



CMV2000

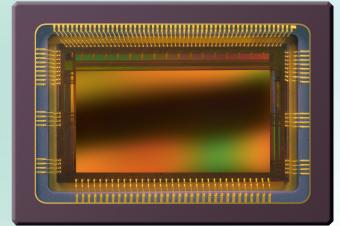
2MP high speed global shutter image sensor

SENSOR DESCRIPTION

The CMV2000 is a global shutter CMOS image sensor with 2048 by 1088 pixels in a 2/3" optical format supporting full HD imaging (1080p). The image array consists of 5.5 um by 5.5 um pipelined global shutter pixels, which allow exposure during read out while performing CDS operation reducing fixed pattern and dark noise significantly. The CMV2000 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 340 fps frame rate at full resolution in 10-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 onboard 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. A 12-bit per pixel mode is available at reduced frame rates.

APPLICATION FIELDS

- Machine vision
- Motion control
- Traffic monitoring
- High speed inspection
- Security



SENSOR FEATURES

- Pipelined global shutter with CDS
- 2048 (H) * 1088 (V) active pixels on a 5.5 µm pitch
- Optical format of 2/3"
- 340 frames/s at full resolution in 10 bit mode
- 70 frames/s at full resolution in 12 bit mode
- ROI windowing capability (up to 8 separate ROIs - row based only)
- X-Y mirroring function
- 16 LVDS-outputs @ 480 Mbps multiplexable to 8, 4 and 2 at reduced frame rate
- Multiple High Dynamic Range (HDR) modes up to 90 dB
- On chip temperature sensor
- On chip timing generation
- SPI-control
- 3.3V and 1.8V signaling
- Monochrome and Bayer (RGB) configuration
- Ceramic 95 pin µPGA package (18.6 mm x 13.5 mm)





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SENSOR SPECIFICATIONS

Specification

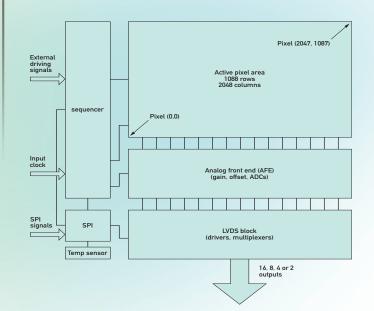
Part Status Resolution Pixel size **Optical Format** Shutter Type

Frame Rate

Output Interface Sensitivity **Conversion** gain Full well charge Dark noise Dynamic range SNR max Parasitic light sensitivity 1/50000 Extended dynamic range Yes, up to 90 dB Dark current Fixed pattern noise Chroma Supply voltage Power **Operating temperature** range **RoHS** compliance Package

Value Production 2MP - 2048 (H) x 1088 (V) 5.5 x 5.5 µm2 2/3" Pipelined global shutter with true CDS 340 fps (10 bit) 70 fps (12 bit) 16 LVDS outputs @ 480 Mbps 4,64 V/lux.s 0,075 LSB/e-13500 e-13 e- (RMS) 60 dB 41,3 dB 125 e-/s (25 °C) < 1 LSB (<0,1% of full swing) Mono and RGB 1.8V / 3.3V 600 mW -30 to +70 degC Yes

95 pins µPGA



ORDERING INFORMATION

Product number	Description
CMV2000-2E5M1PP	Monochrome version with micro lenses
CMV2000-2E5C1PP	RGB Bayer color version with micro lenses
CMV2000-2E12M1PP	NIR enhanced sensitivity

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