 OmniVision’s OV16885-4C is an ultra-compact image sensor built on OmniVision’s second-generation, 1.0-micron PureCel®Plus-S pixel technology that is designed to bring 16-megapixel resolution to high-end front-facing mobile applications. The OV16885-4C’s on-chip pixel binning feature boosts signal levels up to four times, enabling clear images even in challenging lighting environments. The OV16885-4C pairs with OmniVision’s smart resolution recovery software solutions to achieve the ideal balance between resolution and sensitivity, making it a compelling solution for “super selfie” cameras in high-end mobile applications.

The OV16885-4C offers a full 16-megapixel 4-cell RAW output mode and a 4-megapixel Bayer output mode that uses in-pixel binning to achieve a 2.0-micron pixel’s performance and sensitivity. The OV16885-4C captures full-resolution 16-megapixel images and video at 30 frames per second (fps) and offers both MIPI D-PHY and C-PHY interfaces.

The OV16885-4C sensor fits into the industry-standard module form factors for slim mobile devices.

Find out more at www.ovt.com.
OV16885-4C

Applications

- Smartphones
- PC Multimedia
- Video Conferencing

Product Features

- 16MP @ 30 fps, 4K2K @ 60 fps (1.0 µm non-Bayer output)
- 4MP @ 60 fps, 1080p @ 120 fps (2.0 µm Bayer output)
- supports dynamic defect pixel correction (DPC) in Bayer output mode
- automatic black level calibration (ABLC)
- up to 4-lane MIPI TX interface with speed up to 1.6 Gbps/lane
- supports output formats: 10-bit RAW RGB, DPCM 10-8 compression
- programmable controls for: frame rate, mirror and flip, cropping, windowing
- programmable I/O drive capability
- Programmable I/O drive capability
- Supports typical images sizes:
  - 640 x 480
  - 720p
  - 1080p
  - 2336 x 1752
  - 3840 x 2160
- supports output formats:
  - standard serial SCCB interface
  - programmable I/O drive capability
  - supports 8-bit wide internal data paths
- supports application specific I/O
- supports multiple pixel clock rates
- supports programmable I/O drive capability

Product Specifications

- active array size: 4672 x 3504
- power supply:
  - core: 1.2V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:
  - active: 300 mW
  - XSHUTDOWN: -1 µW
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- input clock frequency: 6 - 27 MHz
- lens size: 1/3.06"
- lens chief ray angle: 34.2° non-linear
- sensitivity: 13.8 Ke-/Lux-sec
- S/N ratio: 37.5 dB
- maximum image transfer rate:
  - 4672 x 3504: 30 fps
  - 3840 x 2160: 60 fps
  - 2336 x 1752: 60 fps
  - 1080p: 120 fps
  - 720p: 180 fps
  - 800 x 480: 240 fps
- gain control: automatic black level calibration (ABLC)
- dynamic range: 72 dB @ 16x gain
- dark current: 4 e-/sec
- pixel size: 1.0 µm x 1.0 µm
- image area: 4741.63 µm x 3564.29 µm
- die dimensions:
  - COB: 5630 µm x 4050 µm
  - RW: 5740 µm x 4120 µm

Functional Block Diagram

- OV16885-4C
  - image sensor core
    - column sample/hold
    - image array
    - temperature sensor
    - gain control
  - image sensor processor
    - 10-bit ADC
    - ISP
  - image interface
    - FIFO
    - MIPI
    - MCP/N MDP/N[3:0]
  - control register bank
- PLLs
- PLL
- timing generator and system control logic
- SCCB interface

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