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SmartSens unveils SC5A6XS 1-inch 50MP sensor, brings advanced HDR tech, 4K 120fps support

Chinese image sensor maker SmartSens has introduced a new camera sensor aimed at flagship smartphones. The SC5A6XS brings a 50-megapixel 1-inch format and focuses on improving dynamic range and video capabilities. The announcement highlights upgrades in HDR processing, low-light imaging, and power efficiency, setting the stage for next-generation mobile photography.

Focus on HDR and video performance

The graphic features the product name "SC5A6XS" in large white letters at the top, with the tagline "旗舰级手机图像传感器 | 卓越移动影像质感" below it. To the right is a 3D rendering of the sensor chip. On the left, seven dark grey boxes list key features in Chinese:

- 超高动态范围**
Lofic HDR[®] 3.0 115dB 无运动伪影
- 超清画质**
5000万像素
- 超高感度**
1英寸大底 1.6 μ m 大像素
- 低噪声**
自研 SFCPixel[®] 技术
- 双模式快速对焦**
支持 100% 全像素对焦
- 高帧率高动态视频**
4K 60fps Lofic HDR[®] 3.0
- 超低功耗**

SmartSens SC5A6XS

The SC5A6XS is built on a 22nm stacked process and integrates the brand's upgraded Lofic HDR 3.0 technology. This system enhances image quality in challenging lighting by capturing a wider range of brightness levels. With a peak dynamic range of 115dB, the sensor aims to preserve highlight details while retaining shadow information in high-contrast scenes.



The HDR system works through multi-frame fusion within a single exposure, which also helps reduce motion artefacts. This is particularly useful in video scenarios where subjects or the camera are in motion. The sensor supports 4K video at 120fps, along with 4K 60fps recording in HDR mode, making it suitable for advanced video use cases on smartphones.

In terms of hardware, the sensor features a 1.6 μ m pixel size and incorporates SFCPixel technology to improve light sensitivity. With higher sensitivity and reduced read noise, it is designed to produce clearer images in dim conditions without excessive grain.

Autofocus is handled through a combination of full-pixel AllPix ADAF and partial pixel phase detection, allowing faster and more reliable focusing across different lighting environments. Additionally, the company has worked on reducing power consumption, with an approximate 11 percent improvement in HDR mode, which may help control device heating during extended video recording.

The SC5A6XS has already entered the sampling phase and is expected to move into mass production in the second quarter of 2026. It is likely to appear in upcoming flagship smartphones, probably the Huawei Pura 90 series, being the likely candidate, focusing heavily on camera performance.

What are your thoughts on the new 1-inch 50-megapixel SC5A6XS sensor and its HDR capabilities?