10MP Global Shutter High Speed CMOS Image Sensor

SENSOR DESCRIPTION

Preliminary and Confidential

GSPRINT4510 is a 10 Megapixel (4608 x 2176) 4/3 sized (∅ 22.9 mm) high speed, global shutter image sensor designed with the latest 4.5 µm charge domain global shutter pixel. It achieves more than 30k e^- FWC, less than 3 e^- rms read noise and > 69 dB dynamic range, optionally increased to 81 dB with a dual gain HDR mode. Using advanced 65nm CIS process and light pipe technology, the sensor achieves >65% QE and more than 1/40,000 shutter efficiency. With on-chip charge binning, FWC can be further increased and frame rate almost quadrupled.

GSPRINT4510 will be offered in two speed variants. The full speed variant consists of 144 pairs sub-LVDS channels running at 1.2Gbps which delivers a stunning 1928 fps in single gain operation at 8 bit per pixel and full resolution and more than 3500 fps with a ROI of 1024 rows in a dedicated 3D laser profiling mode. These unique features make it an ideal solution for demanding imaging in high-end applications such as high speed 4K video, industrial inspection , motion analysis and life science imaging.

SENSOR SPECIFICATION

Resolution	4608 (H) × 2176 (V)	Optical format	4/3 (∅22.9 mm)
Pixel size	4.5µm × 4.5µm	Photo-sensitive area	20.7 mm x 9.7 mm
Shutter type	Global Shutter	Quantum efficiency	>65%
Full well capacity	30k e^- (max in LG mode)	Shutter efficiency	1/40,000
Dark noise	<3 e^- (min in HG mode)	Dark current	2e^-/p/s @ 25℃
Dynamic range	>69 dB @ 12bit	Frame rate	1928 fps @ 8bit 1008 fps @ 10bit 500 fps @ 12bit
Output interface	144ch sub-LVDS	Channel multiplexing	144/140/136/…/12/8/4 (any multiple of 4)
ADC	8/10/12 bit	Max. Data rate	172 Gbps (@ 1.2 Gbps /channel)
Chroma	Color & Mono	Package	454 pins µPGA
Power supply	3.3V / 1.8V / 1.2V Dedicated pixel supplies	Power consumption	5-6 W(full res full fps)

PACKAGE OUTLINE