

## COACH12 - 13™

### Description

*The COACH® processor uses Zoran's proprietary still and video processing technologies.*

It is the industry's only digital camera solution that supports high ISO-12800 at full picture resolution, jitter stabilisation for both video and still photos, high definition Advanced Video Coding (H.264) and still image capture at 14 megapixel resolution in less than one-third of a second between consecutive shots.

### Key Features

- Object Movement
- Accurate Color Matching
- Demosaicing
- Face Tracking
- Camera Movement & Image Stabilisation
- Advanced Noise Reduction
- Motion Compensated Temporal Filtering (MCTF)

### Benefits

To automatically select the camera settings that could be best described as the "sports mode" of a traditional digital camera, the COACH processor evaluates the motion in the scene, checks the lighting conditions, compares these factors with the optical and sensor capabilities offered by the digital camera being used, and appropriately sets the camera's effective shutter speed, aperture size and system sensitivity.

Accurate colour matching produces a target colour palette to match the customer's requirements. COACH12™ DCP and companion colour-tuning tools, can virtually match the camera manufacturer's target colour palettes.

Interpolation of missing information on high contrast edges of a scene can result in visible artifacts. The COACH12 processor's superior interpolation, maintains natural edges while reducing artifacts such as those created by Moiré patterns.

COACH13™ new technologies include high ISO, enhanced hardware-based Face Tracking, which detects and tracks up to 10 faces at a time so that the photographer can focus and track a subject anywhere within the frame. In addition, the correct auto focus and auto exposure for the tracked subject is automatically selected for improved picture quality in every shot.

For light, hand-held video cameras, such as the Flip Mino, naturally occurring handshake results in a visible jitter when viewing the clips on a high definition TV set. In addition, camera makers are using CMOS sensors to enable Full HD (1080p) video. Unlike more traditional CCD sensors, CMOS sensors, when combined with camera vibrations due to handshake, produce disturbing artifacts commonly known as "rolling shutter artifacts". Traditional methods of stabilization, such as using a gyro to track camera motion, cannot remove these artifacts. The COACH12 processor incorporates innovative and unique stabilization algorithms that successfully remove rolling shutter artifacts.

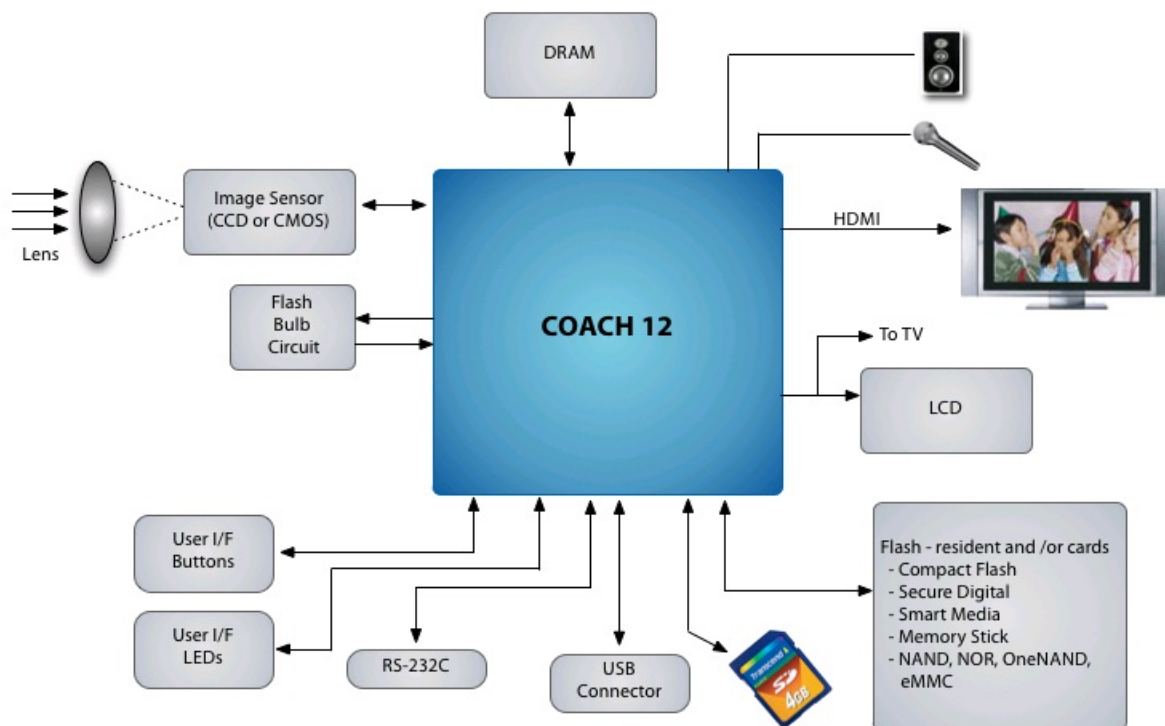
Asymmetric conversion of light into electrical current in a camera sensor, results in random noise. The COACH12 processor reduces or removes the noise even at ISOs up to 12800 without adversely affecting the image.

CSR's COACH13 latest noise reduction technology avoids the blur caused by long exposure times allowing the photographer to take crisp, high quality pictures even in very low-light conditions.

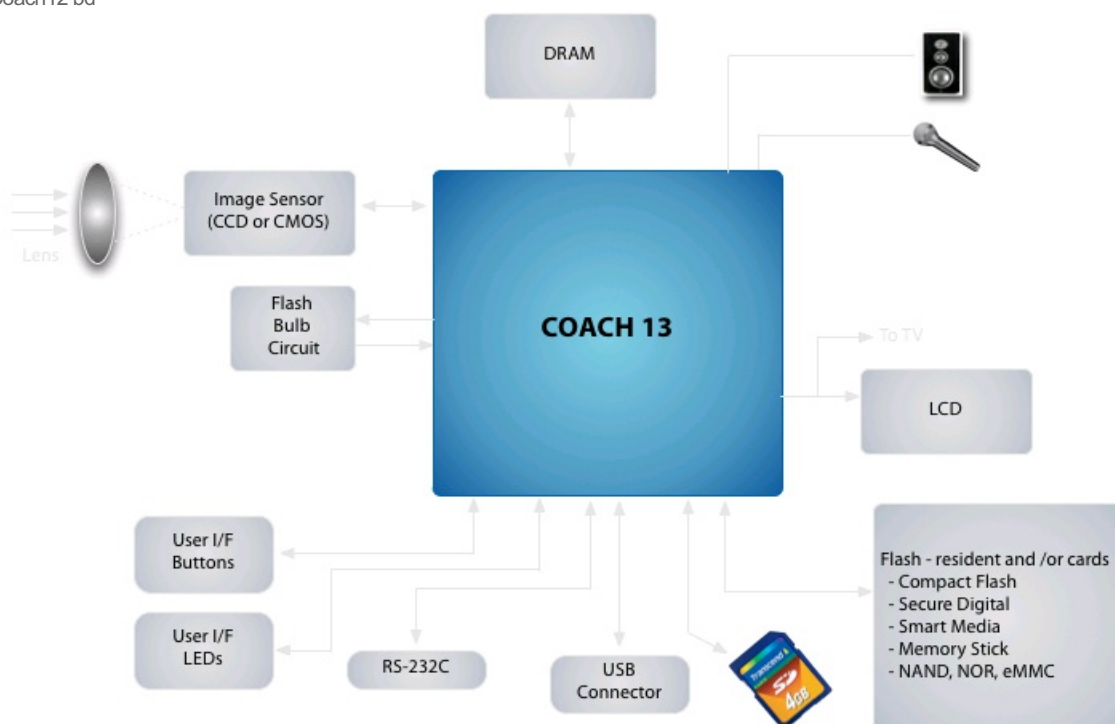
In addition to its advanced noise reduction pipeline, the COACH12 processor incorporates temporal filtering to further reduce noise when shooting video clips. Temporal filtering takes advantage of the fact that consecutive video frames contain the same elements, such as static background (buildings, pictures on the walls etc.). Identification of identical elements in multiple frames provides more information about the noise and the element itself. Thus the noise can be reduced even further without losing details.

Most of the video clips people shoot contain motion – people walking, cars passing by, children sliding down a slide. The COACH12 processor incorporates unique algorithms to track objects within different frames even if they move and use this information to perform temporal filtering, not only in the static areas of the scene, but also in the dynamically moving elements of the video clip. The result is reduced noise and better compression. An additional benefit of the COACH Motion Compensated Temporal Filtering is that, unlike other temporal filtering algorithms, camera movement does not produce unwanted compression artifacts around moving objects.

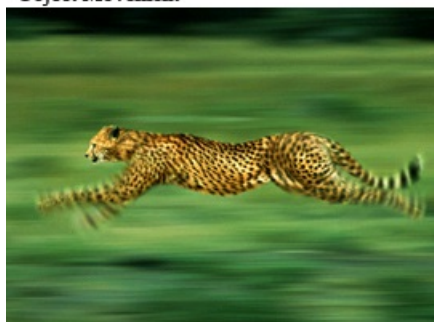
### Related Images



Coach12 bd



Coach13 bd web  
Object Movement



Objectmovement

### Accurate Color Matching



Colormatching  
**Demosaicing**



Demosaicing  
**Face Tracking**



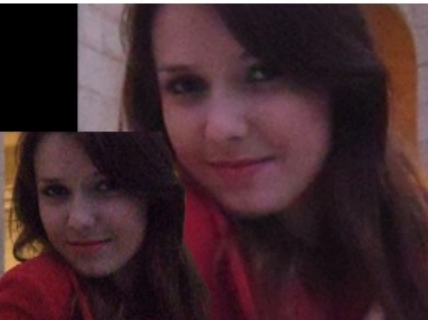
Facetrack

### Camera Movement & Image Stabilization



Cameramovement

### Advanced Noise Reduction



Noisereduction

## Motion Compensated Temporal Filtering (MCTF)



Motioncomp

## Sales Offices

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