

Xscale

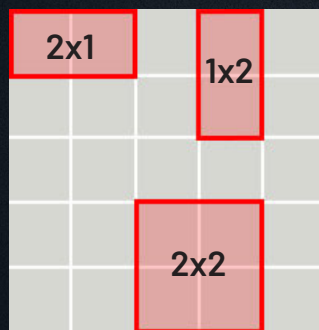
Sub-pixel scaling to meet your pixel size, sensitivity, and resolution requirements

Challenge

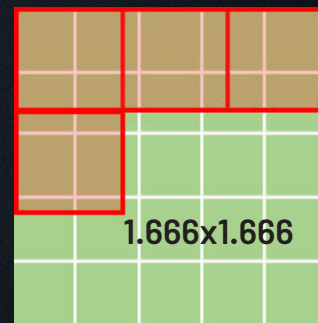
- You need to replace an older camera with a newer one, but the new camera has a different pixel size that requires you to either change the resolution or change the field of view of your existing system.
- Or perhaps you are trying to combine pixels to increase sensitivity but don't want to sacrifice as much resolution as you would need to with 2x2 or 4x4 binning.
- Or maybe you simply want to use binning to increase the sensitivity of a color camera, but your preferred camera doesn't support color binning.

The solution is Xscale

Traditional binning
(monochrome only)



Xscale example
(mono or color)



The power of Xscale

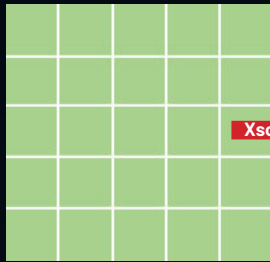
Xscale lets you adjust pixel size, resolution, sensitivity, and signal-to-noise ratio with much greater flexibility than traditional binning. That's because traditional binning is limited to combinations of "whole" pixels, such as 2x1, 2x2, 4x4, etc.

Xscale, on the other hand, accepts floating point values, letting you combine whole pixels with partial fractions of pixels to create "virtual" pixels that are the exact size you need.

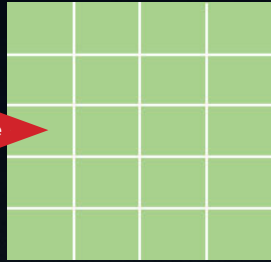
With Xscale you can:

- Use summing to create pixels with higher sensitivity
- Use averaging to create pixels with better signal-to-noise ratios (SNR)
- Combine scaling with ROI to match both the pixel size and resolution/FOV needed
- Apply scaling to monochrome, Bayer, or RGB pixel formats

Square sensor pixels



Rectangular virtual pixels



Xscale

Independent H & V scaling

Xscale offers exceptional flexibility for rescaling pixel sizes. Although most of today's CMOS sensors feature square pixels, there can be times when rectangular pixels are needed for a particular project. This could be needed to match the format of an older camera with rectangular pixels, or it could be to match an asymmetrical binning configuration such as 1x2 or 2x1.

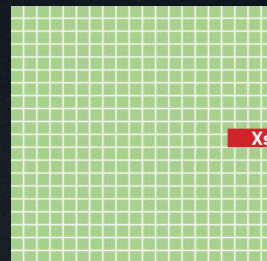
Xscale supports the use of different scaling factors in the horizontal and vertical directions to ensure that you can meet your target pixel size and shape.

Up to 16:1 scaling

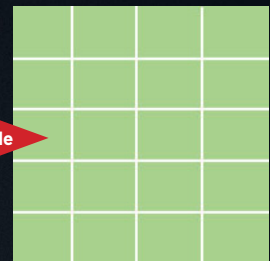
While binning is typically limited to 2X or sometimes 4X size factors, Xscale supports scaling factors up to 16X the starting pixel size on the sensor.

Need the light-gathering capability of a 40 µm pixel? With Xscale's 16:1 scaling range, even this becomes possible.

Virtual pixels up to 16X original size



Xscale



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See the possibilities