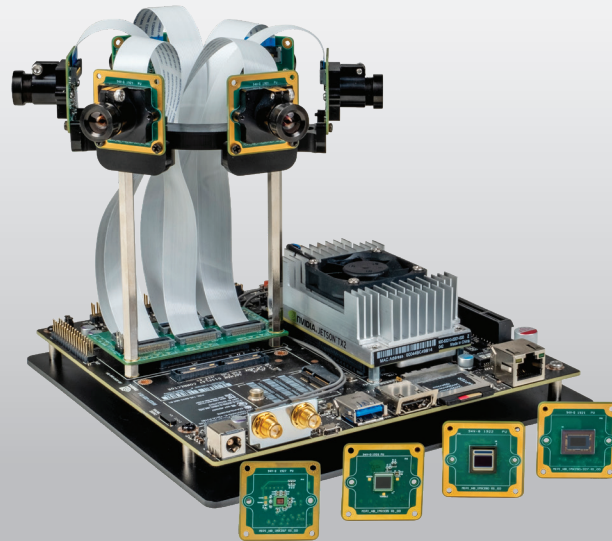


## MIPI® CSI-2 / FPD-Link® III Camera Modules



The Imaging Source MIPI® CSI-2 camera modules are the perfect choice for industrial embedded-imaging solutions. The new product line features a variety of compact industrial sensor modules and supported platforms. The embedded target platform's ISP allows for the direct execution of post-processing tasks such as demosaicing, and color correction.

For applications where longer cable lengths are required, The Imaging Source offers a bridge solution using the FPD-Link® III protocol. The FPD-Link III bridge allows for cable lengths up to 15 m and simultaneous data transmission, control channels and power over a single compact coaxial cable.

The Imaging Source provides embedded system solutions based on the powerful embedded platform NVIDIA Jetson TX2. In addition to its powerful GPU, it offers a dedicated ISP which processes 12 CSI-2 camera lanes with up to 1.5 Gb/s per lane and up to six simultaneous camera streams. Furthermore, the ISP completes post-processing tasks such as denoising, sharpening, color correction and image scaling operations.

Start developing your embedded applications immediately with our pre-built OpenEmbedded images and layers for The Imaging Source's supported platforms or create your own images for sensor configuration.

### Features

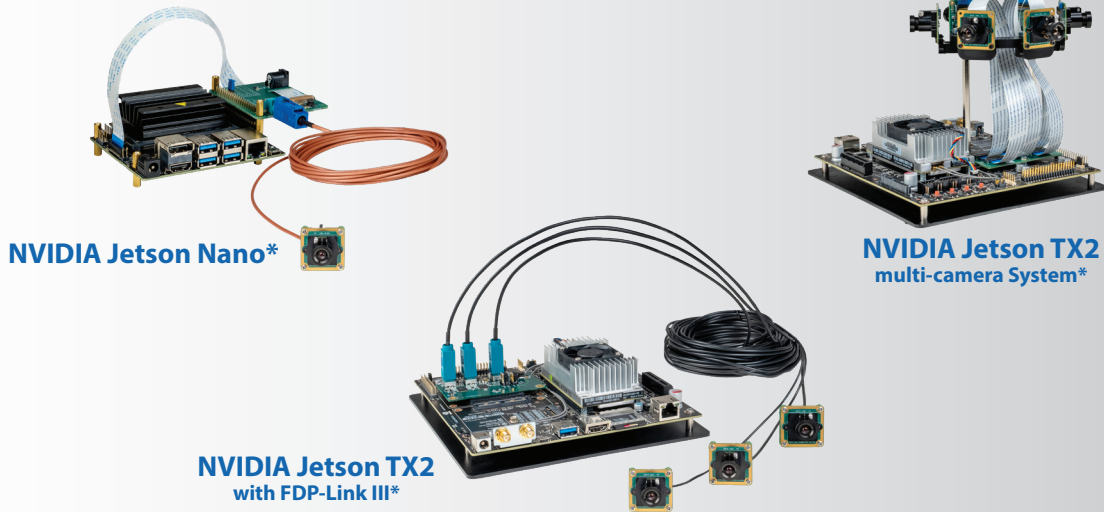
- Variety of CMOS sensors available
- FPD-Link III serializer / deserializer available for cable lengths up to 15 m
- Supported platforms: NVIDIA Jetson TX2, NVIDIA Jetson Nano, NVIDIA Jetson AGX Xavier

### End-user Software

- Pre-built OpenEmbedded images for standard sensor configurations
- OpenEmbedded layers available to build your own images



## Supported Platforms and Sensor Modules



\* Images for illustration purposes only.

## Supported Sensor Modules

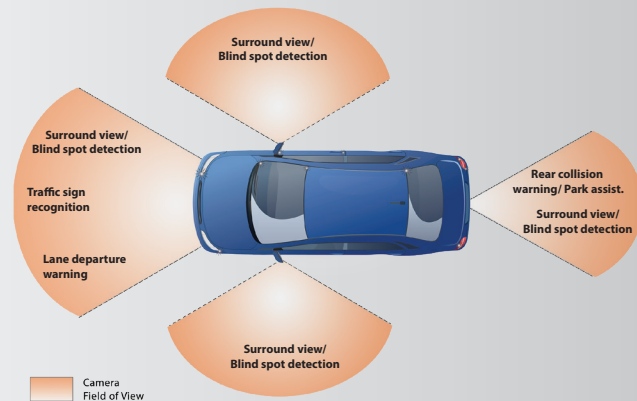
Model	Resolution (MP)	Frame Rate (max.)	Pixel Size	Sensor / Type	Sensor Format	Shutter	Chroma
DMM 37EX397-ML	640x480 (0.3 MP)	240 fps	3.45 μm	Sony IMX397 / Pregius	1/6.4" CMOS	global	monochrome
DxM 37EX297-ML	720 x 540 (0.4 MP)	120 fps	6.9 μm	Sony IMX297 / Pregius	1/2.9" CMOS	global	mono / color
DxM 37EX296-ML	1440 x 1080 (1.6 MP)	60 fps	3.45 μm	Sony IMX296 / Pregius	1/2.9" CMOS	global	mono / color
DxK 37EX290-ML	1920x1080 (2.1 MP)	120 fps	2.9 μm	Sony IMX290 / STARVIS	1/2.8" CMOS	rolling	mono / color
DxM 37ER0234CS-ML	1920x1200 (2.3 MP)	120 fps	3.0 μm	OnSemi AR0234CS	1/2.6" CMOS	global	mono / color
DFK 37EX390-ML	1920 x 1200 (2.3 MP)	60 fps	3.0 μm	Sony IMX390	1/2.7" CMOS	rolling	color
DxK 37EX335-ML	2592x1944 (5 MP)	60 fps	2.0 μm	Sony IMX335 / STARVIS	1/2.8" CMOS	rolling	mono / color
DxK 37EX334-ML	3840 x 2160 (8.3 MP)	30 fps	2.0 μm	Sony IMX334 / STARVIS	1/1.8" CMOS	rolling	mono / color

## The Eye in AI: Vision Systems in “Smart” Cars

In most mobile devices, transmission distances between the SoC and the camera module, e.g. in smartphones, are short, resulting in maximum cable lengths for a standard MIPI<sup>®</sup> CSI-2 camera connection of 30 cm. MIPI CSI-2 interface has since entered additional markets where longer cable lengths are required. Applications for Advanced Driver Assistance Systems (ADAS) are one such example from the automotive sector. Automobile manufacturers are relying increasingly on vision systems to deliver a variety of safety and convenience features: Surround view, bird’s eye view, traffic sign recognition, parking assistance and lane departure warnings.

### FPD-Link<sup>®</sup> III: The Solution for Modern ADAS Systems

Typically, the cameras in a system are connected to a central computing unit, where the distances between the computing unit and each camera module are longer than 30 cm. In order to maintain the advantages offered by the MIPI CSI-2 interface while allowing for significantly longer cable lengths is the FPD-Link III protocol. This protocol enables data transmission, power and bidirectional control channels over a single robust coaxial cable with cable lengths up to 15 m, making it an ideal solution for ADAS applications. Via a serializer, the MIPI CSI-2 signal is converted to the FPD-Link III signal and is deserialized to MIPI CSI-2 again on the computing unit.



The FPD-Link III bridge allows a placement of the MIPI CSI-2 camera modules everywhere in the car, enabling modern ADAS functionality at low cost and maximum flexibility.

