

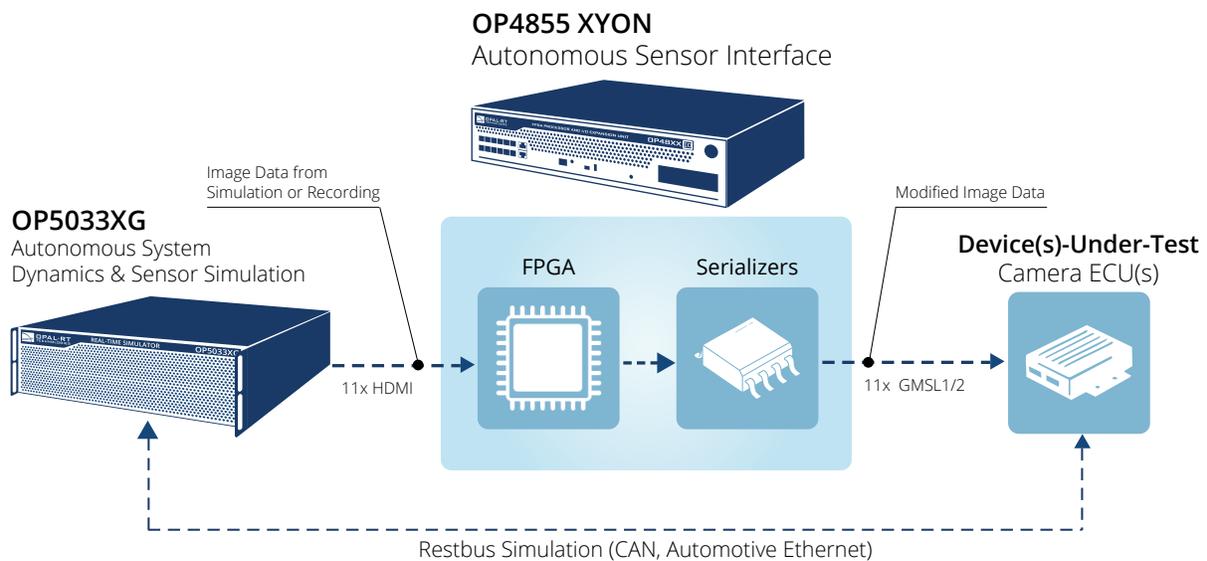
# OP4855 **XYON**

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



# XYON DIRECT CAMERA INJECTION DONE RIGHT

The **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. **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 **XYON** can elevate your testing capabilities and redefine what's possible in autonomous systems development.



## Solution Highlights



### A Platform Made for HIL

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 XYON's intuitive HMI to inject errors or overlay images and video onto raw camera data streams. Easily repeat identical tests with varying input data for comprehensive validation.



### Full Test Coverage

OTA 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 Cameras Devices

Connect XYON to real camera devices to facilitate test configuration and improve simulation fidelity.

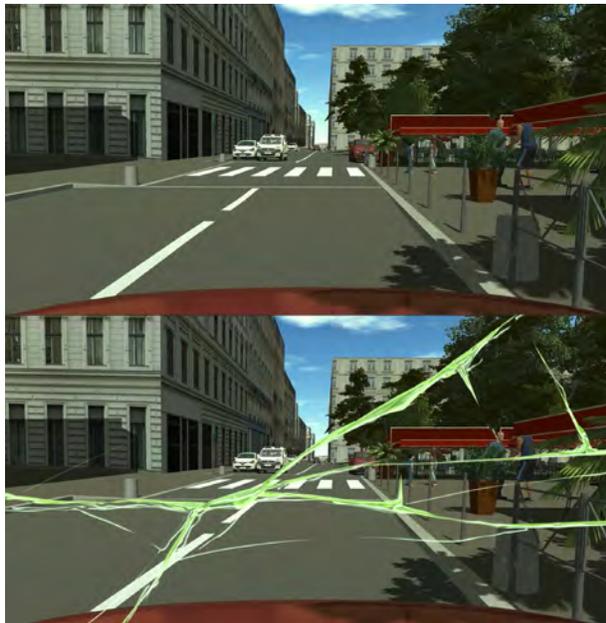


## Advanced Raw Image Manipulation

Each of 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. **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:

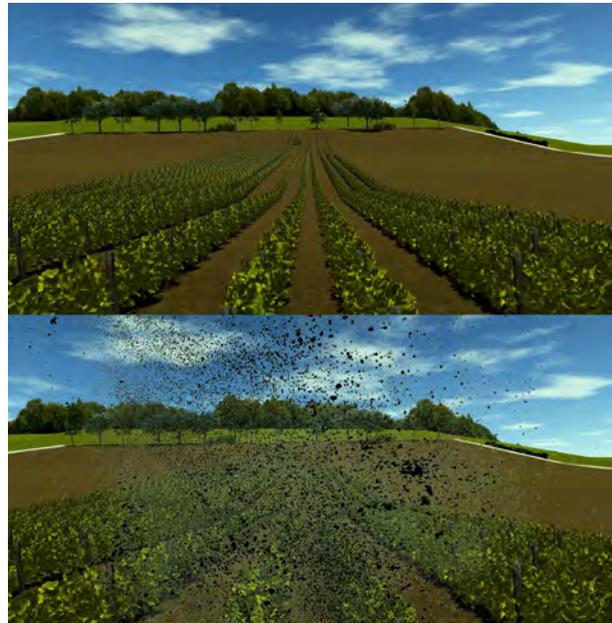
- Brightness
- Saturation
- Contrast
- Color gain
- Static or dynamic image overlays for camera fault generation (see images below)

Before



After

Before



After



## Take a Closer Look at XYON in Action

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

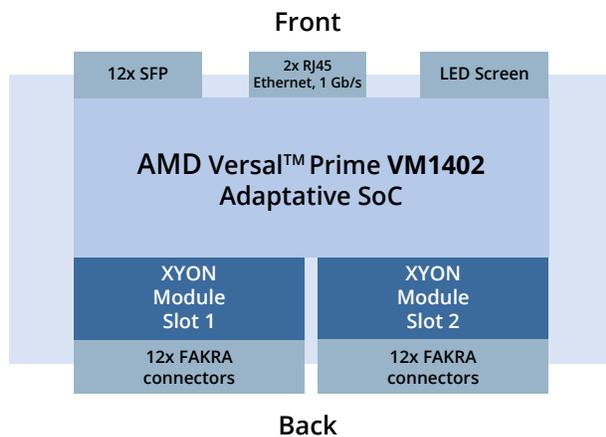


## GENERAL SPECIFICATIONS

<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

**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. **XYON** modules are directly interfaced with the FPGA to ensure the lowest latency possible across all 11 channels. The Versal™ FPGA and SFP inputs were selected to be flexible and future proof to ensure support of current and next-generation applications, guaranteeing the longevity of your investment.



## 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>Debug Output</b>	HDMI 2.0 output up to 3840x2160@30Hz.

## 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 synchronizers
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



## 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.