

# Shooting For Quality & Width



By Nick Melidonis

## Panoramas Part 1

Panorama formats have always been favoured by landscape enthusiasts and photographers like Ken Duncan have made this style one of the most popular in photo galleries. Panoramas generally have a ratio of around 3:1 compared to the 35mm 3:2 format. Film cameras such as the 35mm Hasselblad X-pan and the Noblex 135U produce full frame panorama images and are very well priced on the second-hand market today.

We are also used to seeing images on the 16:9

format on plasma and LCD TV monitors and the latest High Definition camcorders have accepted this ratio as well. I recently purchased a Panasonic Lumix DMC LX2 compact camera that has a 16:9 ratio sensor (the only one on the market that I am aware of) that produces very good panorama images. This 10.2 megapixel camera also has a Leica lens, full manual controls and fits easily in the palm of my hand. I was pleasantly surprised to purchase it on-line for under \$600.



A set of images taken in the tiny port of Klima on the Greek Island of Milos. Canon EOS 5D, 1/8 second @ f10, ISO 400, 28mm lens, Gitzo tripod. Note the photo of my hand at the start of the set to enable me to find sets of pano images easily after downloading a CF card.



The final stitched version of Klima, Milos after some minor Photoshop enhancement. The file size produced allowed me to print an image one and a half metres wide. On this occasion I used a set of horizontal images rather than vertical.



**Oia, Santorini at sunset. This image was taken with a 35mm Hasselblad X-pan using Velvia film. The perspective of this true panorama format image has a viewpoint similar to what the eye perceives.**

Of course, a quick and easy method of producing panorama images is to crop an image top and bottom; however, this produces a much smaller file size. A friend of mine who specialises in panorama images produced wall sized prints for years by shooting multiple rows of images and blending them in a stitching program using no more than a Canon 10D digital camera.

If you use a 16mm lens for a wide format view and crop it top and bottom, you will find the perspective it gives will be very different from that perceived by the human eye. The image will appear to have been stretched and the background will appear small and far away compared to the foreground. This is why proper 35 mm film panorama cameras use focal lengths of around 45mm as their 'normal' lens.

With digital cameras these days, it is relatively easy to produce a series of photographs to capture a panoramic view and stitch them together. The file size will also be much bigger, allowing a decent size print to be made. The initial capture can also be from film and then scanned and stitched together. I have been able to produce very good results this way as well. Software stitching programs are often bundled free with some hardware purchases and even Photoshop has a photo merge option that can produce reasonable results if care is taken when capturing the images. In my experience, if you use a dedicated stitching program you will get far superior results. (Ed. Photoshop CS3 was just being released when Nick wrote this article, so you may find he's quite happy with the new stitching menus in the latest version.)

In this set of articles, I will focus on single row stitching (both horizontal and vertical alignment), but multi row stitching is possible and not that much more difficult. The friend I mentioned earlier often uses 9 rows of 5 images and then stitches all

45 frames together seamlessly. The program used to do this is PTGUI (Panorama Tools Graphic User Interface) and I will use this program for the articles. It works brilliantly in most situations, is easy to use, and has advanced options and costs around AUS \$100 to buy.

## **The Basics**

If you want to get the best results with panorama images that appear seamless and produce decent size files for printing, you need to be aware of the following points:

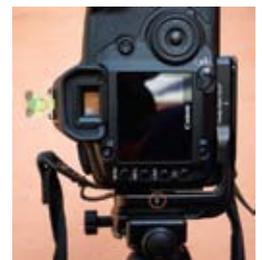
**Level The Tripod Head.** Use a tripod and a spirit level (either built into the tripod or mounted on the hot shoe of the camera – preferably both) to level the camera base when rotating it while shooting. If your row of shots is tilting at different angles, the stitched image will be curved and when you crop it, you will lose a lot of 'real estate'.

**Don't Use A Polarizer.** Anything wider than about a 28 mm lens will produce a dark blue blob in your sky as the sky polarises by different amounts in different directions. If you extend the view to a wide panorama, the blob will definitely appear and will be difficult to remove, even with Photoshop.

**Overlap The Images.** You need to give the software a chance to find and match control points in the images to align them. Overlap your images by around 30 percent to be safe. Where possible, avoid elements with lots of detail like trees or buildings at the edges of your frames.

**Avoid Moving Subjects.** Try to avoid scenes where subjects are moving between each frame. They are not going to be easy to match and you could also finish up with the same subject in more than one shot.

**Focus Manually.** Choose your aperture for the desired depth-of-field and then manually focus your



**A useful device produced by the US firm 'Really Right Stuff' is an angle bracket that is permanently mounted on the camera body. This permits quick changes from vertical to horizontal mounting of the camera. Note the indicator (circled in red) which shows the midpoint of the lens barrel. The camera should rotate around this point for least distortion of the images.**



**Cathedral Hall, Bungle Bungles, Kimberley WA. Canon EOS 5D, 1/8 second, f8, ISO 320, 16mm lens. I was positioned at the very back of the cavern wall and had the choice of either taking a set of multiple row images to capture the scene or a single row set using the widest lens I had, a 16 mm lens. I chose the latter and was very happy in the way the software program PTGUI handled the distortion and still produced an excellent result.**

image. If you can't be bothered using depth-of-field tables, either use the depth-of-field preview button or focus about one third into your image. Leave the focus the same for all the frames you shoot in the set (i.e. turn off the autofocus). Image size actually changes when you change focus.

**Leave The White Balance The Same.** Again, you don't want to have different colour casts across your panorama. Take the white balance off 'Auto' and set it manually.

**Lock In The Exposure.** Scan the scene with the camera first to try to find an average exposure to cope with the light and dark areas of the whole image. Use manual exposure and not auto-exposure. As a rule of thumb, expose for the lightest part of the image to prevent blowing out the highlights. An advanced technique that is possible is to bracket three exposures for each shot and stitch them all for the best balance. PTGUI will allow you to do this, but it is beyond the scope of this article.

**Use A Portrait Format When Shooting.** It seems intuitive to take horizontal frames for single row stitching and this can work very well. However,

if you want to minimise distortion and get the best results, use a vertical format. Also use a lens of around 28mm focal length or longer to avoid a lot of distortion. Having said that, in some situations I had to use wider lenses and still managed to get the software to produce good results.

**Finding Your Images.** If you're like me and take hundreds of frames at each location, you can forget where each set of pano images start when you have downloaded your card. A simple solution is to take a photo of your hand before each set. It mightn't look Koshier on the digital light box, but it works.

**Film Scans.** If you are using film scans, then use the same settings for all your scans and turn off the scanner's auto functions.

The suggestions above might seem a little tedious, but I'm sure you'll agree it's all common sense in obtaining a set of images that can be successfully stitched together. The more uniform they are, the better the result.

In part 2 of this article, I will outline how to assemble a set of single row images into a seamless panorama. You may wish to try and shoot a few sets of images before the next issue.

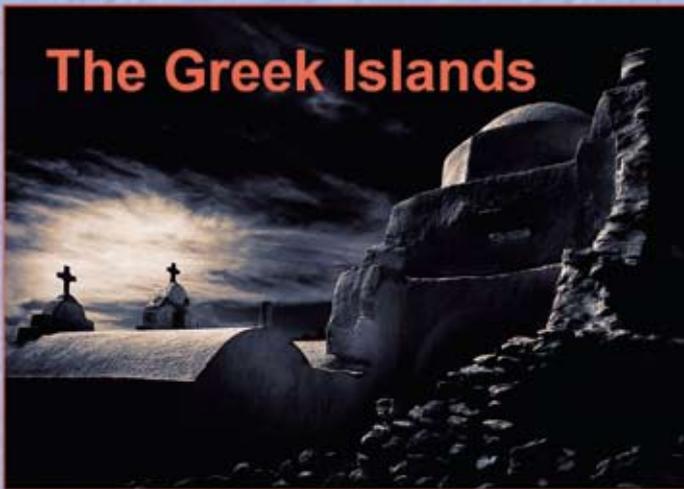


When the platform is level, then the camera can be levelled using a spirit level mounted on the hot shoe. These can be purchased at most good camera stores.

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A useful feature of my carbon fibre Gitzo Mountaineer is the pivoting centre column which allows me to manually rotate it and level the shooting platform with an in-built spirit level. The advantage of this is that it can be done after the legs have been positioned, often on an uneven surface. A level platform is essential to preserve the maximum image area after a stitch is made.



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