



OV48B

48-megapixel product brief



OMNIVISION's First 48-Megapixel, 0.8 μm Image Sensor

OMNIVISION's OV48B is its first 48-megapixel (MP) image sensor with the industry's smallest die size, featuring a 0.801 μm pixel size to enable high resolution smartphone cameras with a 1/2" optical format. Built on OMNIVISION's PureCel®Plus stacked die technology, this sensor provides leading edge still image capture and video performance for both mainstream and high end smartphones. Additionally, it offers a wide range of features such as digital crop zoom and a CPHY interface, making it a versatile sensor for all types of rear facing cameras in multi-camera configurations, including main, wide angle and telephoto.

The OV48B integrates an on-chip 4-cell color filter array and hardware re-mosaic, which provides high quality, 48MP Bayer output in real time. In low light conditions, this sensor can use near-pixel binning to output a 12MP image with four times the sensitivity. The OV48B can consistently capture the

best quality images and videos without motion blur, as well as enabling digital crop zoom with 12MP resolution and fast mode switch.

This sensor also features both DPHY and CPHY MIPI interfaces, which enables fast frame rates using fewer pins. The OV48B includes 2x2 microlens phase detection autofocus (ML-PDAF) to boost accuracy, especially in low light.

Output formats include:

- 48MP at 15 frames per second (fps) with remosaic
- 12MP with 4-cell binning at 30 fps
- 4K2K video at 60 fps
- 1080p video at 240 fps
- 720p video at 480 fps

Find out more at www.ovt.com.



- OV48B2Q-GA5A
(color, chip probing, 150 μm backgrinding, reconstructed wafer with good die)

Applications

- smart phones
- video conferencing
- PC multimedia

Technical Specifications

- active array size:** 8032 x 6032
- maximum image transfer rate:**
 - 8000 x 6000: 15 fps
 - 12MP 4-cell binning: 30 fps
 - 4K2K: 60 fps
 - 1080p: 240 fps
- power supply:**
 - core: 1.15V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:**
 - active: 572 mW (48MP @ 15 fps)
 - XSHUTDOWN: <10 μA
- output formats:** 10-bit RGB RAW
- temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable: 0°C to +60°C junction temperature
- lens size:** 1/2"
- lens chief ray angle:** 34.9° non-linear
- scan mode:** progressive
- pixel size:** 0.801 μm x 0.801 μm
- image area:** 6433.632 μm x 4831.632 μm

Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
 - frame rate
 - mirror and flip
 - binning
 - cropping
 - windowing
- support for dynamic DPC cancellation
- supports output formats: 10-bit RGB 4C pattern
- supports horizontal and vertical subsampling
- supports typical images sizes:
 - 8000 x 6000
 - 4000 x 3000
 - 3840 x 2160
 - 1920 x 1080
 - 1280 x 720
- standard serial SCCB interface
- up to 4-lane MIPI TX interface with speed up to 2.35 Gbps/lane
- 2/3 trio CPHY interface, up to 1.45 Gbps/trio
- embedded 16k bits of one-time programmable (OTP) memory (4k bits reserved for customer use)
- supports 2x2 ML PD
- 4-cell support:
 - 4-cell binning
 - 4-cell full
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- built-in temperature sensor
- typical module size: 9.5 x 9.5 x 5.9 mm

Functional Block Diagram

