

FP-5500 Video Processor & Sensor Fusion Engine

Real-time video stream processing and sensor fusion in the smallest, lowest power package

Key Features

- Real-time processing of high definition video streams
- Compact, low-power design based on Altera Cyclone FPGAs and LPDDR memory
- Hosts a rich suite of algorithms including non-uniformity correction, 3D noise filtering, WDR image forming, local area contrast enhancement, image stabilization, etc.
- Image enhancement and fusion of two high definition video channels
- Automatic, real-time adjustment to changing imaging conditions
- Gray-scale, natural, or pseudo colored output
- Text and symbology overlay
- Control via a choice of serial interfaces

Applications

The FP-5500 is Imagize's lowest power and most compact video processor and fusion engine. Utilizing the latest low power components, the small form factor two-board system weighs only 0.7 oz. and can manipulate high definition video streams at a typical power consumption of 500mW. Its highly configurable architecture enables OEMs and system integrators to incorporate real-time video enhancement, motion processing, and high quality pixel-level sensor fusion in a variety of products including portable, handheld, and wearable applications.

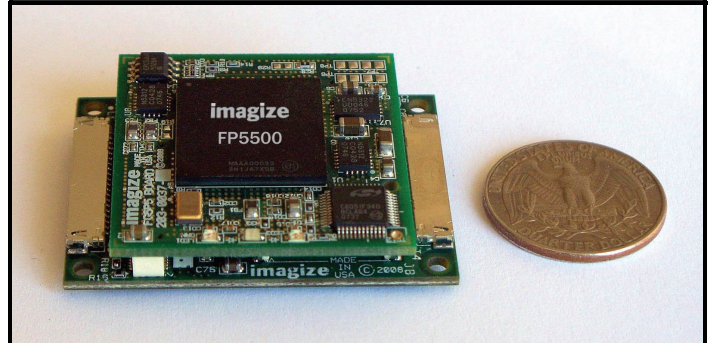
The FP-5500 supports a wide array of digital and analog signal standards and data formats to enable direct integration with sensor electronics. Similarly, the fusion module is capable of high-resolution video output from its on-board frame buffer to a display via a parallel digital data bus or number of standard interfaces including Camera Link, DVI, as well as composite and component analog video.

High Performance Image Fusion

Fusion of input imagery is performed by the FP-5500 on a pixel-by-pixel basis to create a dynamically optimized composite that provides a best-of-both-worlds combination of raw sensor imagery. Combination of information is performed using advanced image analysis techniques derived from biological vision systems, which allow the processor to quickly adapt to changing scene content, sensor operating states, and overall imaging conditions. This dynamic adaptation capability is a key advantage in applications where reduced operator workload or true hands-off operation is required.

Fusion techniques incorporated in the FP-5500 also provide an effective solution for seamlessly bridging the significant difference in sensor resolutions between visible and thermal sensors typical in multi-spectral fusion applications. Fusion of high-resolution imagery with lower resolution data is achieved without loss of fine image detail.

FP-5500



SPECIFICATIONS

Signal Interfaces

Video I/O Signal Standards	Analog	RS-170 / NTSC / PAL composite or Y/C, RGB component video
	Digital	LVC MOS / LVTTTL / LVDS signaling, Camera Link, DVI, and custom formats

Video Image Resolution	Up to 1080p or equivalent
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Operating mode control and configuration	I2C, RS-232, SPI
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Performance / Power

Digital pixel fusion, 1280x1024 pixel, 30FPS	0.3 W
Digital pixel fusion, 1280x1024 pixel, 60FPS	0.5 W
Image Latency	< 1 ms

Power Requirements

Supply Voltage	8-30V DC
Supply Current Rating	200mA max.

Physical Properties

Weight	0.7 oz. / 20 g
Size	1.4" L x 1.95" W x 0.5" H
Operating Temperature	-40C° to +85C°

Design Support and Customization

Imagize provides engineering support for integration of the FP-5500 into OEM imaging systems. Customized versions of the electronics and embedded software to fit mechanical, optical, sensor, and interconnect specifications are also available.

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