The OVB0A is one of the world’s smallest 200MP image sensors designed for rear facing (wide angle) main cameras in high-end smartphones. It leverages OMNIVISION’s PureCel® Plus-S stacked die technology to maintain extremely high resolution in the smaller 0.56 µm pixel size with a 1/1.4” optical form factor. With its unique 16-cell binning capability, the OVB0A image sensor delivers the best low-light performance in its class. It also features 100% quad phase detection (QPD) technology for superior autofocus.

The OVB0A sensor features selective conversion gain for the optimum balance between low-light image quality and high dynamic range (HDR). This enables smartphone OEMs to optimize HDR performance for the contrasting light and dark areas in any scene. It also has 16-cell binning to achieve premium video capture of 12.5MP/4K at 120 frames per second (fps) or 12.5MP/4K at 60 fps with 2-exposure staggered HDR timing, 8K video and 2x crop zoom (with HDR) at 12.5MP is enabled using an on-chip remosaic function.

The OVB0A supports CPHY, DPHY and dual DOVDD (1.8V and 1.2V).

Find out more at www.ovt.com.
Applications

- mobile wide camera
- mobile ultrawide camera

Products Features

- 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 16C RAW
  - 10-bit RGB Bayer
  - 10-bit RGB Bayer HDR
- supports typical images sizes:
  - 16384 × 12288
  - 8192 × 6144
  - 7680 × 4320
  - 4096 × 3072
  - 3840 × 2160
  - 2048 × 1536
  - 1920 × 1080
  - 1280 × 720
- 4-lane D-PHY MIPI TX interface, up to 3.0 Gbps per lane
- 2/3 trio C-PHY interface, up to 3.5 Gbps/trio
- supports:
  - 4-cell binning
  - 4-cell full
  - 16-cell binning
  - 16-cell full
- HDR support:
  - stagger HDR 2/3 exposure timing
  - multi frame HDR 2/3 exposure timing
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- programmable I/O drive capability
- dual I/O power supply (1.2V/1.8V)
- built-in temperature sensor
- 0.56 µm pixel

Technical Specifications

- active array size: 16384 × 12288
- maximum image transfer rate:
  - 200 MP (16384×12288): 8 fps
  - 50 MP (8192×6144): 30 fps
  - 12.5 MP (4096×3072): 120 fps
- power supply:
  - core: 1.1V
  - analog: 2.8V
  - I/O: 1.8V/1.2V
- power requirements:
  - active: 1350 mW (50 MP @ 30 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
  - temperature sensor: ±5°C between 0°C to +80°C
- lens size: 1/1.395
- lens chief ray angle: 35.5° non-linear
- scan mode: progressive
- pixel size: 0.56 µm x 0.56 µm
- image area:
  9210.88 µm x 6917.12 µm
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- programmable controls for:
  - frame rate
  - mirror and flip
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Ordering Information

- OVB0AH0-GA5A-004A-Z (color, chip probing, 150µm backgrinding, reconstructed wafer with good die)