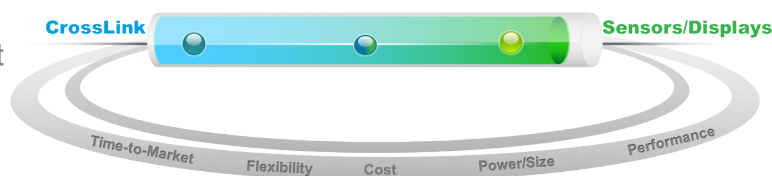# CROSSLINK™

World's Most Versatile Video Bridging FPGA

With the flexibility and fast time to market advantages of an FPGA, along with being optimized for power and efficiency, Lattice's CrossLink delivers the most flexible, highest bandwidth, lowest power and smallest footprint solutions for several high-growth market segments

The CrossLink family FPGA solution resolves interface mismatches between application processors, image sensors, and displays. This makes it the optimal solution for industrial machine vision, drones, AR / VR headsets, cameras, ADAS, mobile devices, human machine interfaces (HMIs), and more.

Key Features

- World's fastest MIPI® D-PHY bridging device that delivers up to 4K UHD resolution at 12 Gbps bandwidth

- Supports popular mobile, camera, display and legacy interfaces such as MIPI D-PHY, MIPI CSI-2, MIPI DSI, CMOS, and SubLVDS, LVDS, and more

- Industry's smallest package size with a 6 mm^2 option

- Lowest power programmable bridging solution in active mode. Built-in sleep mode.

- Comprehensive IP library and reference designs accelerate system development

Device	CrossLink™					CrossLinkPlus™
	LIF-MD6000-6UWG64	LIF-MD6000-6UMG64	LIF-MD6000-6MG81 LIA-MD6000-6MG81[1]	LIF-MD6000-6JMG80 LIA-MD6000-6JMG80[1]	LIF-MD6000-6KMG80 LIA-MD6000-6KMG80[1]	LIF-MDF6000-6UMG64
LUTs	5936	5936	5936	5936	5936	5936
Embedded Memory (kbits)	180	180	180	180	180	180
Distrib. RAM (kbits)	47	47	47	47	47	47
GPLL	1	1	1	1	1	1
D-PHY PLL	1	2	2	2	2	2
Embedded I²C Blocks	2	2	2	2	2	2
Embedded RX/TX MIPI D-PHY	1 (4 Data + 1 Clock)	2 (8 Data + 2 Clock)	2 (8 Data + 2 Clock)	2 (8 Data + 2 Clock)	2 (8 Data + 2 Clock)	2 (8 Data + 2 Clock)
48 MHz Oscillator	1	1	1	1	1	1
10 kHz Oscillator	1	1	1	1	1	1
Configuration Memory	NVCM	NVCM	NVCM	NVCM	NVCM	Flash
Dual Boot	Yes	Yes	Yes	Yes	Yes	Yes
Power Management Unit	Yes	Yes	Yes	Yes	Yes	Yes
Low Power Sleep Mode	Yes	Yes	Yes	Yes	Yes	Yes
Typical Operational Power	5 mW – 135 mW	5 mW – 135 mW	5 mW – 135 mW	5 mW – 135 mW	5 mW – 135 mW	5 mW – 135 mW
Footprint	2.5 mm x 2.5 mm	3.5 mm x 3.5 mm	4.5 mm x 4.5 mm	6.5 mm x 6.5 mm	7.0 mm x 7.0 mm	3.5 mm x 3.5 mm
Package Pitch	0.4 mm	0.4 mm	0.5 mm	0.65 mm	0.65 mm	0.4 mm
GPIO	7	8	9	8	8	8
I/O	17	29	37	36	36	29

1) Automotive grade.
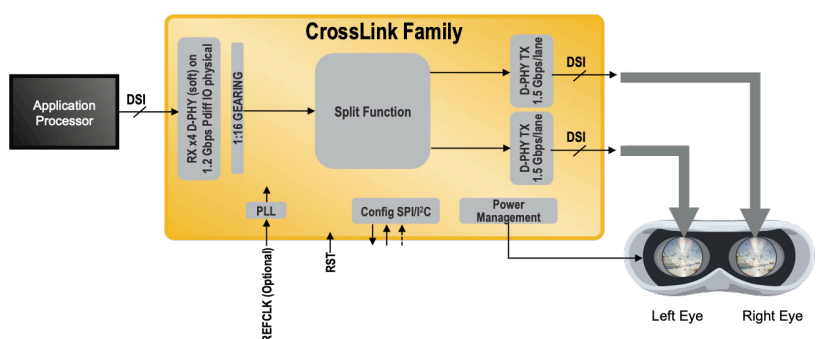
Key Applications

Image Sensor Applications

Lattice's CrossLink device can multiplex, merge and arbitrate between multiple image sensors to a single input. The device can also interface between high-end industrial and popular A/V image sensors with mobile application processors. This is ideal for 360, action, surveillance and DSLR cameras along with drones and augmented reality products.
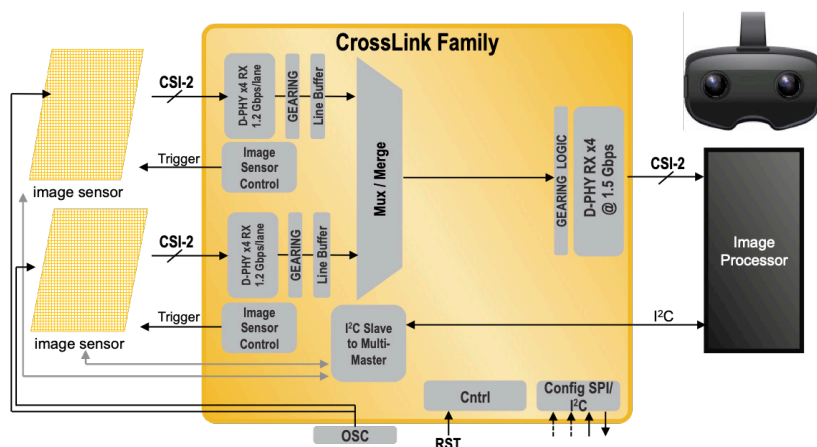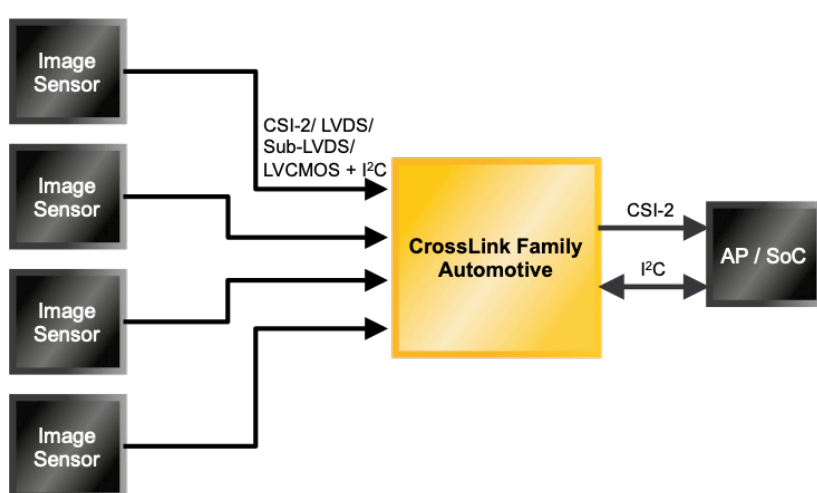
Display Applications

With the CrossLink bridge it's possible to receive video data from one MIPI DSI interface and send it out over two MIPI DSI interfaces at half the bandwidth. The same video stream can be split to two multiple interfaces that's ideal for virtual reality headsets and mobile set top boxes.

ADAS Application

Lattice's CrossLink Automotive device brings bridging capabilities of modern camera sensors and displays to the automotive market. The CrossLink FPGA can aggregate images from multiple cameras onto one display for the driver or support image signal processing (ISP) in ADAS applications for self-driving cars. A variety of camera sensor inputs are supported, including CSI-2, LVDS, Sub-LVDS, and LVCMOS. It can also drive displays over DSI for infotainment applications, like dashboard displays, instrument cluster displays, and rear-seat entertainment.

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