

The higher the number of 'dots' on a smartphone, the better the photo is?

The 48, 64 and 108-dot pixel sensor only gives a picture equivalent to the image quality of the regular 12, 16 and 27 megapixel sensors.

Is it the higher the megapixels, the better the image quality will be? The following article will help you answer this question.

Improving the quality of photography on smartphones is a fierce race between manufacturers to attract the attention of users.

Taking good pictures is one of the key factors to the success of modern smartphones. Manufacturers have many different directions to improve the quality of photos. Some are available with 48, 64 or even 108 megapixel high-resolution sensors on mid-range phones. Meanwhile, Apple or Google realize that the camera with only 12 "dots" is enough to make a difference.



iPhone 11 and Pixel 4 are the smartphones that are rated as the best photos today. Photo: Digital Trends.

What does the megapixel count say?

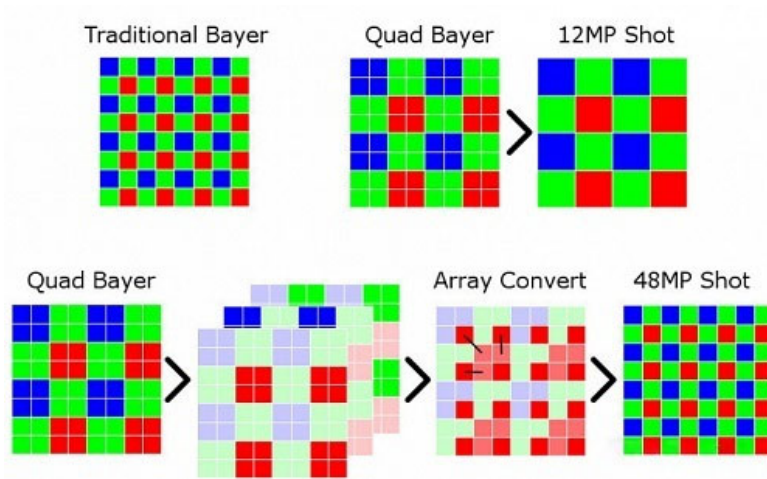
Megapixel represents the number of pixels of an image, 1 megapixel is equivalent to 1,000,000 pixels.



Photos taken with Pixel 3 (left) with a 12-megapixel camera are much more detailed than Honor 9X with a 48-megapixel camera (right).

In mobile photography, most high-resolution cameras on smartphones use pixel binning technology, combining data from four adjacent pixels into one large pixel.

In fact, advanced processing algorithms play a more important role than megapixels when it comes to mobile photography. This is because most high-resolution cameras on smartphones use pixel binning technology, which combines data from four adjacent pixels into one large pixel. This technology helps the smartphone camera sensor to capture more light without increasing the size, but the image quality will be reduced by four times.



The principle of operation of the Quad Bayer filter is fitted on current smartphones. Photo: Android Authority.

Moreover, many 48 "dot" smartphones now use Quad Bayer color filters, replacing traditional Bayer filters. Quad Bayer is still made up of 50% green filters, 25% red filters, 25% blue filters, every four pixels of the same color will automatically gather in a cluster, then processed by algorithms to sort color clusters.

Therefore, 48, 64 and 108 "dot" sensors combine pixels only for pictures equivalent to the image quality of 12, 16 and 27 megapixels, respectively.

The future of mobile photography is the algorithm

Over the past few years, manufacturers have stopped racing the number of "dots" on smartphones. Instead, they use algorithms to improve the photography quality of leading products.

Besides the obvious efficiency in increasing detail, the algorithm also detects colors and adjusts white balance to make photos look natural under all lighting conditions. Thanks to image processing algorithms, manufacturers can develop many breakthrough features, such as night mode, create depth-of-field effects, AI to identify the scene . You can see it on iPhone night shots, Pixel 4 astrophotography, or the 5x zoom image combined with the P30 Pro's lens.





Portrait, blurry backgrounds taken with Pixel 2 (1), astrophotography with Pixel 4 (2), low-light shots with Pixel 4 (3).Photo: Android Authority.

Today, smartphone image quality is not only dependent on the camera, but also by the image processor and machine learning technology. Apple, Huawei and Samsung are constantly researching and improving their independent image processors, while Google integrates them directly into the Neural Core processors. These chips are really necessary to implement advanced image algorithms in a short time and save energy on the device.

Some algorithm-based features such as night mode and background blur are available for many mid-range models, but the expensive hardware price makes them temporarily unable to reach most users.

As costs decrease over time, these features will soon be available on budget smartphones. At the same time, manufacturers no longer have to use megapixels to attract more users.

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