

The DIGIC II image processor

The EOS 5D features Canon's DIGIC II processor, proven in Canon's professional-series EOS-1Ds Mark II and EOS-1D Mark II cameras. DIGIC II delivers superb image quality, responsive camera performance, faster continuous shooting and extended battery life.

Ultra high speed

With the introduction of DIGIC II, Canon brought a solution for conducting the high-speed calculations necessary to provide exceptionally high image quality in real time.

With 12.8 Megapixels at 3 fps for a maximum burst of 60 large JPEG files, the EOS 5D's DIGIC II processor must render huge volumes of data very quickly. DIGIC II does not run as software, but as hardware built into the camera's circuitry. It consolidates the functions of a number of separate processing units to save time, space and power.

Most digital camera manufacturers face a trade-off between camera responsiveness and the amount of processing each image can receive. To overcome limitations with processor speed and capacity, manufacturers can install large and expensive buffers as a temporary store for unprocessed data, or compromise image quality by 'dumbing down' image processing, or both.

DIGIC II is designed to avoid these compromises: the processor is so fast it can read, process, compress and write JPEG image data back to the buffer between exposures. This allows continuous shooting with the EOS 5D without the camera becoming clogged with data. Moreover, each image is subject to the complex and individual processing required in order to deliver superb image quality.

White Balance

Apart from the speed with which it clears data from the camera's buffer, the benefits of DIGIC II are most obvious in the areas of white balance (WB) adjustment. DIGIC II's additional processing power also permits more accurate calculation of auto white balance by taking into account factors such as orientation and subject position.

While other manufacturers use systems that divide the scene into hundreds of segments for white balance assessment, the DIGIC II processor in the EOS 5D has the time and power to look at tens of thousands of segments to build a complex plan of how the scene is constructed. This allows the camera to distinguish between more than one type of light source in a single scene and to treat each area individually for optimum white balance.

More stamina

One of the benefits that has come about with the introduction of DIGIC II is extended battery life. As the processor is only operating for very short periods, it doesn't use much power – DIGIC II is part of the reason that the EOS 5D is capable of taking 800 shots on just a single battery charge.

Investment in R & D

DIGIC II is the result of vast, long term investment into research and development. It leverages the Canon's position as a manufacturer of its own electronic components and circuitry. By increasing its experience in the manufacture of Application Specific Integrated Circuits (ASIC), the company has ensured that the major components required for the construction of the EOS 5D are provided in-house. This puts Canon in a special position in the digital SLR market: the company produces every significant element that goes into its cameras, from the lenses to the electronics and internal hardware, and in the case of EOS cameras, the sensor itself.