



Binary Pixel Imagers

A breakthrough new image sensor and processing architecture to enable professional quality images from mobile phones and point-and-shoot consumer cameras.



Ultra-high Dynamic Range

- + Captures the full spectrum of a scene from the brightest highlights to the darkest shadows

Single-shot HDR

- + Enables high dynamic range for photos and videos to be captured real time with processing on-the-fly

Improved Low-light Sensitivity

- + Improves signal-to-noise performance with temporal oversampling

Enhanced Stop-motion Performance

- + Captures subjects in motion with improved clarity



Overview

Our Binary Pixel technology combines a breakthrough imager and processing architecture to enable professional quality images from mobile phones and point-and-shoot consumer cameras. The technology mimics the brilliance of human visual processing by sensing photons using discrete thresholds similar to the rods and cones of the human eye.

This “binary operation” allows the imager to capture the full gamut of details in dark and bright by using discrete thresholds to avoid pixel saturation and enable better light sensitivity. Binary Pixel also uses spatial oversampling which sub-divides Individual pixels to capture more data and extend dynamic range of the imager.

In addition, innovative processing improves low-light capture and enhances stop-motion performance for dramatically sharper images of moving objects. The net result is significantly improved image quality and performance in a form factor ideal for mobile devices.

Features

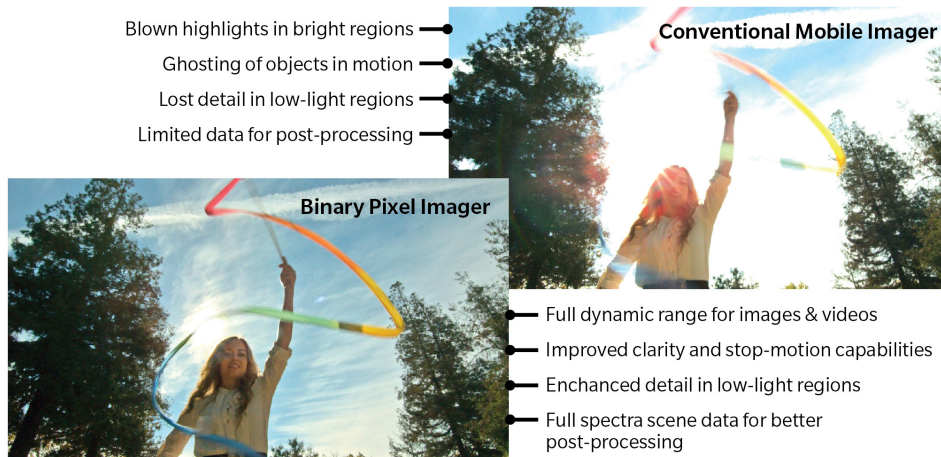
- Single-shot, ultra-high dynamic range
- Improves low-light sensitivity in a single exposure
- Designed to integrate with existing Imaging SoCs
- Maintains a comparable form-factor, cost and power envelope to current CMOS sensors
- Captures full-gamut scene data for better post-processing and color enhancements
- Spatial and temporal oversampling reduces noise and graininess
- Delivers dramatically sharper images of moving objects

Applications

Mobile devices with high-quality cameras including:

- Smartphones
- Tablets
- Consumer Cameras

Binary Pixel Imager Comparison



rambus.com/binarypixel

