

Technologies Explained

Canon HD Camera System

Every LEGRIA HD camcorder benefits from the Canon HD Camera System: the unique combination of a genuine Canon HD Video lens, a Full HD CMOS sensor, and a DIGIC DV series image processor. These components are unique to Canon camcorders and are all designed and made in-house. In this way we're able to ensure the highest levels of quality control and see that each individual part works perfectly with the others – resulting in unrivalled image quality.

Canon Full HD CMOS sensor

The CMOS sensor is the eye of the camcorder. It's responsible for capturing your images. The advantages of CMOS sensors for video are that they have low power consumption, are more sensitive in low light and provide brilliant colour balance.

Continual refinement of this industry-leading technology has now resulted in the 8.0MP, 1/2.6" Full HD CMOS sensor found in the LEGRIA HF S-series and the new, 3.3MP chip used in LEGRIA HF models.

With CMOS, it is possible to integrate other circuitry onto the imaging chip itself – leading to more efficient designs. Every Canon Full HD CMOS image sensor incorporates on-chip noise reduction and pixel amplification. With the low power consumption of CMOS, consumers get longer battery life than ever before.

With Canon CMOS, thanks to the use of a Bayer pattern RGB primary colour filter, video images are also characterised by excellent colour reproduction.

Dynamic Optical Image Stabilizer

The "Dynamic Mode" found on the new HF21 and HF S11, is an enhancement to the Super Range Optical Image Stabiliser (referenced later) found on all existing Canon LEGRIA camcorders. "Dynamic Mode" has been introduced to further reduce the extreme camera shake associated with activities such as walking, cycling or climbing. It is up to 10x more effective than previous models when used at the wide end of the zoom range.

Instant AF

All of the HD camcorders in Canon's 2009 range feature the unique Instant AF system, which offers fast and accurate focussing.

Since HD movies are captured at very high resolution, an extremely accurate auto focus system is essential, as even slight focus errors are readily apparent when played back on large HD TV screens.

Conventional TV AF systems are slow to react to rapid changes in subject distance and can often be confused by complicated backgrounds. Canon's Instant AF overcomes these difficult situations by combining an external distance sensor and an accurate TV AF sensor – the former quickly detects the range of the subject; the latter then performs the fine focusing with high precision.

Super Range Optical Image Stabilizer

Canon's Super Range Optical Image Stabilizer (OIS) uses two methods of camera shake detection to effectively remove camera shake across a wide frequency range. Combining lens-shift gyros and vector-based shake detection means the Super Range OIS can effectively remove low frequency movements, such as the slow body movements associated with breathing through to high frequency movements such as vibration from a car engine. These are outside of the range of many regular OIS systems.

When using LEGRIA camcorders, the Super Range Optical Image Stabilizer is effective during video recording and still photo capture.

DIGIC DV III

DIGIC DV III is a new image processor that is unique to Canon camcorders in 2009. Evolved from the DIGIC DV II processor, originally developed to handle the requirements of HD in the Canon XLH1, DIGIC DV III has been further developed to process data from sensors larger than Full HD (more than 1920x1080 effective pixels on the sensor).

DIGIC DV III employs a unique noise reduction system for clear and sharp images with excellent colour reproduction and tonal range. DIGIC DV III supports the larger colour gamut of xvYCC Colour Space (x.v.Color) and boasts a 25% increase in dynamic range compared with DIGIC DV II. This means it can capture more detail in the highlight and shadow areas of an image.

Still photo and video capture needs to be handled separately, as each method has different colour requirements. The 'split path' processing technology within DIGIC DV III does exactly this and optimizes both for best results. The rich and vibrant colours captured will be faithful to the shooting subject, whether seen on a television screen or printed out as a photograph.

DIGIC DV III is also the driving force behind Canon Face Detection Technology (see below).

Face Detection Technology

Powered by DIGIC DV III, Canon Face Detection Technology is capable of detecting up to 35 individual faces in a single frame, optimising shooting settings for each. This

means that people appearing in movies will be well focussed and exposed and always be the star of the movie.

The nine most prominent faces will be highlighted automatically – and then one individual face can be selected by the user as the main subject. Sophisticated Face Select and Track technology – similar to that found in Canon digital compact cameras – ensures that the chosen subject remains correctly focussed, even if it is moving rapidly or moving through a crowd of people.

During playback, Face Timeline and Face Jump technology highlight captured clips that feature the faces of friends and family for simple clip selection.

The Highest-quality video at 24Mbps

All of Canon's HD camcorders record movies at a data rate of 24Mbps – the highest quality possible under the AVCHD standard. 24Mbps recording uses as much of the image data as it can to provide sharp detail, smooth motion and beautiful colours. The incredible quality imaging is therefore great for capturing fast-paced action.

Pre-RECORD Mode (Pre REC)

In Pre REC (pre-record) mode the camera continuously buffers 3 seconds of footage. Once the Record button is pressed, these 3 seconds are added to the beginning of the clip – effectively, this acts as an insurance, helping the user to capture the fast pace of the action when they have been too slow to react in pressing the record button.

Video Snapshot

Video Snapshot mode is designed to make it easy to create fun to watch movies without complex editing.

Press the dedicated Video Snapshot button to activate this mode, and every time the record button is pressed a 4-second clip will be captured. 4-seconds is the duration of a typical shot in a TV show, and a duration that maintains viewer interest, making the movies easy to watch. Whilst recording in Video Snapshot mode, a blue bar counts down around the edge of the LCD display so the user can easily see how long is left in each 4-second segment. This is a one touch operation, with recording stopping automatically for each clip.

After shooting, the user can review a series of 'snapshot clips' by selecting them and creating a playlist to make a simple multi-shot movie. The playlist can then be played back with a musical soundtrack. Five rights-free tracks are pre-loaded onto the camcorder and more are supplied on an accompanying CD; alternatively, music from the user's own collection can be uploaded using the supplied Music Transfer Utility (WAV format only).

Dual Shot

Dual Shot mode enables video to be shot and photos to be taken in the same shooting mode – there is no need to switch between settings on the Control Dial - press the Record button to begin filming or the Photo button for a still image. In Dual Shot mode the camera and camcorder controls are set to automatic, allowing users to focus on obtaining the perfect shot.

For more control and access to manual shooting settings, users have the option of switching to either the dedicated Still or Video modes on the Control Dial.

Photo Burst

During playback, Photo Burst splits a one second segment of video into a series of 25 still frames, allowing users to select the perfect moment from a series of stills.

xvYCC Colour Space (x.v.Color)

xvYCC Colour Space (x.v.Color) offers a wider colour gamut for video recording, supporting many more colours as the sRGB colour space. This allows for deeper, more realistic colour reproduction. A display that supports x.v.Color is required to make use of this feature during playback.