OMNIVISION OV64C 64 Megapixel 0.8 Micron Image Sensor User Guide

Contents

OmniVision OV64C 64 Megapixel 0.8 Micron Image Sensor

Product Information

- The OV64C is a high-end image sensor designed for use in smartphones. It offers a resolution of 64 megapixels and integrates an on-chip 4-cell color filter array and hardware re-mosaic, allowing for high-quality, 64MP Bayer output in real-time. The sensor also has the ability to use near-pixel binning in low-light conditions to output a 16MP image with 4x sensitivity. The OV64C supports multiple resolutions and frame-rate configurations, including 64MP at 15 fps, 8K video at 30 fps, 16MP captures with 4-cell binning at 30 fps, 4K video at 60 fps, and 4K video with EIS at 30 fps. It also supports 3-exposure, staggered HDR timing for up to 16MP video modes.
- The OV64C features type-2, 2×2 microlens phase detection autofocus (ML-PDAF) to boost autofocus accuracy, especially in low light. It enables 2x digital crop zoom with 16MP resolution and fast mode switching. The sensor consistently captures high-quality images and provides excellent performance for previews and still captures.

Product Usage

- The OV64C is designed for use in high-end smartphones. It should be integrated into the phone according to the manufacturer's instructions. Once integrated, users can take advantage of the sensor's high-resolution capabilities and advanced features such as ML-PDAF autofocus and digital crop zoom. Users can also adjust the resolution and frame rate settings to suit their needs.
- To take advantage of the OV64C's low-light capabilities, users can enable near-pixel binning to output a 16MP image with increased sensitivity. Additionally, the sensor supports staggered HDR timing for up to 16MP video modes, allowing users to capture high-quality videos in challenging lighting conditions.
- For more information on the OV64C's features and capabilities, visit **www.ovt.com**.

INSTALLATION INSTRUCTION

- OmniVision OV64C is a high-performance 64-megapixel (MP) image sensor featuring a 0.8-micron pixel size to enable high resolution smartphone cameras in a 1/1.7″ optical format. Built on OmniVision PureCel® Plus stacked die technology, this sensor provides leading-edge still image capture and exceptional 4K video performance with electronic image stabilization (EIS) for high-end smartphones.
- The OV64C also delivers a wide range of features, such as a 4-cell rem0saic for full resolution Bayer output as well as digital crop zoom, and a CPHY interface for greater throughput using fewer pins, making it ideal for the main rear-facing camera in multi-camera configurations.
- This image sensor integrates an on-chip 4-cell color filter array and hardware re-mosaic, which provides high-quality, 64MP Bayer output in real-time. In low light conditions, the sensor can use near-pixel binning to output a 16MP image
- with 4x the sensitivity, offering 1.6 micron equivalent performance for previews and still captures. In either case, the OV64C can consistently capture the best quality images, as well as enabling 2x digital crop zoom with 16MP resolution and fast mode switch.
- The OV64C offers type-2, 2×2 microlens phase detection autofocus (ML-PDAF) to boost autofocus accuracy, especially in low light. The sensor provides options for multiple resolutions and frame-rate configurations, including 64MP at 15 frames per second (fps), 8K video at 30 fps, 16MP captures with 4-cell binning at 30 fps, 4K video at 60 fps and 4K video with EIS at 30 fps. Additionally, the OV64C supports 3-exposure, staggered HDR timing for up to 16MP video modes.

Applications

- smart phones
- PC multimedia
- video conferencing

Technical Specifications

- **active array size:** 9248x 6944
- maximum image transfer rate:
- **9248 x 6944:** 16 fps
- power supply: -core: 1.1V
- **analog:** 2.8V – 1/0: 1.8V
- **power requirements: active:** 790 mW (64MP@ 16 fps) XSHUTDoWN: <12 A
- output formats: 10-bit RGB RAW

temperature range

- **operating-**30°C to +85°C
- **junction** temperature
- **stable:** 0C to +60°C

junction temperature

- **lens size:** 1/1.7″
- **lens chief ray angle:** 34.9° non-linear
- **scan mode:** progressive
- **pixel size**: 0.801 um x 0.801 um

image area:

- 7433.28 um x 5587.776 um

Product Features

- suitable for module size of
  - 11.80x 11.30 x 6.65 mm
- automatic black level calibration
  - (ABLC)
- programmable controls for:
  - frame rate
- mirror and flip binning
- cropping
- windowing
- support for dynamic DPC
- **supports output formats:** 10-bit RGB
- supports horizontal and vertical subsampling

Supports typical images sizes:

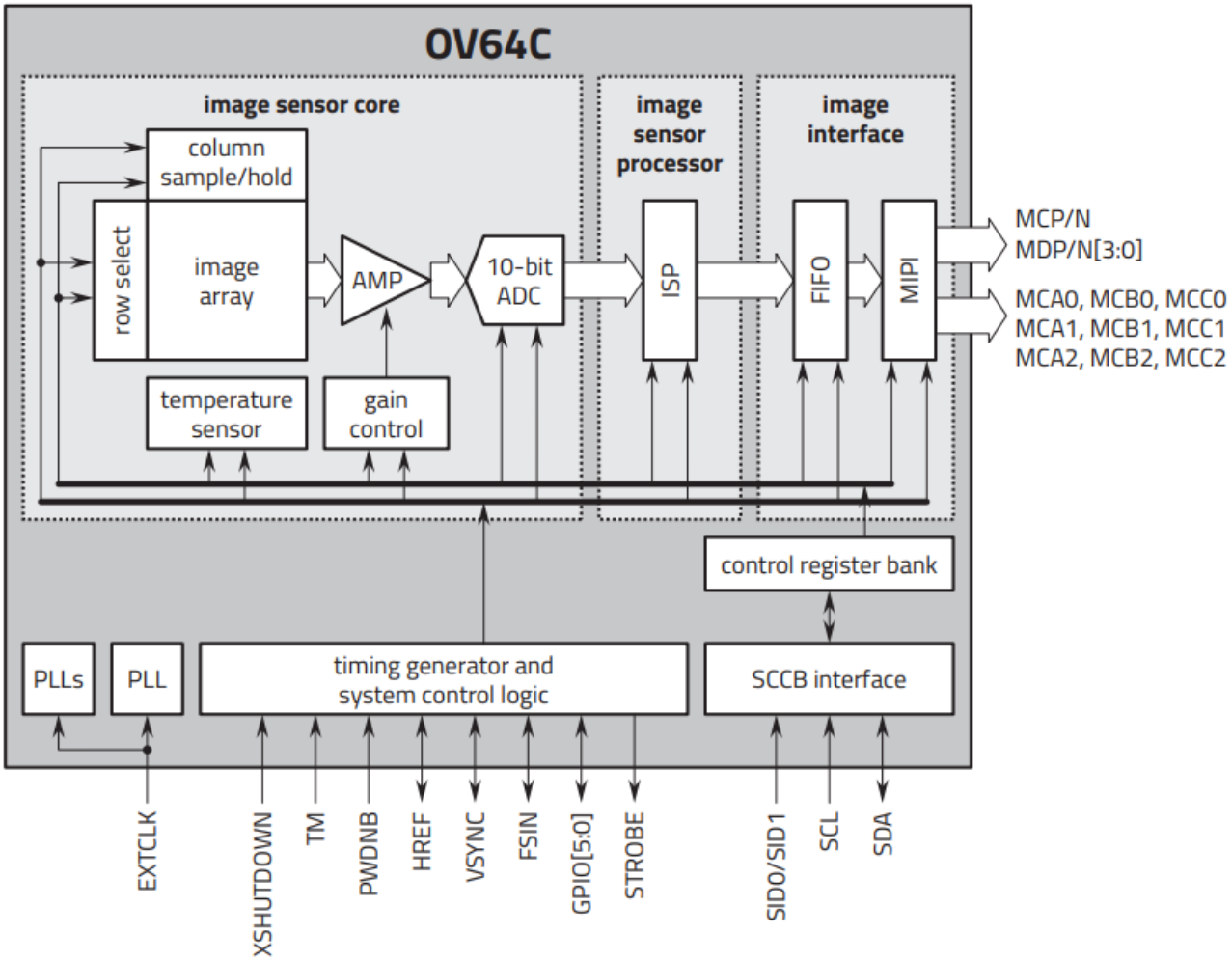
- 9248x 6944
- 7680 x 4320
- 4624 x 3472
- 4608x 2592
- 3840 x 2160
- 1920 x 1080
- 1280 x 720
- standard serial SCCB interface
- up to 4-lane MIPI TX interface with speed up to 3 Gbps/lane
- 2/3 trio CPHY interface up to 2.25 Gsps/trio
- Supports type 2 2×2 ML-PDAF
- 4-cell support:
  - 4-cell binning
  - 4-cell full

HDR support:

- stagger HDR 2/3 exposure timing on-chip 4-cell to Bayer converter

- three on-chip phase lock loops (PLLs)
- programmable I/0 drive capability
- built-in temperature sensor
- on-chip digital scalar

Functional Block Diagram



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Documents / Resources

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