Megapixel Madness

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This 35mm format (Nikon 990) does not use all the pixel sensors, so the megapixel count for this file is less

DIGITAL CAMERAS now come in just about every shape, size and combination of features. Photo lab owners and their customers are confused by this landslide of new digital terminology, especially the concept of megapixels being digital film. The more informed a photo lab can be regarding this new technology, the better they can advise their new digital customers.

A digital image is comprised of pixels, which is short for picture element. Megapixels suggests that each picture has one million pixels of resolution. This is where things get a bit confusing and it all becomes a can of worms. The quality of digital cameras is primarily dependent on the size of the CCD (Charge Coupled Device) and how that data translates to an image file. Although each chip has a specific resolution based on its size, not all cameras use the chip in the same manner. Because film is based on the 35mm format, many digital cameras want to closely simulate this format. In order to accomplish this, they end up cropping the image that the chip records, and lowering its resolution. Many of the newer digital cameras give you the option of using the cropped 35mm format or the full chip usage that closely simulates television format.

This TV format (Nikon 990) does not use all the pixel sensors, so the megapixel count for this file is

Another reason for confusion on image resolution from the CCD chip is that many digital cameras do some firmware enhancements to the data recorded on the CCD chip. This enables them to come up with a higher resolution. Some cameras will interpolate, pixel shift, or extrapolate data. Whatever terminology or technology they use, these methods take the captured data and insert new data between the pixel values, thus increasing the resolution.

The key to understanding resolution when buying a megapixel camera is to look at the specifications of the physical size of the chip and just how many actual megapixels it will hold. Even when the values are identical from one digital camera to the next, you can still find variations. The difference in image quality can be due to manufacturing quality control, the method that the data is handled by the image processor and camera lens quality.

In digital's infancy stages, a field of experts decided that the file size for the photo CD should approximate the resolution of film. Their extensive calculations indicated an 18 megabyte file size is necessary to allow a digital picture to give film a run for its money. Since file size is three times the megapixel designation, an 18 megabyte file size has the equivalence of 6 megapixels. Most digital cameras today have about 3 megapixels. There are some 6 megapixel cameras available today, but they boast a hefty price tag. As technology improves and prices drop, 6 megapixels will become the norm.

Another factor in this megapixel madness is the variety of methods for storing images within the camera. You can find CompactFlash, SmartMedia, Memory Sticks and even Micro drives.
The two most popular are the CompactFlash and SmartMedia. Both use non-volatile memory, which means that they do not need a power source to keep the data safe when the storage device is not in the camera. The SmartMedia uses a control in the camera that allows it to be compact and less expensive. The CompactFlash has its own controller within

the card, so as cameras evolve these cards will probably have fewer compatibility issues than the SmartMedia.

Whichever card you decide to use, you must balance the quantity of images to desired image quality. Since you bought a digital camera with several megapixels, your best results are when you image at the camera's highest resolution. The problem is that this results in the largest image files and you can't store very many files on your digital film.

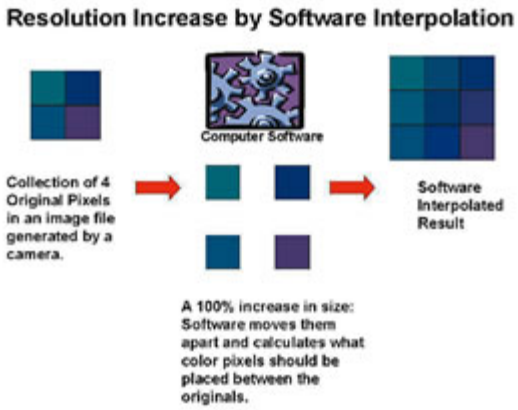

Image compression helps reduce file size and increases the number of images that you can store on a card. The key is to find the right combination and compromise of resolution and compression.

Our tests on different digital cameras show that the best balance between quality and quantity is to use the highest image resolution and the default compression, which is somewhere in the middle.

Once you have your images stored on digital film, you need to get them into your computer. When digital cameras first came out, most used a direct connection to the computer for downloading. Now we have many types of digital film card readers on the market. You can get readers dedicated to one type of card, or a reader that can accepts two or three types of storage cards. Most connect through the USB port, but there are a few that use firewire, standard serial port, or even printer ports.

The best part is that readers are simple to use. When your card is full, insert it into the card reader and they will come up on your computer screen. Drag the files from your megapixel image card to one of your computer's main data drives, and then delete the images on the card. You now have a clean slate and are ready for more digital action.
Although perception of quality is in the eye of the beholder, there will come a time when a client wants you to produce a large print from a too-low resolution file.


Fuji FinePixPro image shot at the 6 megapixel level.

There is now hope for these customers, with a special software compression program called Altmira Fractal Print Pro. This program takes digital files and converts them to a new type of fractal printing format.

Once the file is reloaded, you can increase the image resolution to the larger print size, and the pixelation evident with a low megapixel image is no longer visible.
