

CrossLink™ and CrossLinkPlus™

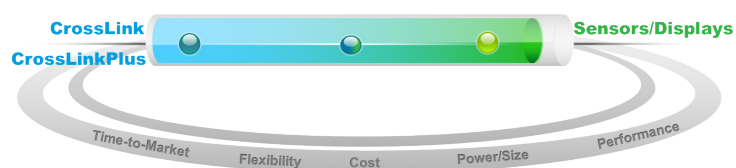
Video Bridging FPGA Families

With the flexibility and fast time to market advantages of a FPGA, along with being optimized for power and efficiency, Lattice's CrossLink Families deliver the flexible, high bandwidth, low power and small footprint solutions needed for video centric applications.

The CrossLink FPGA families resolve interface mismatches between application processors, image sensors, and displays. The families provide an optimal solution for industrial machine vision, drones, AR / VR headsets, cameras, ADA, mobile devices, human machine interfaces (HMIs), and more.

Key Features

- MIPI® D-PHY bridging device that delivers up to 4K UHD resolution at 12 Gbps bandwidth
- Support for 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 mm² option



- Lowest power programmable bridging solution in active mode. Built-in sleep mode.
- Comprehensive IP library and reference designs accelerate system development

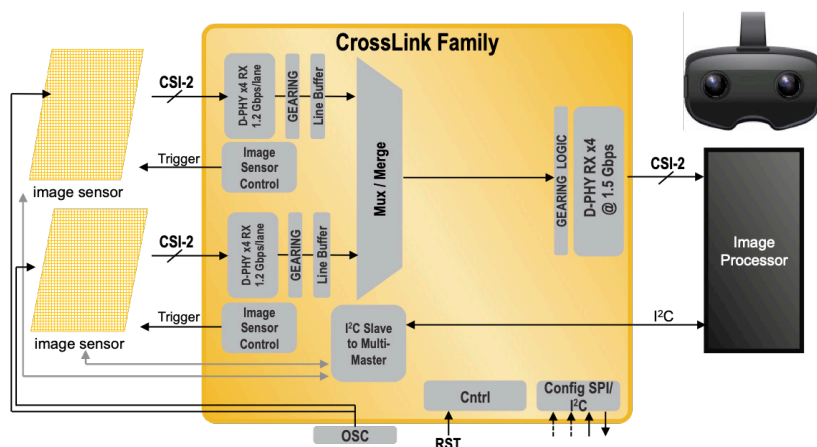
Device	CrossLink™					CrossLinkPlus™	
	LIF-MD6000-6UWG64	LIF-MD6000-6UMG64	LIF-MD6000-6MG81 LIA-MD6000-6MG81 ¹	LIF-MD6000-6JMG80 LIA-MD6000-6JMG80 ¹	LIF-MD6000-6KMG80 LIA-MD6000-6KMG80 ¹	LIF-MDF6000-6UMG64	LIF-MDF6000-6KMG80
LUTs	5936	5936	5936	5936	5936	5936	5936
Embedded Memory kbits	180	180	180	180	180	180	180
Distrib. RAM kbits	47	47	47	47	47	47	47
GPLL	1	1	1	1	1	1	1
D-PHY PLL	1	2	2	2	2	2	2
Embedded I ² C Blocks	2	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)	2 (8 Data + 2 Clock)
48 MHz Oscillator	1	1	1	1	1	1	1
10 kHz Oscillator	1	1	1	1	1	1	1
Configuration Memory	NVCM	NVCM	NVCM	NVCM	NVCM	Flash	Flash
Dual Boot	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Management Unit	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Low Power Sleep Mode	Yes	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	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	7.0 mm x 7.0 mm
Package Pitch	0.4 mm	0.4 mm	0.5 mm	0.65 mm	0.65 mm	0.4 mm	0.65 mm
GPIO	7	8	9	8	8	8	8
I/O	17	29	37	37	37	29	37

1) Automotive grade.

Key Applications

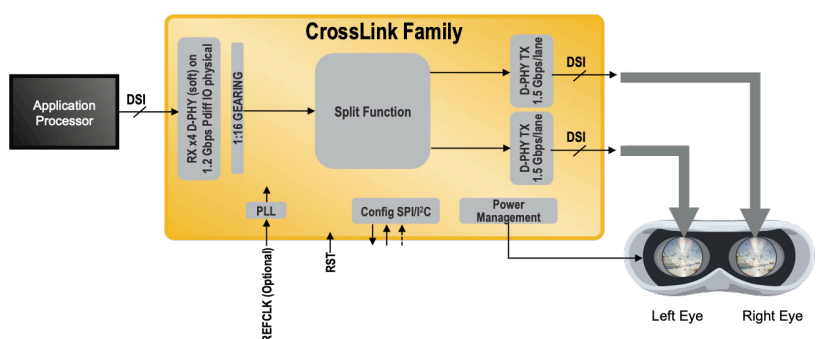
Image Sensor Applications

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.



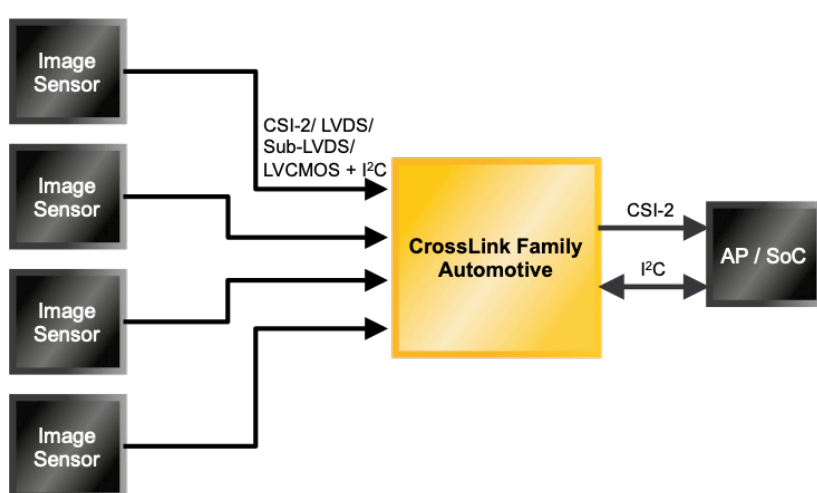
Display Applications

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.



Applications Support

www.latticesemi.com/support

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