logicBRICKS®
Designed by XYLON

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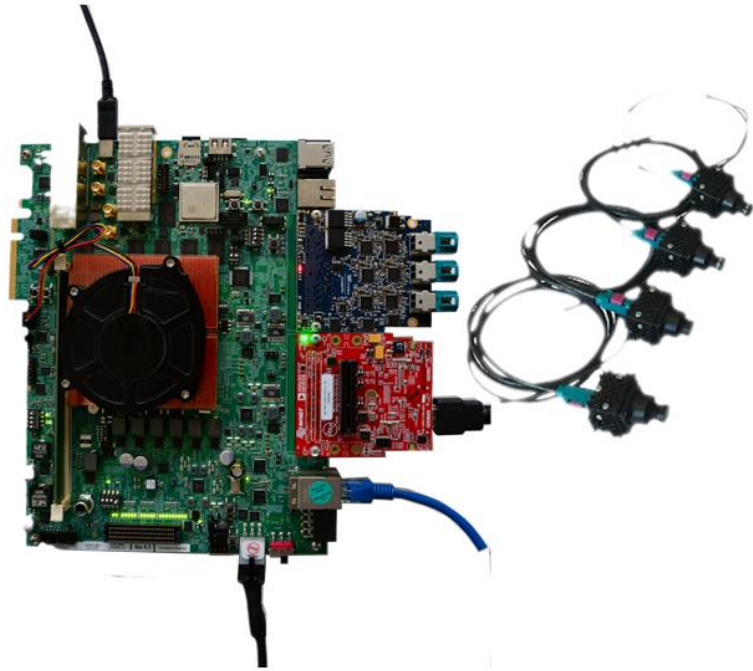URL: www.logicbricks.com

Figure 1: Xilinx VCK190 Evaluation Board with Xylon's logiVID-ACAP Kit Attached

⚠ Xilinx Versal AI Core Series VCK190 Evaluation Kit must be purchased from Xilinx and distributers. logiVID-ACAP hardware components can be purchased directly from Xylon.

Features

- Complete and flexible design platform for embedded multi-camera vision applications
- Prepared for use with Xilinx® Versal™ Adaptive Compute Acceleration Platform (ACAP) device
- Supports the next generation Maxim Integrated GMSL2 automotive high-speed serial interface
- Licensable reference design (logiREF-VDF-ACAP Video Design Framework) demonstrates video capture and display of four camera inputs
- Input video resolution: 1928x1208@30fps
- Output video resolution: 1928x1080@60fps
- The design is fully prepared for Xilinx Vivado® Design Suite 2019.2
- Enables vision developers to quickly add their own algorithms to the provided infrastructure

- Provided demo runs on Linux OS and includes logicBRICKS software drivers and applications
- Compatible with Xilinx PetaLinux tools
- The logiVID-ACAP hardware platform includes:

  - 1x Avnet* HDMI Input/Output FMC board
  - 1x Xylon GMSL2 video input FMC board
  - 4x Xylon 2.3MP automotive video camera
  - 4x Rosenberger® FAKRA cables (5 m)
  - 1x Rosenberger HFM® to 4x FAKRA cable assembly

- Documentation and Tech support (e-mail)

* Avnet Part number AES-FMC-HDMI-CAM-G

Applications

- AD/ADAS, guided robotics, drones, machine vision, AR/VR and other vision applications

General Description

The logiVID-ACAP Vision Development Kit provides system designers with tools necessary for efficient development of multi-camera vision applications on Xilinx' Versal AI Core ACAP devices. The hardware platform includes four Xylon's 2.3MP automotive video cameras with cabling, a 12-Ch GMSL video input FMC add-on card, and an HDMI video output FMC card.

The kit can be upgraded with the complete and licensed logiREF-VDF-ACAP Video Design Framework with pre-verified reference design implemented by Xylon's logicBRICKS IP cores. All IP cores are supplied with bare-metal and Linux software drivers. The video capture and display demo applications run in Linux OS.
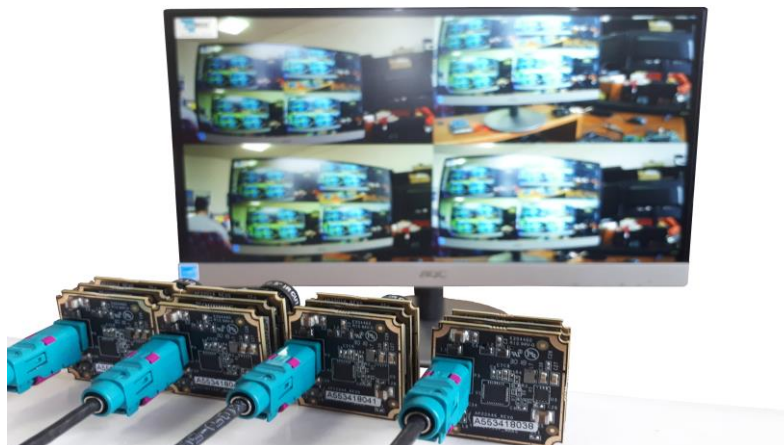

Figure 2: The Framework Provides Complete Multi-Camera-to-Display MPSoC Designs

Xylon's logicBRICKS IP cores and design files are prepared for Xilinx' Vivado Design Suite. This complete camera-to-display ACAP design uses just a fraction of available programmable logic and significantly saves design time. Instead of starting from scratch and having to spend months designing and building a new design framework, logiVID-ACAP users can immediately focus on specific vision-based parts of their next ACAP design.

logiREF-VDF-ACAP Video Design Framework

To get more information about the logiREF-VDF-ACAP framework, please read the following datasheet:
http://www.logicbricks.com/Documentation/Datasheets/IP/logiREF-VDF-ACAP_hds.pdf.

The fully functional evaluation version of the logiREF-VDF-ACAP Video Design Framework is available for download:
https://www.logicbricks.com/logicBRICKS/Reference-logicBRICKS-Design/ACAP-Multi-Camera-Vision-Demo.aspx

Xylon's logicBRICKS IP core used in the logiREF-VDF-ACAP reference design is licensed through Xylon's Low-Volume IP Program: http://www.logicbricks.com/logicBRICKS/Low-Volume-IP-Program.aspx.

Xylon's Automotive Video Camera

Packed in a compact, only a cubic inch big waterproof aluminum housing, Xylon's new automotive video camera provides excellent performance. Based on the Semiconductor® AR0231AT CMOS image sensor, the camera provides 30 Frames per Second (fps) of color 2.3 MP (1928x1280) video processed by an internal FPGA video processor. The FPGA integrates Xylon's complete logicBRICKS High Dynamic Range (HDR) Image Signal Processing (ISP) pipeline. Depending on the camera's version, the supported communication interface can be either the GMSL2 or the FPD-Link III high-speed serial interface. Cameras supplied with the logiVID-ZU kit are equipped with the Sunex® NoGhost™ DSL977A miniature lens and short coax-cable leads with the Rosenberger FAKRA Z type connector.

Figure 3: Xylon's logiCAM-GMSL2-AR0231 Video Camera

Xylon's Automotive Video FMC Card

The logiVID-ACAP kit includes the logiFMC-GMSL2 video input FMC card. This add-on card is designed primarily to enable quick prototyping and evaluation of automotive multi-camera Advanced Driver Assistance (ADAS) and Autonomous Driving (AD) applications. It enables easy interfacing of up to twelve (12) automotive video cameras to hardware boards based on Xilinx' FPGA, SoC, MPSoC and ACAP video and vision processors.

Figure 4: Xylon's logiFMC-GMSL2 FMC Card

https://www.logicbricks.com/Products/logiFMC-GMSL2.aspx

Related Design Services

Design services are available to customers interested in customization and enhancement developments based on the presented hardware and software products. For more information, please contact Xylon at info@logicbricks.com.

Related Xylon Products

The logiADAK Automotive Driver Assistance kit is a great programmable platform for upcoming automotive ADAS/AD applications. The kit comes with a full set of user-customizable demo applications, advanced software for quick setup on any vehicle, documentation and skilled Xylon technical support. The provided hardware platform is appropriate for quick test vehicle installations and rapid engagements in proof-of-concept or demonstration projects:

> Email: support@logicbricks.com
> URL: http://www.logicbricks.com/Products/logiADAK.aspx

Xylon's logiISP-UHD Image Signal Processing Pipeline IP core is a full high-definition ISP pipeline designed for digital processing and image quality enhancements of an input video stream in Smarter Vision embedded designs based on Xilinx' All Programmable devices. The logiISP-UHD ISP pipeline IP core can be supplemented with the logiHDR High Dynamic Range (HDR) Pipeline. To learn more, please visit our website:

> URL: http://www.logicbricks.com/Products/logiISP.aspx
> URL: http://www.logicbricks.com/Products/logiHDR.aspx

Ordering Information

Products are available directly from Xylon. Please visit our web shop or contact Xylon for pricing and additional information:

> Email: sales@logicbricks.com
> URL: http://www.logicbricks.com/Products/logiVID-ACAP.aspx

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Related Information

Xilinx Programmable Logic

For information on Xilinx programmable logic or development system software, contact your local Xilinx sales office, or:

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Revision History

Version	Date	Note
1.00	01.04.2020.	Initial public release.