

PIXEL PARADOX



We pitch Fuji's FinePix 4700 with its new 4.3 million pixel Super CCD against the first 3.3 million pixel camera from Casio

WORDS & PICTURES RAY ALLEN

When Fuji announced their MX4700 camera it created quite a stir. It's not surprising considering the camera has a new honeycomb-shaped CCD that Fuji claim delivers pictures with 4.3 million pixel resolution. That's quite a feat considering the next generation of cameras that are reaching our shores only have 3.3 million pixel CCDs. For most of us three million pixels will give outstanding results, especially when combined with one of the latest photo realistic inkjet printers, but 4.3 million pixels should have a clear advantage.

To find out, we pitched the Fuji against the first of the new 3.3 million pixel cameras we could get our hands on – the Casio QV-3000EX.

Features *What do the cameras offer?*

Casio QV-3000EX

This model features a 3.3 million pixel CCD that gives a 2048x1536 image area. Casio have chose Canon to supply the optics – an eight element lens with a 3x optical zoom offering a focal length of 7-21mm (equivalent to 33-100mm on 35mm) and an aperture range from f/2 to f/8. There's also a digital 6x zoom and close focus down to just 6cm. There are three metering modes – multi-pattern, centre-weighted and spot – and the shutter speed range is 1/2 to 1/1000sec. Various exposure modes and manual overrides are also available

Two image sizes can be saved – 2048x1536 and 1024x768 – and it's IBM microdrive-ready (see Card Types Explained overleaf). There's an AVI movie facility offering up to 30 seconds but no sound recording. Communication is handled by serial, USB and infrared. Video out is PAL and NTSC. There's also an HTML image browsing feature – useful when navigating IBM microdrive. Four AA cells are used to power this camera.

Fuji FinePix 4700zoom

The FinePix delivers 4.3 million pixels with images of 2400x1800, but the CCD has just 2.47 million pixels. Confused? See the Super CCD vs Normal CCD panel. Its f/2.8-4.5 super EBC Fujinon lens is equivalent to 36-108mm, with a 3.75x digital zoom and a close focus down to 20cm. There's a three frame continuous shooting mode at 0.2 seconds per image and three image sizes can be selected – 2400x1800, 1280x960 and 640x480 – along with three levels of compression. Shutter speeds range from 3 seconds to 1/2000sec with spot or 64-zone metering and there's a choice of three ISO settings – 200, 400 and 800. A video capture mode can take up to 80 seconds at 10 frames per second with sound, and a tiny speaker in the body allows you to hear the audio playback. Other features include USB connection (no serial), audio and video out (PAL). Power is supplied by two AA cells. Fuji have a new way of navigating menus by using a jog-view dial arrangement. A small LCD has the functions for the mode you are in and selection is made from the cursor keys which surround the LCD.

Handling Ease of use

Casio QV-3000EX

Casio have come a long way since their first cameras and this is the best yet. It's on the large size for today's cameras and definitely looks oversized when compared to the Fuji, but it compensates by being nicely balanced and solid to hold. Controls are well laid-out apart from the zoom switch because it doesn't have much play, feels like it doesn't move and is also on the small side. The viewfinder is big, clear and also features a dioptic adjuster for spectacle wearers. Start-up time is about five seconds – twice as long as the Fuji. While saving images to memory card is about two seconds which is twice as fast as the Fuji. The tripod mount is offset so batteries can easily be changed even when the camera's on a tripod.



Fuji FinePix 4700zoom

Following in the style of previous Fuji digital cameras it may seem too small at first, but you soon become accustomed to the size. Start-up time is around two and a half seconds and takes just under four seconds to save an image. You can take another picture after about a second (the time it takes to focus), and you can repeat this until the buffer is full which then prevents the shutter from firing. In everyday use this means you can take up to five

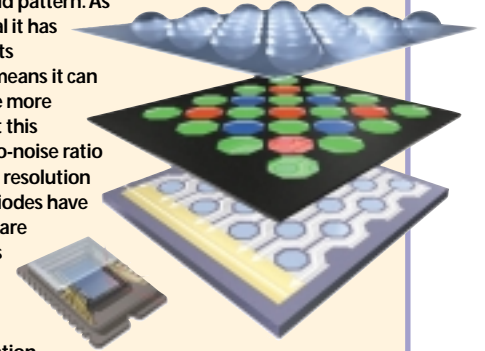
pictures quickly without waiting for the camera to save each image. The zoom is smooth and faster than the Casio.

The only thing you need to remember is to flip up the flash if needed. Button layout is good. The latch that conceals the memory card can be accidentally opened when the camera is retrieved from your pocket, so watch for this.



SUPER CCD VS NORMAL CCD

When is a 4.3 million CCD not a 4.3 million CCD? When it's a 2.4 million Super CCD! Fuji have been working on what they say is the next step in camera CCD technology. They have designed octagonal photodiodes which are arranged in a honeycomb pattern. Normal CCDs are square in shape and arranged as a grid pattern. As each photodiode is octagonal it has a bigger surface area than its square counterpart which means it can capture more light and give more detail. It is also claimed that this shape can improve signal-to-noise ratio and dynamic range. As CCD resolution goes up the square photodiodes have to be made smaller so they are packed closer together; this reduces surface area and is where super CCD comes in. Research has found normal CCDs capture more information along the 45° diagonal. But we see along vertical and horizontal, so the super CCD can capture detail in all directions. Since our new story last issue Fuji have removed the 4.3 million pixels badge from production models of the FinePix camera which may confuse the issue. At the end of the day it's the results that count and we have more overleaf.



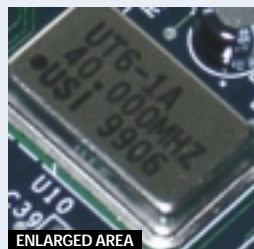
Both cameras have very different top plates. The Casio main mode buttons are behind the shutter release while the Fuji ones are on the back panel. The moulded handgrip of the Casio makes it comfier to handle, but also bulkier.

CLOSE-UP AND FLASH CAPABILITIES

Casio 6cm macro mode is among the best you can get from domestic digital cameras. Sharpness is great and the amount of detail its 3.3 million CCD and lens arrangement can capture is staggering. Considering the price it's superb!



MACRO MODE



ENLARGED AREA

Casio's flash range is almost the same as the Fuji from 0.5m to the upper limit of 4.0m. As you cannot change the ISO setting, that's the limit of this flash. Intensity is variable and can be changed from the sub menu, which gives you more control of the flash.

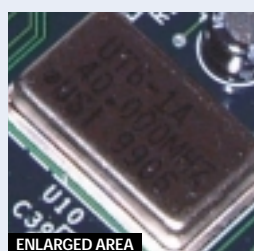


FLASH

Fuji's macro mode does not go down to the depths that the Casio can with a 20cm limit, but close-up shots are still good. To compare the two we shot the same circuit board (left) and enlarged a portion to show the image quality (right).

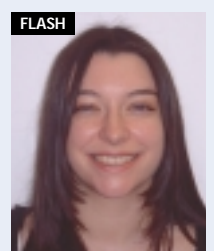


MACRO MODE



ENLARGED AREA

Fuji flash range is around 0.2–4.0m in wide angle and 0.2–3.0m in telephoto. You can, on this camera, increase the flash distance by upping the ISO to 400 or 800 but this increases picture noise. This camera struggles to focus in very low light.



FLASH

Specification

Casio QV-3000EX

£700

Comes in a kit which doesn't include Hi-MH rechargeable batteries or charger. Casio should also include a bigger size CompactFlash as 8Mb is not very useful, holding only four fine images.



- Memory:** CompactFlash
- Power:** Four AA – no charger supplied.
- Screen size:** 1.8 inch HAST TFT.
- Supplied card:** 8Mb giving 7 pictures in fine mode, 14 in normal and 28 in basic. Can accept IBM microdrive.
- File format:** JPEG only, no TIFF option.
- Lens:** 33-100mm Canon optics with 8 elements in 7 groups.
- Weight:** 320g without batteries.
- Dimensions:** 81x135x58mm.

Software

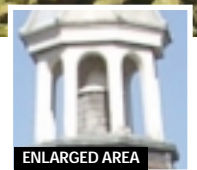


The Casio software collection includes Panorama Editor and Photo Loader. You can use your Web browser to navigate your images. There is no Macintosh software on the CD, but Casio supply a USB driver. If you have the latest USB drivers from Apple this is not needed anyway! USB is the best way to get images out from your camera.

Outdoor ambient exposure



Both cameras have a 3x zoom but Casio's has a slightly wider viewing angle making it ideal for taking landscapes and building. With the power of 3.3 million pixels and a good tripod you can get outstanding pictures from this camera – helped by the Canon lens.



ENLARGED AREA

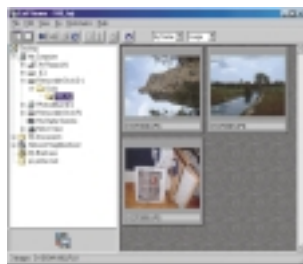
Fuji FinePix 4700

Zoom £700

The box contains all you need to get going and with a good manual too. The only thing missing is a carry case.



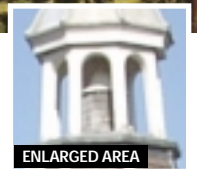
- Memory:** SmartMedia.
- Power:** Two AA Ni-MH power the Fuji, it also comes with a fast charger.
- Screen size:** 2.0 inch polysilicon TFT.
- Supplied card:** 16Mb card giving 8 pics in fine mode, 18 in standard and 45 in basic. It also accepts 64Mb SmartMedia cards.
- File format:** JPEG only, no TIFF option.
- Lens:** 36-108mm 6 element multi-coated lens, including aspherical lens.
- Weight:** 255g without batteries.
- Dimensions:** 78x97.5x32.9mm.



The Fuji Software supports PC and Macintosh giving it the edge on the Casio. You get USB drivers, Exif Viewer and Adobe PhotoDeluxe Home Edition. An Acrobat PDF version of all the manuals are also on the CD. As with the Casio, using USB is a joy.



Using the Fuji in landscape mode is very good and the exposure is spot-on. If we had to find fault it would be the colour, which is very slightly on the blue side. Given the size of the optics, the FinePix 4700 can bring in some great pictures.



ENLARGED AREA

IMAGE STORAGE: CARD TYPES EXPLAINED

Camera manufacturers tend to stick to the same type of storage media of which there are two main types – SmartMedia and Compact Flash. Sony have also been pushing the new arrival MemoryStick – not surprising as they invented it!

Each type of storage device has good and bad points. SmartMedia is physically the smallest and currently goes up

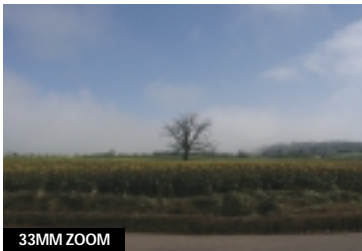
to 64Mb. MemoryStick is also at 64Mb, but bigger sizes are promised. Compact Flash has the biggest capacity, currently at 160Mb. The down side is it's also the most expensive with SmartMedia being the cheapest of the three

and Memory Stick in the middle. Some cameras that use CompactFlash can also take the new IBM 340Mb microdrive. As camera file sizes get bigger IBM's microdrive may be the only way to take a decent number of pictures before the Card Full message flashes.

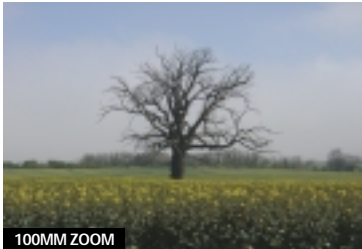
CompactFlash, SmartMedia and Memory Stick are used to store images in digital cameras.



Zoom range



33MM ZOOM



100MM ZOOM

Offers a slightly wider view than the Fuji. We also tested shutter lag time. In auto mode it's just under one second, or almost instant if you preset by half holding down the shutter release.

Interior with flash

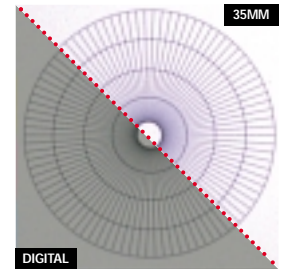


Casio is better at focusing in darker rooms than the Fuji, but it's still not perfect. In very low light it struggles to focus at all. With the flash variable power settings this can be a flexible camera.

Lens quality & colour accuracy

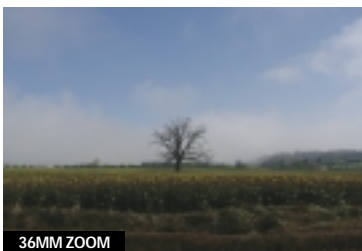


Despite a lower final pixel count image our test card shows the level of detail captured is far ahead of the Fuji and colour is slightly better, too. The main difference is the colour boxes are solid with low levels of noise. Barrel distortion is almost nil. Sharpness is very good. The only real fault is that the pictures are slightly under-exposed.



35MM

DIGITAL



36MM ZOOM



108MM ZOOM

Lens magnification is about 10% more than the Casio. Shutter lag is better than average, but slightly slower than Casio. Once again, half releasing the shutter helps, but trying to capture fast moving objects isn't easy.

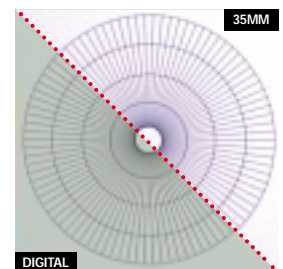


Low light focusing is a struggle for this Fuji, but when it does snap into focus the final picture is very well-exposed and colour seems to be spot-on. The flash does a good job – if you remember to flip it up!



Super CCD may be the way forward, but it seems to add more noise to the image. Our test chart showed far more noise in the solid colour boxes than the Casio. On the plus side the CCD is more sensitive.

The test chart shows barrel distortion is high so lines around the edges bend and sharpness is lost towards the corner of the test grid.



35MM

DIGITAL

★ ★ ★ ★ OVERALL VERDICT ★ ★ ★ ★

On paper the Fuji should walk this test but, as we discovered, this is not the case. Yes the Fuji is a great camera in its own right, but side by side with the supposedly lower resolution Casio the new CCD simply can't compete – yet!

If you want a camera that can fit in your pocket and will give good snaps go for it, you will be happy with the results. It must also be said that Fuji jog-dial is brilliant to use and look at.

If, however, you demand the best picture quality

go for the Casio. It feels solid to hold and will give you outstanding images. The movie option is far better quality than the Fuji too.

And now for the but... the Casio uses batteries like there's no tomorrow, so be warned! The Fuji on the other hand will run for a couple of days and let you get 50-60 images.

So the Fuji is a case of nice looks and top features, but shame about the picture quality. Canon's optics married with Casio CCD give us

crisp, sharp and punchy images which is what it's all about. If you can live with the Casio being a larger and not looking as cool as the Fuji then the Casio is for you.



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