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Figure 1: logiCAM-FPD3-AR0231 2.3 MP HDR Automotive Video Camera

Features

- On Semiconductor® 2.3 MP AR0231AT RCCB 1/2.7" CMOS Image Sensor
- Maximum output resolution: 1928x1208
- Video refresh rate: 30 Frames per Second (fps)
- Video output format: color 8-bit YUV422
- High Dynamic Range (HDR) Image Signal Processing (ISP) integrated in the camera helps vision algorithms work in all light conditions
- Internal video processor is based on programmable Xilinx® FPGA device
- FPGA ISP built by Xylon's logicBRICKS IP cores is SW configurable by end user
- Data interface is FPD-Link III high-speed serial interface from Texas Instruments, Inc
- POC - powered over the FPD-Link III coax cable
- Currently available with Sunex DSL182B (fisheye) and FIFO Optics 05525FM lenses
- Lens calibration compatible with Xylon's logiVIEW IP core can be delivered on request
- Only a cubic inch big aluminum housing provides excellent dust and water protection:
 - Dimensions: 26 mm x 26 mm x 26 mm
 - Weight: 41 g
 - Operation temperature: -40°C~75°C
 - Storage temperature: -40°C~125°C
 - Water proof: (TBD. Targeted IP65)
- Industry popular Rosenberger® FAKRA Z TYPE connector integrated in the enclosure
- Delivered with a coaxial cable with FAKRA connectors on both ends (5 m) and optional passive coolers for extended temp. range
- Enclosure fixing points enable easy integration in vehicles of different sizes and shapes
- Initialization scripts, reference designs and supporting hardware for Xilinx MPSoC and ACAP evaluation platforms available from Xylon
- Documentation and Tech support (e-mail)

Applications

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



Minimum Order of Quantity (MOQ) of one!

General Description

Packed in a compact, only a cubic inch big waterproof and black anodized aluminum housing, Xylon's 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 (1928x1208) video processed by an internal FPGA video processor.

Internal FPGA video processor integrates Xylon's complete logicBRICKS High Dynamic Range (HDR) Image Signal Processing (ISP) pipeline designed by versatile logicBRICKS IP cores that enable excellent visibility in all light conditions.

The camera outputs a color video by default, but users can reprogram the video processing pipeline through software and adapt the video output to their needs. Aside from software programmability, on user's request, Xylon also provides an option to change hardware architecture of the FPGA vision processor through design services.

Xylon logiCAM-FPD3-AR0231 uses the FPD-Link III serial interface from Texas Instruments, Inc for video transfers through tiny coaxial cables. The housing is equipped with the popular Rosenberger FAKRA Z type connector to enable easy integration with third-party equipment. Xylon delivers cameras with calibrated and focused fisheye lenses. All cameras come with a 5-meter-long cable with Rosenberger connectors on both ends.



Figure 2: Housing backside with the Rosenberger FAKRA Z TYPE Connector



Figure 3: Optional Heat Sinks Mounted to Fixing Points (Extended Temp Range)

Mechanical Dimensions

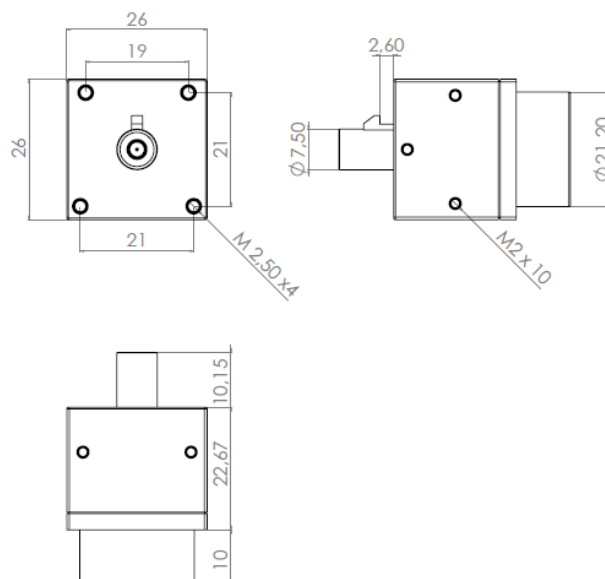


Figure 4: Housing Mechanical Dimensions [mm]

Evaluation Platform

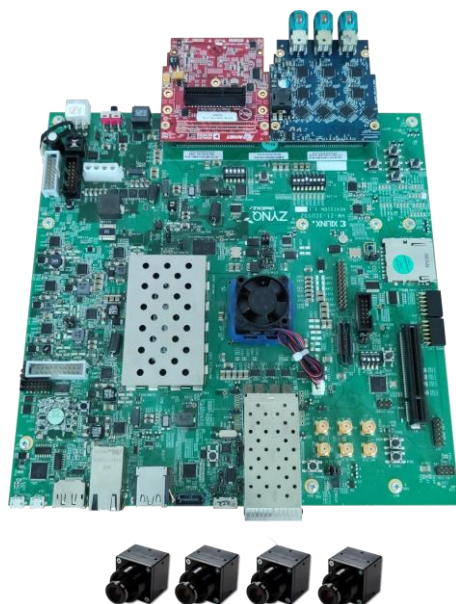


Figure 5: logiVID-ZU-FPD3 MPSoC Vision Development Kit

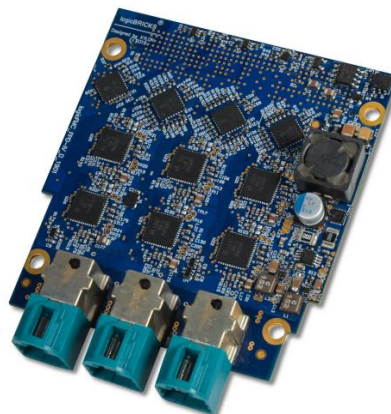


Figure 6: Xylon's logiFMC-FPD3-954 12-Ch FMC Card

Through the industry standard FPD-Link III serial interface, the logiCAM-FPD3-AR0231 video camera can connect to various third-party electronics systems. Xylon provides documentation and initialization scripts necessary to operate the video camera in hardware agnostic ways.

Additionally, Xylon provides a full range of supporting products for designers of automotive and other systems based on Xilinx programmable devices. For example, the logiVID-ZU Vision Development Kit provides system designers with everything they need to efficiently develop multi-camera vision applications on Xilinx' Zynq UltraScale+ MPSoC devices. The complete hardware platform includes four Xylon's 2.3MP automotive video cameras and supports HDMI video input and HDMI video output.

Kit deliverables include the complete and licensed logiADAK-VDF-ZU Video Design Framework with pre-verified reference designs implemented by Xylon's logicBRICKS IP cores. The video capture and display demo applications run in Linux OS and demonstrate stitching of four video inputs on one display screen.

More information about this kit can be found at: <http://www.logicbricks.com/Products/logiVID-ZU.aspx>

The fully functional evaluation version of the logiADAK-VDF-ZU Video Design Framework is available for download:

<http://www.logicbricks.com/logicBRICKS/Reference-logicBRICKS-Design/MPSoC-Video-Design-Framework.aspx>

The logiVID-ZU kit integrates Xylon's logiFMC-FPD3-954 add-on video input FMC card. Designed primarily to enable quick prototyping and evaluation of automotive multi-camera Advanced Driver Assistance (ADAS) and Autonomous Driving (AD) applications, this FMC card 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: <https://www.logicbricks.com/Products/logiFMC-FPD3-954.aspx>.



Please note that Xylon offers an equivalent video camera (logiCAM-GMSL2-AR0231) compatible with the GMSL2 serial interface from Maxim Integrated.

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

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

When ordering, please make sure to use the correct product code from the table below:


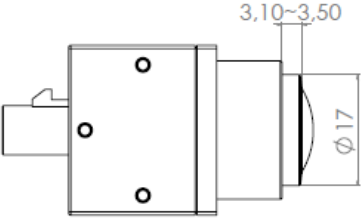

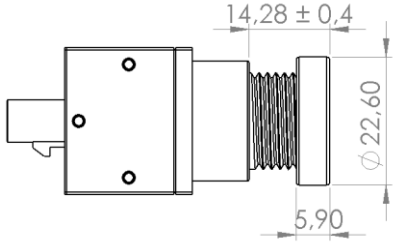
logiCAM-FPD3-AR0231-DSL182B	logiCAM-FPD3-AR0231-05525FM
<div style="text-align: center;">  </div> <p style="text-align: center;"> Lens: Sunex DSL182B F#: F/2.2 FOV(H): 194° IR Cut filter: 650 nm Mount: M12 </p> <div style="text-align: center;">  </div>	<div style="text-align: center;">  </div> <p style="text-align: center;"> Lens: FIFO Optics FIFO-05525FM F#: F/1.8 FOV(H): 55.4° IR Cut filter: 650 nm Mount: M12 </p> <div style="text-align: center;">  </div>

Table 1: logiCAM-FPD3-AR0231 with Currently Available Lenses

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/logiCAM-FPD3-AR0231.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:

Xilinx, Inc.
2100 Logic Drive
San Jose, CA 95124
Phone: +1 408-559-7778
Fax: +1 408-559-7114
URL: www.xilinx.com

Texas Instruments, Inc

For information on Texas Instruments video high-speed serial links:

Texas Instruments, Inc
12500 TI Boulevard
Dallas, TX 75243
URL: www.ti.com

Sunex

For information on Sunex optics lenses:

Sunex
Carlsbad, CA
URL: <https://www.sunex.com/>

Revision History

Version	Date	Note
1.00	26.11.2020.	Initial release.