

## Technologies Explained – PowerShot D20

**EMBARGO: 7<sup>th</sup> February 2012, 05:00 (GMT)**

### HS System

The HS System represents a powerful combination of a high-sensitivity sensor and high-performance DIGIC image processing designed to provide excellent image quality and advanced low-light performance, as well as significant advantages over non-HS System models, including:

- **Improved image quality in all situations** – The HS System can capture images with considerably less noise than non-HS System cameras at all ISO speeds. High ISO sensitivity photos taken with non-HS System cameras exhibit noise and grainy detail, especially in low light. By contrast, the HS System can detect and capture more detail and significantly reduce noise, resulting in more beautiful and true-to-life shots.
- **Low-light performance** – Shooting in low light conditions, such as in a dimly lit interior or outdoors after the sun has set, can lead to blurred images when shooting handheld without a tripod. Engaging the flash in these conditions can often ruin the ambience of the scene and not provide enough light for a bright result. The HS System is designed to excel in low light and delivers premium image quality. Shooting at higher ISO levels also allows users to achieve faster shutter speeds to freeze the motion of subjects, prevent blur and avoid having to use a tripod. When the flash is required in very poorly lit conditions, the HS System can extend the reach of the flash, allowing users to capture more of the background detail, as well as illuminating the main subject.
- **Wider ISO range** – The HS System can leverage the excellent performance of its high and low ISO settings in order to capture the ambience of any scene with exceptional image quality and an enhanced maximum ISO speed of ISO 3200
- **Dynamic Range** – The increased sensitivity of the HS System allows each camera to capture a wider dynamic range with greater variation in brightness when compared to the results of non-HS System models.

### DIGIC 4 Image Processor

Canon's DIGIC 4 (Digital Imaging Core) processor manages all of the camera's primary functions to optimise operating efficiency. Advanced image processing algorithms deliver superb image detail and colour reproduction with accurate white balance and minimal noise. High-speed processing results in outstanding responsiveness, rapid auto focus and extended continuous shooting ability.

## 28mm high-quality 5x optical zoom lens

Developed using the same processes and high quality standards employed to manufacture its range of professional lenses, the 28-140mm Genuine Canon lens benefits greatly from Canon's heritage in lens design, capturing sharp, high-resolution images every time.

## Optical Image Stabilizer (2-stops)

Canon's highly-effective optical Image Stabilizer (IS) technology prevents image blur by dramatically reducing the effects of camera shake. In situations where image blur due to camera shake is more likely – such as in darker conditions or when shooting with the zoom extended – the optical Image Stabilizer can help images remain sharp through minute vibration gyros which detect camera movement caused by hand shake. These signals are processed by a single-chip IS controller, which discriminates between hand shake and intentional camera movements. Signals are then sent to the IS unit, which moves one of the lens elements accordingly to re-align the light rays and cancel out the effects of camera shake.

## Intelligent IS

Intelligent IS is a technology that enables the camera to detect the shooting situation being captured and then select the most appropriate optical Image Stabilizer mode to prevent blur. As the nature of camera movement can change according to the shooting situation, there are seven different IS modes that can be used:

- **Normal IS** – This standard Image Stabilizer mode is appropriate for still image shooting where regular camera shake is corrected. Depending on the focal length and focal distance of the subject, the camera will apply the appropriate amount of angular (rotational) and shift-shake correction to obtain the best result.
- **Panning IS** – When shooting a moving subject such as a cyclist or moving cars at a race circuit, Panning IS detects the panning motion. This mode applies the Image Stabilizer in the axis opposite to that of the panning motion to ensure the subject remains clear and the panning effect is smooth.
- **Macro IS** – Macro IS corrects both angular and the more pronounced shift-shake which often occurs when shooting close ups of subjects such as flowers.
- **Tripod mode** – When the camera detects it is fixed on a tripod, tripod mode automatically turns the Image Stabilizer off as it is not needed.

- **Dynamic IS** – During movie shooting, this mode produces steadier video footage by compensating for low frequency vibrations that occur typically when users shoot movies while on the move.
- **Powered IS** – When users are shooting movies of distant subjects at the fullest extent of the telephoto zoom, Powered IS is used to ensure the subject remains still and clear, counteracting the more extreme camera shake that is produced when shooting using the telephoto setting.
- **Dynamic and Macro IS** – This mode is engaged when shooting movies of macro subjects and corrects any areas of blur caused by the shift and angular movement typical of macro shooting.

#### High speed functions

A range of high speed functions enable users to capture both fast moving action and scenes that would otherwise be very difficult to achieve:

- **Handheld Night Scene** – To capture scenes in very dark conditions, the camera will take a high speed sequence of shots and then combine them into a single image with the least possible blur and the best possible exposure.
- **Super Slow Motion Movie** – Utilises the strengths of the CMOS sensor to record VGA resolution footage (640 x 480 pixels) at 120 fps or QVGA video (320 x 240 pixels) at 240 fps. It provides a great way to slow down fast-paced action, like sport, and can be used, for example, to analyse a golf or tennis swing.

#### Smart Auto mode

Smart Auto allows everyone to obtain the best result by simply pointing the camera at a subject and pressing the shutter button. Smart Auto mode uses Scene Detection Technology to determine the shooting scene by analysing subject brightness, contrast, distance and overall hue. Smart Auto can detect 32 different scenes. This enables any user, without any knowledge of camera settings, to take great quality photos.

#### Face Detection Technology

Face Detection Technology makes it easier than ever to produce superb people shots. This advanced system quickly and accurately detects faces in a scene, and then optimises camera settings so that everyone looks their best. With the ability to detect up to 35 faces in a frame, it's great for group photos as well as portraits. These cameras include the following Canon Face Detection Technologies:

- **Face Detection AF** – Sets the focus for the faces in your people shots – not just the closest subject
- **Face Detection AE** – Optimises exposure for faces in all lighting conditions – useful for backlit scenes or indoor shooting
- **Face Detection FE** – Guards against washed-out faces when using the camera’s flash – perfect for close-up shots in restaurants, clubs or other dimly lit locations
- **Face Detection WB** – Optimises white balance for natural-looking skin tones which remain true to life regardless of skin colour and lighting conditions
- **Red-Eye Correction** – Automatically eliminates the unwanted effects of flash photography after the shot is taken. At the touch of a button in playback, natural-looking eyes can be instantly restored

#### Servo AF/AE

When a subject is moving towards or away from the camera and the shutter is half-pressed, Servo AF/AE will track it continuously – ensuring that the subject is in focus and well-exposed when the shutter is finally pressed.

#### Tracking AF

To keep focus on subjects in motion, or to help achieve a creative composition, Tracking AF mode gives photographers the ability to select objects from the centre of the frame and track them if they move, or if the frame is recomposed.

#### Smart Shutter

Smart Shutter mode uses Face Detection Technology to allow users to take both group shots and self-portraits more easily and in a more relaxed way. The shutter can be triggered remotely in three different ways:

- **Smile Detection** – Triggers the shutter when the camera detects a smiling face within the frame.
- **Wink Self-Timer** – Triggers the shutter two seconds after the subject in the frame has winked, removing the need for a remote control.
- **FaceSelf-Timer** – Allows perfect group shots or self portraits by automatically triggering the shutter two seconds after a new face has entered the frame.

## Full HD Movie and HDMI-CEC

Full High Definition video at 1080p resolution is recorded at 24 fps, ready for playback in excellent quality on Full HD displays.

A dedicated Movie Record Button activates instant movie recording, ensuring that every moment is captured. An HDMI-CEC connection port is available for connecting directly (via an optional cable) to HD displays such as high definition TVs. If users have a HDMI-CEC compliant display, they can control playback of images on the camera via the TV remote.

## Movie Digest

Movie Digest captures the last four seconds before each shot is taken, in VGA quality video. Movie Digest then joins each clip from the same day into a single movie, building a fun 'behind the scenes' look at your day.

## Creative shooting modes

Additional shooting modes make it easier to capture high-quality, creative shots. These modes include:

- **Toy Camera Effect** – Darkens the edges of the image, as well as carrying out image processing to increase the contrast of the overall image and re-create the effect of an older style or pinhole camera. Additionally, three effect types can be selected to attach to the image: Warm, Standard or Cool.
- **Monochrome** – Allows users to shoot with three types of monochromatic effects: black and white, sepia or blue.
- **Fish-eye Effect** – Mimics the distortion of a fish-eye lens with one of three levels of strength (weak, medium, strong).
- **Super Vivid** – Saturates the colours of an image for an intensely colourful effect.
- **Poster Effect** – Reduces the levels of colour gradation to give the image the retro feel of vintage posters.
- **Miniature Effect** – Gives the effect of a very narrow depth of field, making the scene look like a small-scale model. When shooting, designated portions of the top and bottom (or right and left side in vertical shooting) of the image are blurred, while the rest of the image remains in focus.
- **720p iFrame Movies** – The Apple® iFrame video format is a computer-friendly video format designed to dramatically simplify the process of working with video recorded using the camera. With iFrame, the video in the camera is in the same format in which users will edit, so importing video is fast. Users will be able to start

editing and sharing their movies right away across multiple platforms and devices. Because it's based on standard technologies such as H.264, AAC, MP4 and QuickTime, iFrame can be used with PC and MAC applications.

#### Multi-aspect shooting

Multi-aspect shooting allows digital still camera users to shoot in a number of different formats without the need for post-processing. Photographers now have the ability to choose from 4:3, 1:1, 16:9, and 3:2 allowing them to instantly select the composition that suits their subject and desired results.

#### GPS tagging and low energy consumption GPS Logger function

GPS allows users to tag photos and videos with the location they were taken, and then use popular applications to pinpoint the location of the shot. Users can also record the route they have been following during their journey – the camera uses the GPS to track the location of the camera at regular intervals. The route is saved on the SD card and with the Canon Map Utility software (included), users can display their path or use applications such as Google Earth to share their route. Using a new advanced GPS module, with fast location acquisition and low energy consumption, it is now possible to use the GPS Logger for more than 48 hours from a single battery charge.

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<sup>1</sup> Apple is a trademark of Apple Inc.