



CMV20000

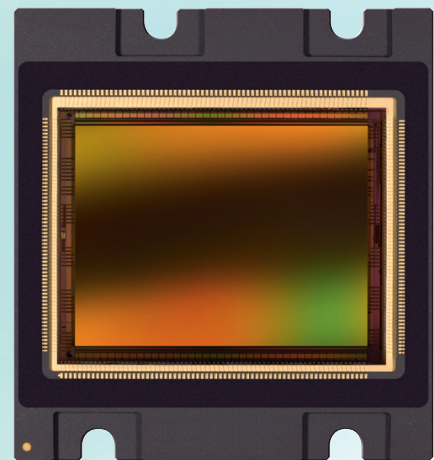
20MP high resolution global shutter image sensor

SENSOR DESCRIPTION

The CMV20000 is a global shutter CMOS image sensor with 5120 by 3840 pixels in a 35 mm optical format. The image array consists of 6.4 μm by 6.4 μm pipelined global shutter pixels, which allow exposure during read out while performing CDS operation reducing fixed pattern and dark noise significantly. The CMV20000 has 16 12-bit digital LVDS outputs (serial) each running at 480 Mbps. The image sensor also integrates a programmable gain amplifier and offset regulation. Each channel runs at 480 Mbps maximum, which results in 30 fps frame rate at full resolution in 12-bit mode. Higher frame rates can be achieved in row-windowing mode or row-subsampling mode. All operation modes are all programmable using a SPI interface. A programmable on-board sequencer generates all internal exposure and read out timings. External triggering and exposure programming is also possible. Extended optical dynamic range can be achieved by multiple integrated high dynamic range modes.

APPLICATION FIELDS

- Machine vision
- Motion control
- High speed inspection
- Scientific
- Medical



SENSOR FEATURES

- Pipelined global shutter with CDS
- 5120 (H) * 3840 (V) active pixels on a 6.4 μm pitch
- 35 mm optical format
- 30 frames/sec at full resolution in 12-bit mode
- ROI windowing capability (row based only)
- Window, X-Y mirroring function
- Master clock 40MHz
- 16 LVDS-outputs @ 480 Mbps multiplexable to 8 LVDS-outputs at 15 fps
- 12 bit ADC output
- High/Low priority frame requests with different images capturing settings
- Multiple High Dynamic Range mode supported
- Power dissipation control
- On chip temperature sensor
- On chip timing generation
- SPI-control
- Ceramic 143-pins PGA package (48.1 mm x 51.9 mm)
- 2 sided AR-coated cover glass lid

Please address all product inquiries and ordering information to:

CMOSIS NV · Coveliersstraat 15 · B-2600 Antwerpen · Phone: +32 3 260 17 33 · Fax: +32 3 260 17 79 · info@cmosis.com

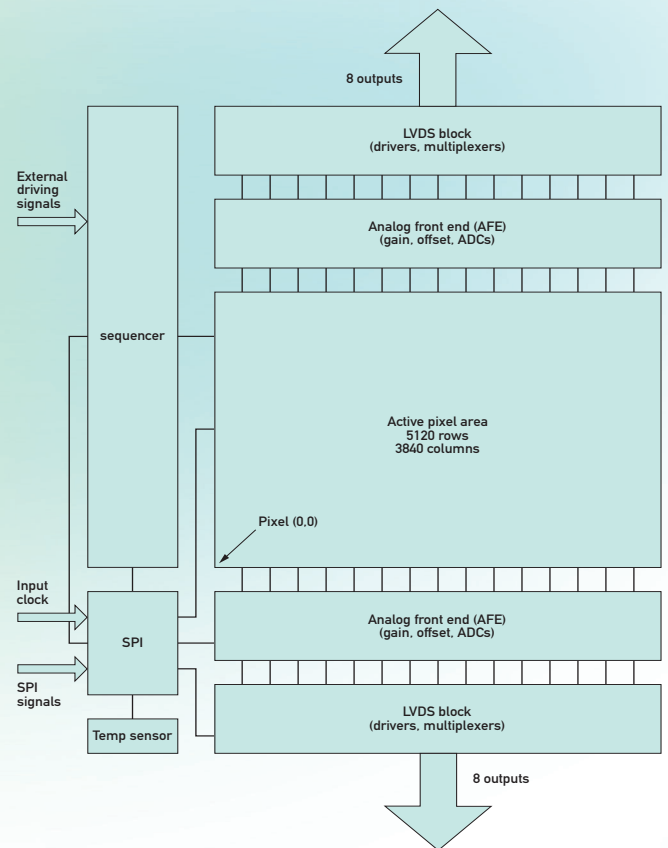


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SENSOR SPECIFICATIONS

Specification	Value
Part status	Production
Resolution	20MP - 5120(H) x 3840(V)
Pixel size	6,4 x 6,4 μm^2
Optical Format	35mm
Shutter Type	Pipelined global shutter with true CDS
Frame Rate	30 fps (12 bit)
Output Interface	16 LVDS channels @ 480 Mbps
Sensitivity	8,3 V/lux.s
Conversion gain	0,068 LSB/e-
Full well charge	15000 e-
Dark noise	8 e- (RMS)
Dynamic range	66 dB
SNR max	41,7 dB
Parasitic light sensitivity	1/50000
Extended dynamic range	Yes, up to 90 dB
Dark current	125 e-/s (25 degC)
Fixed pattern noise	< 1 LSB (<0,1% of full swing)
Chroma	Mono
Supply voltage	1,8V / 3,3V
Power	1100 mW
Operating temperature range	-30 to +70 degC (TBC)
RoHS compliance	Yes (TBC)
Package	143 pins PGA



ORDERING INFORMATION

The CMV20000 is derived from a custom CMOS image sensor. This sensor is not for sale for ITS applications. Please contact CMOSIS for further information.

Product number	Description
CMV20000-1E5M1PP	Monochrome version with microlenses
CMV20000-1E5C1PP	RGB Bayer color version with microlenses