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X3 TECHNOLOGY

WINDOWING

A Simpler, More Flexible Approach to Windowing Applications

Foveon X3® direct image sensors support a highly flexible on-chip readout system, simplifying the implementation and enhancing the functionality of digital zoom, scene metering, and other camera features.

The ability to selectively read out any rectangular region of the sensor array, known as windowing, stems from the fact that individual pixels can be accessed anywhere on a Foveon X3 image sensor. Windowing is controlled directly on the chip, allowing any size window at any location to be accessed and displayed with one-to-one pixel resolution.

Foveon X3 Windowing
Windowing with a Foveon X3 direct image sensor allows any rectangular region on the sensor to be selectively read out, enabling auto-focus, digital zoom, and zone metering.

Mosaic CCD image sensors, by contrast, usually have no on-chip window readout capability. At best, they offer a fixed set of preset readout options. With Foveon X3 technology, digital camera manufacturers do not face these limitations, making it easier to implement windowing applications, and enabling them to offer more fexible features.

With Foveon X3 windowing, for example, it is possible to digitally zoom into any region of an image—toward the top, bottom, right, left—depending on the area of interest. Because Foveon X3 direct image sensors capture full color at each point, X3 images captured through digital zoom will not contain the color artifacts typically found in images captured with mosaic image sensors.

In addition to the enhanced digital zoom, Foveon X3 technology offers greater flexibility in scene metering. By specifying multiple window read areas, a wide variety of zone metering patterns can be easily implemented, accommodating a diverse range of lighting situations and end-user needs.

Windowing on a Foveon X3 direct image sensor can also be combined with the VPS capability and use larger pixels to enhance the performance of applications such as auto-focus, digital zoom and zone metering. Powered by the fundamental advantages of full-measured color, Foveon X3 direct image sensors deliver capabilities and image quality that today's mosaic-based products cannot match.