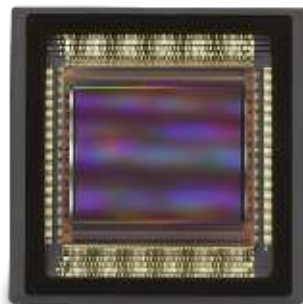# GSPRINT4521 Product Flyer

21MP HIGH SPEED CMOS IMAGE SENSOR

GSPRINT4521 is a 21 Megapixel (5120 x 4096) APS sized (29.5mm) high speed, global shutter image sensor designed with the latest 4.5 µm charge domain global shutter pixel. It achieves more than 28 ke-FWC, 6.3 e- temporal noise and > 68.8 dB dynamic range. Using advanced 65nm CIS process and light pipe technology, the sensor achieves 63% QE and more than 1/40,000 shutter efficiency. With on-chip charge binning, FWC can be further increased to >120ke- and frame rate is quadrupled.

GSPRINT4521 will be offered in different speed variants. The full speed variant consists of 160 pairs sub-LVDS channels running at 1.2Gbps which delivers a stunning 1000 fps in single gain operation at 8 bit per pixel and full resolution and more than 3000 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.

Key Features

- 4.5µm Square Pixels
- Sub-LVDS with channel multiplexing
- Vertical ROIs with speed boosting
- Max. frame rate up to 1000fps @8bit

Applications

- Machine vision
- High resolution industrial inspection
- Flat panel display inspection

Gpixel

Sensor Specifications

Resolution	5120 x 4096	Optical format	APS sized (⌀29.5mm)
Pixel size	4.5μm × 4.5μm	Photo-sensitive area	23.04mm × 18.43mm
Shutter type	Global shutter	Quantum efficiency	63 %
Full well capacity	32 ke⁻ @12-bit Gain 0 16.5 ke⁻@12-bit Gain 2 >120 ke⁻ @ binning	Frame rate	1000 fps @ 8-bit 500 fps @ 10-bit 250 fps @ 12-bit
Dark noise	6.1 e-@12-bit Gain 2 3.5 e- @12-bit Gain 3	Dark current	11.4e⁻/p/s @ 50°C
Dynamic range	68dB	Output interface	160 ch sub-LVDS @1.2 Gbps
Chroma	Color & Mono	Power consumption	6W
I/O voltage	1.8V	Package	454 pins μPGA 42mmx42mm

Ordering Information

Sensor Part No.

GSPRINT4521-AVM-NUT-BU1 Mono. Normal speed, 250fps@12bit & 500fps@10bit, Grade 1	**GSPRINT4521-AVM-NUT-BU2** Mono. Normal speed, 250fps@12bit & 500fps @10bit, Grade 2
GSPRINT4521-AVM-HUT-BU1 Mono. High speed. 1000fps@8bit. 500 fps@10bit, 250fps@12bit, Grade 1	**GSPRINT4521-AVM-HUT-BU2** Mono. High speed. 1000fps@8bit, 500 fps@10bit, 250fps@12bit, Grade 2
GSPRINT4521-AVC-NUT-BU1 Color, Normal speed, 250fps @12bit & 500fps@10bit, Grade 1	**GSPRINT4521-AVC-NUT-BU2** Color, Normal speed, 250fps @12bit & 500fps @10bit, Grade 2
GSPRINT4521-AVC-HUT-BU1 Color, High speed. 1000fps@8bit. 500fps@10bit, 250fps@12bit, Grade 1	**GSPRINT4521-AVC-HUT-BU2** Color, High speed. 1000fps@8bit. 500fps@10bit, 250fps@12bit, Grade 2
GSPRINT4521-AVM-NUT-BR2 Mono. removable glass. Normal speed. 250fps@12bit & 500fps@10bit, Grade2	

EVK Part No.

GSprint4521_EVM. USB interface, 3 stacked PCB boards

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