



**OPAL-RT**  
4DRIVE



# OP4855 XYON

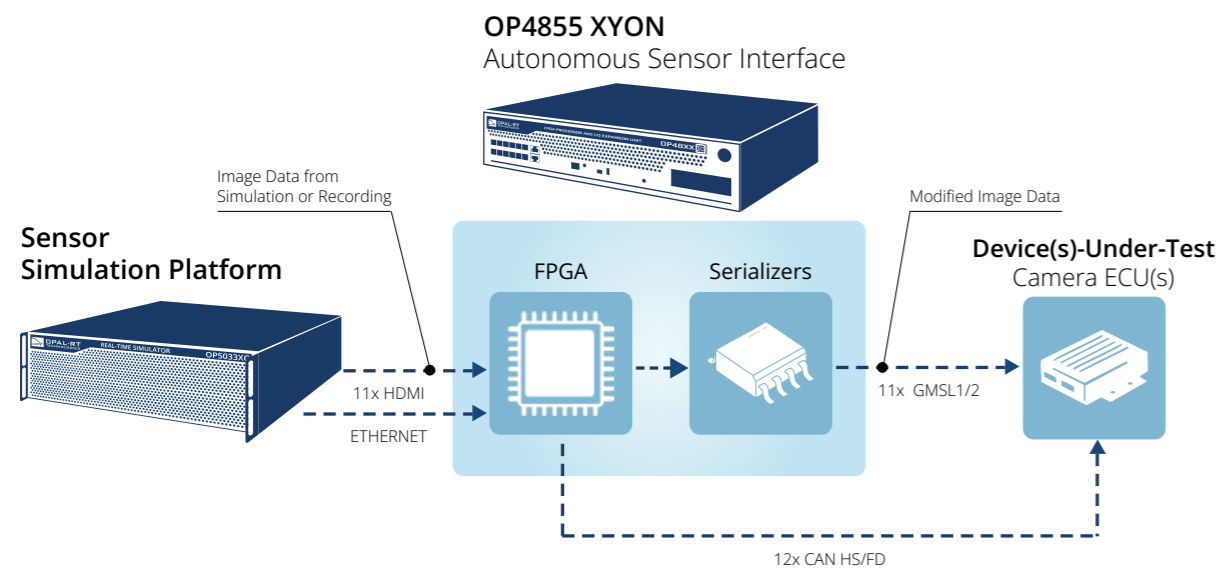
**AUTONOMOUS SENSOR INTERFACE**  
FOR DIRECT RAW CAMERA DATA INJECTION



[opal-rt4drive.com/en/hardware/op4855-xyon/](http://opal-rt4drive.com/en/hardware/op4855-xyon/)

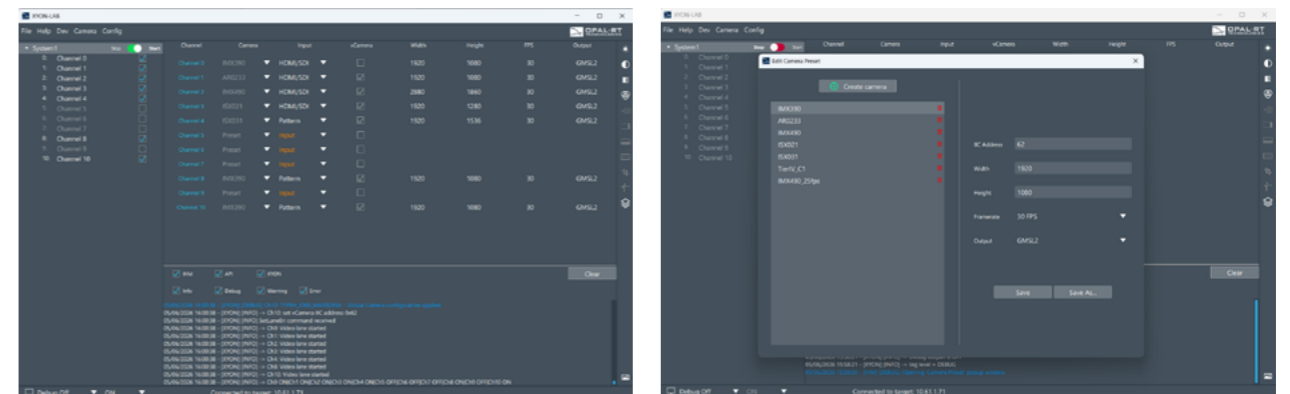
# XYON DIRECT CAMERA INJECTION DONE RIGHT

The **OP4855 XYON Autonomous Sensor Interface** is a high-performance solution for **Direct Injection Camera ECU testing**, designed for the demanding needs of autonomous systems engineers. Testing camera ECUs through traditional **Over-the-Air (OTA)** setups can be expensive, limited, and challenging. **OP4855 XYON** offers a streamlined alternative, enabling users to test up to 11 camera channels using simulated or pre-recorded camera data. Read on to discover how **OP4855 XYON** can elevate your testing capabilities and redefine what's possible in autonomous systems development.



## Easy Configuration with XYON LAB HMI

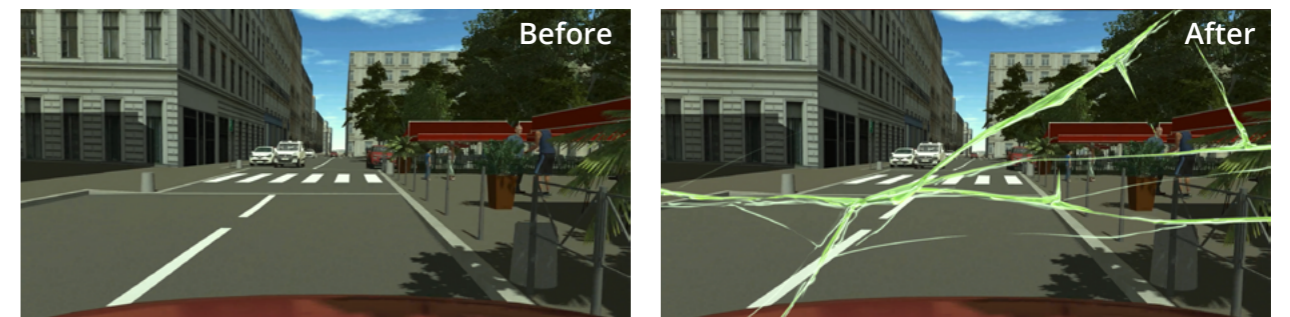
Each of OP4855 XYON's video channel can be configured independently using its streamlined HMI, **XYON LAB**. This allows users to configure parameters including resolution, frame rate, and pixel format.



## Advanced Raw Image Manipulation

**OP4855 XYON** also includes the following image processing capabilities to provide the highest degree of test coverage possible and ensure that your systems are reliable and robust:

- Brightness
- Saturation
- Contrast
- Color gain
- Static or dynamic image overlays for camera fault generation



## Solution Highlights



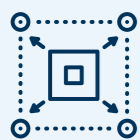
### A Platform Made for HIL

OP4855 XYON's low-latency architecture allows for fast loop rate high-fidelity direct camera ECU injection testing so you can make Over-the-Air (OTA) tests a thing of the past.



### Easy Data Modification

Use OP4855 XYON's intuitive HMI to configure camera resolution and inject errors or overlay images onto raw camera datastreams. Easily repeat identical tests with varying input data for comprehensive validation.



### Full Test Coverage

Over-The-Air solutions fall short for critical scenarios like glare tests, covering only 80% of use cases. With our injection technology, you can unlock the full spectrum of testing, including corner cases, and ensure complete reliability.



### Leverage Real Camera Devices

Connect OP4855 XYON to real camera devices to allow backchannel communication with ECU and facilitate test configuration.



## Take a Closer Look at OP4855 XYON in Action

Discover the details including how OP4855 XYON's HMI was designed to help you configure and implement tests.

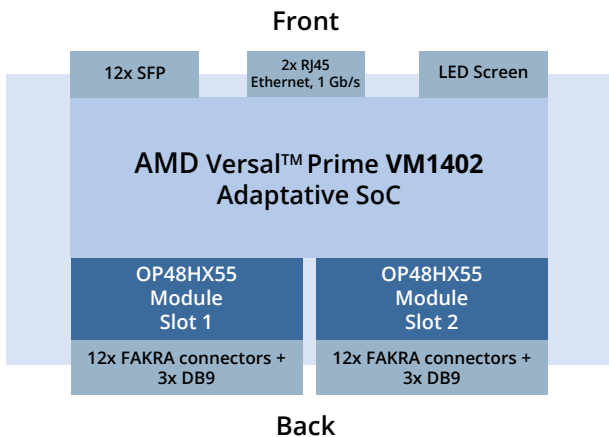


## GENERAL SPECIFICATIONS

<b>FPGA</b>	AMD Versal™ Prime VM1402 Adaptive SoC including programmable logic and Arm Cortex processors
<b>Software</b>	XYON LAB HMI for system control via Ethernet
<b>Ethernet</b>	RJ45 Ethernet 1Gbit/s
<b>Power Supply</b>	Input voltage: 115 VAC +/-15 V, 220 VAC +/-20 V Input frequency: 50-60 Hz Power: 250 W
<b>Dimensions and Weight</b>	Rack Unit: 2U 43.2 cm (W) x 40.6 cm (D) x 8.8 cm (H) 17" (W) x 16" (D) x 3.45" (H) 6.6 kg (14.5 lbs)

## ARCHITECTURE

**OP4855 XYON's** architecture is built on an AMD Versal™ Prime FPGA and was designed to meet the most demanding requirements of autonomous system ECU testing. **OP4855 XYON** modules are directly interfaced with the FPGA to ensure the lowest latency possible across all 11 video channels. The Versal™ FPGA was selected to be flexible and future proof to ensure support of current and next-generation applications, guaranteeing the longevity of your investment. **OP4855 XYON** also support up to 12 CAN channels compatible with CAN HS and CAN FD. CAN configuration is done through an intuitive API.



## GENERAL SPECIFICATIONS

<b># of HDMI Inputs</b>	Up to 11 HDMI connectors to receive 11 video streams simultaneously from a sensor simulator.
<b>HDMI Input Format</b>	Standard HDMI 1.4/2.0 video formats up to 1920x1080@60Hz or 3840x2160@30Hz.
<b>LVDS Outputs</b>	Up to 11 GMSL1/2 serializers to connect 11 video streams simultaneously to a controller. Custom video formats up to 6 Gbit/s.
<b>Camera Interface</b>	Up to 11 connectors for I <sup>2</sup> C communication with standard cameras.
<b>Video Debug Output</b>	HDMI 2.0 output up to 3840x2160@30Hz.
<b>CAN</b>	Up to 12 CAN channels supporting CAN HS and CAN FD

## I/O AND CONNECTORS

### Front view

1. Power and Reset push button with LED indicator
2. 12x SFP sockets to be used with HDMI converters
3. 2x Ethernet RJ45 ports at 1 Gb/s
4. Optical synch connectors
5. IRIG-B @ 1 PPS
6. USB port for JTAG programming
7. FPGA unit status indicators
8. LCD menu button selection
9. LCD display



### Back view

1. Power cord plug and master power on/off switch
2. 12x FAKRA connectors Slot 1
3. 12x FAKRA connectors Slot 2
4. Ground screw
5. PCI Express Gen3 x4 port
6. 3x DB9 connectors Slot 1 (2 CAN channels in each DB9)
7. 3x DB9 connectors Slot 2 (2 CAN channels in each DB9)



## About OPAL-RT TECHNOLOGIES



Founded in 1997, OPAL-RT TECHNOLOGIES is a world leading provider of Real-Time Simulators made for Hardware-in-the Loop (HIL), Software-in-the-loop (SIL) and Rapid Control Prototyping (RCP) applications. OPAL-RT serves industrial, academic and government customers within the automotive, transportation, heavy machinery, robotics and energy sectors.

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