

Definitions of Pixel and Resolution

Pixel

A pixel is a tiny dot of light on a monitor or TV screen. "Pixel" stands for Picture Element. It is the smallest part of every image you see on the screen. Pixel also refers to the tiny "cells" that gather information in a digital camera. The term "megapixel" which is found on most digital cameras, means one million pixels.

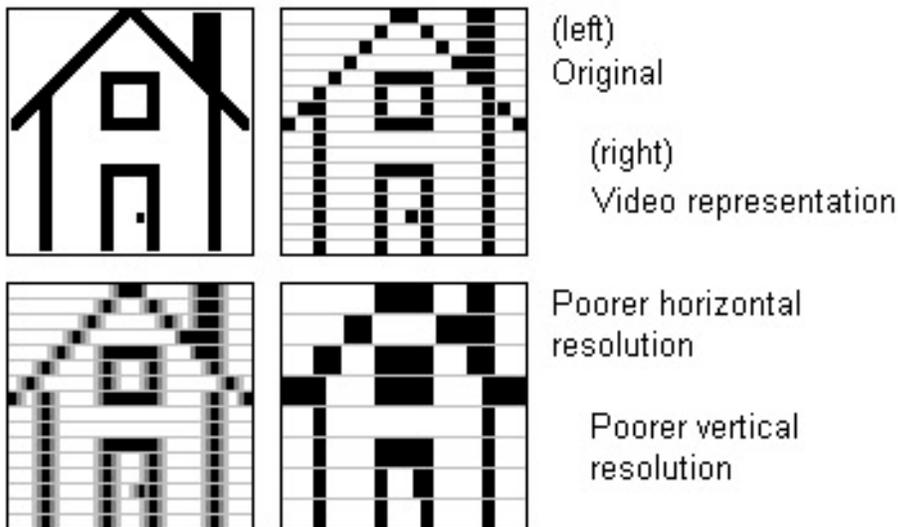
If you blow up a picture, you can get an idea of how the separate pixels work together to create a picture. Each square is the equivalent of one pixel. Each (colored) pixel is made up of three "rays" of light: red, green, and blue (RGB). Each ray of color is energized to different intensities, creating a range of colors perceived as the mixture of these dots. Black is all three dots dark, white is all dots light.

Resolution

Resolution is the degree of sharpness of a displayed or printed character or image. On a computer monitor screen, resolution is expressed as a matrix of pixels. For example, the resolution of 640x480 means 640 pixels across each of the 480 lines. The same resolution looks sharper on a small screen than a larger one because the individual pixels are smaller.

Demonstrate this by opening an image in software for editing digital photos, then clicking on the zoom control for 100%. This is high resolution. Notice the quality of the image. Can you see any pixels or dots? Now click on the zoom control again, and then click on 1600%. This is low resolution. Can you see any pixels or dots?

The higher the number of pixels, the better the resolution. The higher the resolution, the larger and higher quality prints you can make. Higher quality photos take up more space on your media card, but they will give you the best prints.



This guide will give you a very general idea of what to expect in terms of megapixels and output size:

# of Pixels	Print Size
Less than 1 megapixel	Good for emailing
1 megapixel	4 x 6 inch prints
2 megapixels	5 x 7 inch prints
3 megapixels	8 x 10 inch prints
4 megapixels	11 x 14 inch prints
5 megapixels	16 x 20 inch prints

Keep in mind everyone’s perception is different. You may be happy with an 8 x 10 inch print made from a 1-megapixel digital camera, but your quality-conscious neighbor may think it looks too “jaggy.” If you figure out the largest print size you will ever want to make, and then buy the digital camera, based on the chart above, with the megapixels to match, you’ll probably be satisfied with your digital camera. If you often crop images, then a higher number of initial pixels is required on your camera.

Higher resolution on a monitor means there are more pixels per inch, so images look better because more detail can be seen. Higher resolution while scanning will also produce better looking scans, but the file size will greatly increase with higher resolution.

■ Number of storable pictures left
Number of still pictures that can be taken

Recording mode	Number of pixels	File	Memory capacity (Image only/Image with sound)						
			2MB	4MB	8MB	16MB	32MB	64MB	
TIFF*	1600x1200	TIFF	0/-	0/-	1/-	2/-	5/-	11/-	
	1280x960		0/-	1/-	2/-	4/-	8/-	17/-	
	1024x768		0/-	1/-	3/-	6/-	13/-	27/-	
	640x480		2/-	4/-	8/-	17/-	34/-	68/-	
SHQ	1600x1200	JPEG	1/1	2/2	5/5	11/11	22/22	45/44	
HQ	1600x1200		4/3	8/7	16/15	31/30	64/60	128/120	
SQ	HIGH (quality)		1280x960	2/2	4/4	8/8	17/16	34/33	69/67
	NORMAL			6/5	12/11	24/22	49/45	99/90	199/181
	HIGH (quality)		1024x768	3/3	6/6	13/12	26/25	53/51	107/102
	NORMAL			9/8	18/16	38/32	76/66	153/132	306/265
HIG (quality)	640x480	8/7	16/14	32/29	66/58	132/117	265/234		
		NORMAL	21/15	40/30	82/61	165/123	331/248	664/498	

File size for printing

<u>pixels</u>	<u>inches</u>	<u>printer resolution</u>	<u>comments on file size</u>
1600	8	200	
2000	10	200	
3,200,000			3200K needed for 8x10, at nice printer resolution
1000	5	200	
1400	7	200	
1,400,000			1400K needed for 5x7, at nice printer resolution
800	4	200	
1200	6	200	
960,000			960K needed for 4x6, at nice printer resolution
600	4	150	
900	6	150	
540,000			540K needed for 4x6, at so-so-nice printer resolution
288	4	72	
432	6	72	
124,416			124K needed for 4x6, for viewing on a web page