Beyond Megapixels - Part II

Written By Joe on Apr 30, 2004

This is the second in a series of three editorial articles examining current digital photography hardware, as well as my views of what is to come. In this segment I will be focusing on build, size, weight and ergonomics of camera bodies, as well as the size, weight, function and versatility of the glass strapped to the front of it.

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Introduction

The best sensor in the world is worth nothing without a body and lens that compliment its design. Today I will be looking at the build, size, weight and ergonomics of camera bodies, as well as the size, weight, function and versatility of the glass strapped to the front of it.

Bodies

In the previous article we looked at the sensors of the newest 8 megapixel “prosumer” cameras, including the Nikon Coolpix 8700, Olympus C-8080 WZ, Sony DSC-F828, Minolta DiMAGE A2 and Canon PowerShot Pro1, as well as the latest 6 megapixel DSLRs, specifically Canon’s Digital Rebel and Nikon’s D70. The DSLR bodies, which are similar in size to their 35mm film counterparts, are equipped to mount an extensive line of 35mm lenses, as well as a few lenses designed specifically for their APS-sized sensors. Anyone that has handled a DSLR body and accompanying lens knows they might be considered a bit bulky, both in size and weight. Even though these entry-level DSLRs use considerably more plastic than their near-bulletproof professional grade siblings, they still weigh in between 550-600 grams, not including the added weight of a lens. With dimensions around 140x100x75mm, you can understand why it might require some creativity to sneak this camera into the Britney Spears concert.

Right, right, right. So maybe DSLRs *can* be a little bit unwieldy, but that is the price you have to pay for the use of a high quality APS-sized sensor, right? Not exactly… APS sensors are still less than half the size of 35mm film. The sensor does not *need* the camera body to be so large. The lens, however, does. Therefore, the size of the camera body is the price you pay to use the long lines of existing 35mm lenses. The question of need for 35mm lenses is another matter, which will be addressed later in the article, but in theory, camera bodies made specifically for APS-sized sensors *could* be smaller.

The first thing that always surprises me when I first hold a prosumer camera is how darn *small* they are. But why shouldn’t they be? The 2/3” sensor doesn’t require a huge lens, and the body can be designed for use with a single, non-interchangeable lens. For the designers of the camera, it becomes a question of “how small can we make it while still fitting in all of the needed electronics, and how do we need to shape it so that it fits into the hands of the consumer?” The problem here is that the size of consumer’s hands varies greatly. How small is too small, how big it too big and what feels well in the hand are questions subjective to the individual consumer. I have had the opportunity to briefly handle all of the 8 megapixel digicams except for the Olympus. I personally found the Minolta and Canon quite pleasing, while the Sony seemed awkward and the Nikon too small. With the added weight caused by the huge lens, the Sony may be heavier than some are willing to strap around their neck for a day at the zoo. Speaking of weight, the five prosumer cameras range from about 500 grams (Nikon) to just over 900 grams (Sony), but keep in mind that this number includes the lens.

You will still find some plastic used on the prosumer cameras, but to many they may feel equally as or more solid than the entry-level DSLRs. The camera should feel very solid in the hands, and not creak or bow when given the squeeze test. (Grip the camera as you would when shooting and squeeze.) The junction between the lens and body should be solid as well. Although none of these cameras are indestructible, a good one will survive a minor drop.

There have been many a time when my DSLR stayed at home while the smaller and lighter camera got to go out for a day of play. The DSLR might have produced a superior image, but if I get tired of carrying it around, it's not going to produce **any** image. Prosumer cameras can be a very good compromise between DSLR quality and compact consumer camera portability.

Lenses

Keeping in mind that this is an editorial piece and not a review (along with the fact that I have not had a chance to thoroughly test all five prosumer digicams or the plethora of lenses available for SLRs) this section of the article will not delve into the individual quality of the lenses in question. Rather, we will look into advantages and disadvantages of the *types* of lenses, particularly between the prosumer cameras and DSLRs.

We've established that APS-sized sensors do not require 35mm-sized lenses. The sensor only receives the light that passes through the center of the lens, while the light on the outer region simply falls to the side of the sensor. This isn't necessarily a bad deal because the center of the lens is the "sweet spot", generally being sharper than the edges of the lens. Second, by utilizing the interchangeability of the lenses on a DSLR, you open yourself up to the use of dozens of lenses appropriate for all kinds of various uses and prices from around $60 up to, and in excess of, $8,000. For photographers switching from a film SLR to a DSLR of the same brand and mount, this means your investment in lenses does not go out the window.

For all these positives, there are some certain drawbacks. 35mm lenses are bigger and heavier than really needed and because of the wide opening of the lens-mount, the cameras themselves are larger as well. There are a handful of lenses designed specifically for use with digital cameras with APS sized sensors. These lenses are smaller and lighter but the size and weight of the camera, of course, remains the same. Since the light is captured from the center-most region of the lens, you will lose the widest angle of the lens. This crops the image in such a way that is often perceived as extending the telephoto length of the lens, although this is not actually the case. To determine the 35mm equivalent of the lens on an APS-sized sensor, you can multiply a given focal length by 1.5 (Nikon) or 1.6 (Canon). For instance, the effective focal length of a 50mm lens on a Nikon is 75mm.

With prosumer cameras, the lens is designed solely for that body, and hopefully with that specific sensor in mind. I say hopefully, because sometime a next generation sensor is simply swapped with the previous generation sensor, and the lens remains the same, possibly providing inadequate lens resolution for the new sensor. Since the light is being projected onto a sensor much smaller than that of a DSLR, the lenses can be much smaller. The smaller size also reduces total camera weight. Prosumer cameras also tend to have a high magnification of 5-8x, ranging all the way from 28mm to 280mm (35mm equivalent).

Prosumer camera lenses are handicapped by a rather limited aperture range. While an aperture of f2.8 on a digicam is equivalent to f2.8 on a good 35mm lens in the light it provides to the sensor, it does not have near as shallow depth of field. For photographers that desire to shoot a portrait with a nicely blurred background this can become quite an obstacle. On the other side of the coin, these cameras are limited to an aperture between f7-f11, which works fine depth-of-field-wise, but may cause trouble in situations with very intense light, such as when using high-powered studio strobes. Canon's Pro1 has a built in neutral density filter to overcome this obstacle, but the other cameras may need add-on filters.

Conclusion

This week we are left with much more of a draw than in Part I. There are instances when I find the convenience of a prosumer camera weighing heavily against the image quality of a DSLR. Likewise, there are times when I would certainly not trade image quality for a smaller and lighter camera. In this price range, the build qualities of the cameras are similar, and feel is totally subjective to the consumer. While image quality can be compared using the many, many online resources, I have to suggest going out for a hands-on trial before making a purchase.

Lenses will vary from camera to camera, but with non-interchangeable lens cameras, it comes down to final image quality. People argue back and forth about a camera's resolution being limited by the lens, or that a lens is too sharp for the sensor it is paired with, but since you can't *change* the lens all you are left with is, well, an argument. For DSLRs, your options are virtually limitless. You should have no trouble finding a lens suitable to your needs, but keep in mind when purchasing the camera that additional lenses can drive the total system cost up quite a bit.

I would like to see a new body and lens system designed specifically for APS-sized sensors. Users of 35mm lenses might be disappointed in having to buy new lenses, but for the multitudes of photographers who have not bought in to a lens system, it could be the product they have been waiting for. The Four-Thirds initiative by a conglomeration of manufacturers is interesting to say the least, but the 4/3" sized sensor has not been developed to a point that it is truly competitive with larger APS-sized sensors. Olympus' E-1 DSLR is a nice looking camera, and seems to have a great set of lenses, but the image quality just doesn't seem to be there yet.

In the next (and final) article in this series, I will look into file-types, in-camera functions and camera features. Beyond Megapixels - Part III is coming soon, so don't touch that dial!