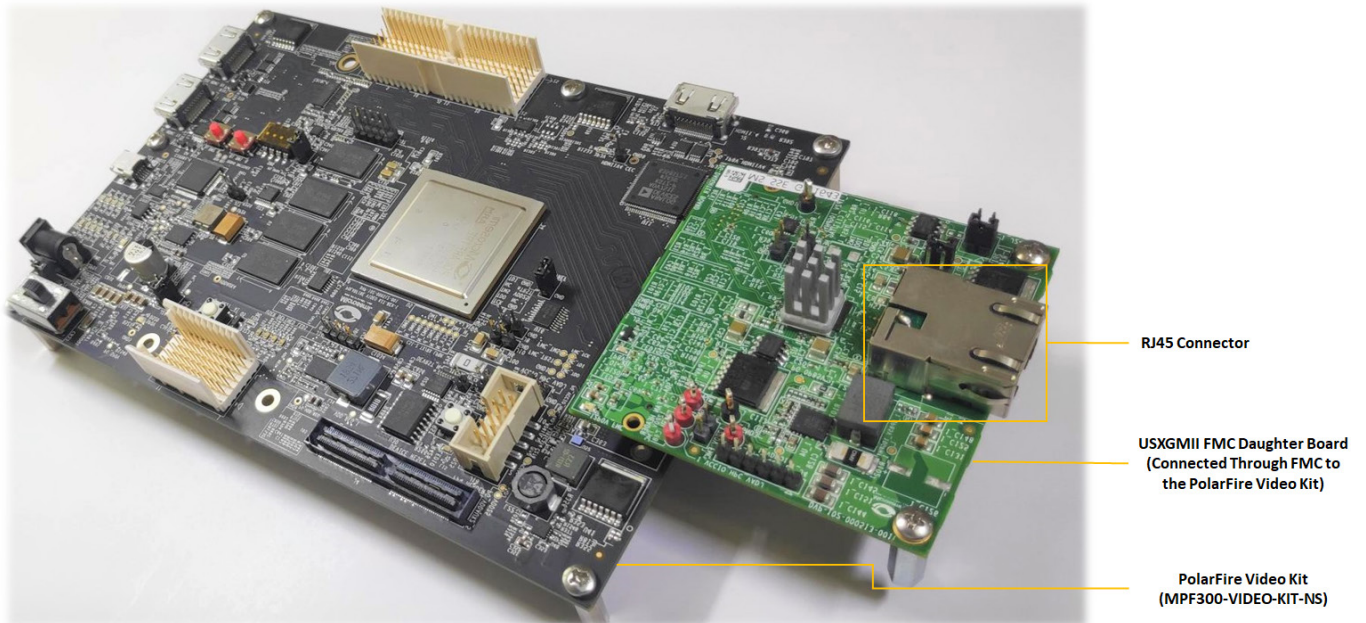
Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

©2019 Microsemi, a wholly owned subsidiary of Microchip Technology Inc. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

## 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.