

ZR36470 Product Brief

Zoran Corporation
1390 Kifer Road
Sunnyvale, CA 94086-5305

Tel 408.523.6500
Fax 408.523.6501
www.zoran.com



Description

COACH 9 is an application specific digital signal processing IC, which constitutes the heart of a digital camera for capturing still images and video. It provides a complete, integrated, low power and low cost solution for digital camera manufacturers. Coach 9

innovative features and integrations offer competitive performance and picture quality for digital cameras. The COACH 9 family enables platforms from entry-level to high end cameras including high quality digital video camcorders.

COACH 9 Family

- **COACH 9m** (part # ZR36470BGCG) - Entry-mid range line, 12-bit image processing pipeline. Pin-to-pin compatible with COACH 7m and COACH 8m
- **COACH 9p** (part # ZR36472BGCG) - Performance line, 16-bit image processing pipeline, embedded timing generator & HDMI interface
- **COACH 9s** (part # ZR36473BGCG) - Digital Still Capture line, with JPEG/Motion JPEG only
- **COACH 9MCM** - Multichip package for space-saving boards for ultra-slim cameras

**All products support up to 16M pixels of image resolution, are firmware compatible, and share a majority of the system configuration allowing for easy migration*

Feature List

- Up to 16M Pixels image capture resolution
- Click to click performance of 3 frames/sec at 7MP resolution
- 16-bit image processing for highest quality, includes multiple Zoran proprietary (patent pending) technologies.
- Image enhancement and manipulation effects for better viewing and printing quality
- Capable of WMV MPEG-4, video capture and playback of VGA resolution at 30 frames/sec including audio and 20 frames/sec at SVGA resolution
- File formats including ASF, DivX, AVI and MOV can be supported
- MPEG-4 encoding uses I, P and B frames for true video quality
- Dual CPU (9m, 9p) for advanced image processing algorithms.
- DIST: Digital Image Stabilizer and anti-blur prevention
- Digital Video Motion Stabilization technology (patent pending) to compensate for unwanted camera movement during video capture
- Capable of several Audio codecs including: WMA; Dolby Digital AAC; ADPCM; MPEG1
- On-chip HDMI transmitter for native HD display support
- Rich color on-screen display (OSD) with transparency levels
- Picture-in-Picture with blending support in hardware
- Direct output to TV monitor, on-chip encoder and video D/A
- Digital video interface to LCD. Includes on-chip programmable controller for multiple LCD vendors
- 32-bit MIPS CPU provides ease of development and porting of SW applications
- Direct interface to resident flash memory (NAND or NOR type) and/or removable memory card support (CompactFlash (CF), SmartMedia (SSFDC), Secure Digital (SD), MultiMediaCard (MMC), High Speed MMC (HSMC) xD, Memory Stick, Memory Stick Pro (MS-Pro) and SDRAM storage
- Direct interface to ATA-6 (or subset) hard disks.
- 16-bits data DDR-SDRAM interface supporting sizes of 64Mbit, 128Mbit, 256Mbit, 512Mbit and 1Gbit
- On-chip High Speed USB 2.0 OTG interface
- CCIR-601 input port for capturing from an external TV decoder.
- Generic serial port for interfacing with peripheral HW units

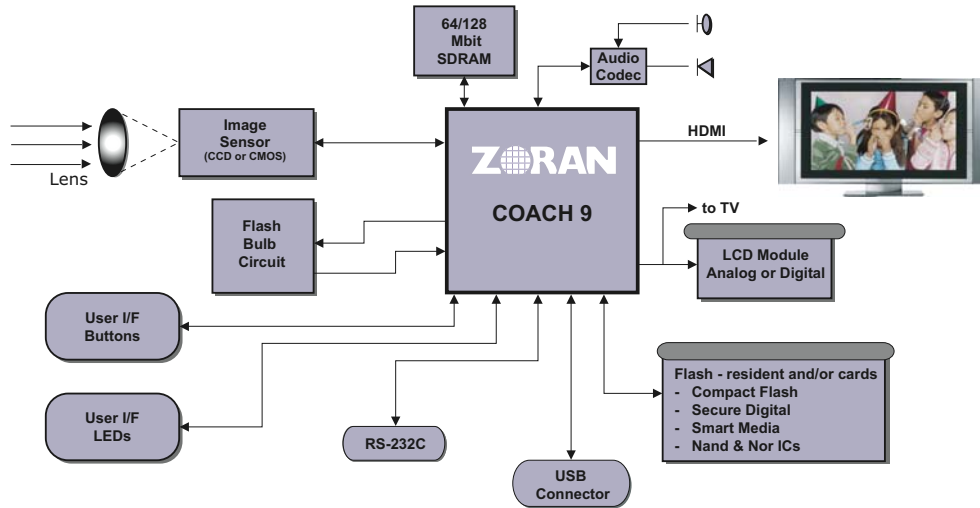
Firmware Highlights

- Embedded host control (HCE) software architecture enables customer creation of DSC applications with minimal effort
- Backward compatibility with previous COACH software API set
- Open firmware architecture for easy customer modification
- All standard camera operation modes
- Image playback allows up to 16x digital zoom, accelerated playback and image rotation
- Advanced GUI support including rich OSD, bitmaps, picture in picture and more
- Resizable, multicolor fonts
- Optional audio annotation of pictures
- Playback and recording of sound in AVI clips
- Sound effects, including shutter effects
- Dictaphone feature
- Variety of protocols for USB interface supported including:
 - PC Video Capture mode, for capturing real time video (MJPEG compressed) to PC
 - WIA, Twain, and Twain 2 protocol for direct retrieving of images and live video
 - Bulk-Only Mass Storage, for representing camera as a PC drive. No drivers required for most operating systems
 - PTP
 - Pictbridge, for direct printing to all printers supporting Pictbridge interface

ZR36470 Product Brief



Block Diagram



COACH 9 Package



C9m/C9P: 17mm x 17mm
C9s: 13mm x 13mm

For more information, contact Zoran's Sunnyvale office or the office nearest you:

Shanghai, China	Shenzhen, China	Hong Kong	Israel	Japan	Korea	Taiwan
Zoran China Office	Zoran China Office	Zoran Asia Pacific Ltd.	Zoran Microelectronics Ltd.	Zoran Japan Office	Zoran Korea Office	Zoran Taiwan Office
Tel: 86-21-6469-9799	Tel: 86-755-8281-5777	Tel: +852-2620-5838	Tel: +972-4-8545-777	Tel: +81-3-5475-1051	Tel: +82-2-761-7471	Tel: +886-2-2659-9797
Fax: 86-21-6427-0545	Fax: 86-755-8322-0889	Fax: +852-2620-5238	Fax: +972-4-8551-550	Fax: +81-3-5475-1053	Fax: +82-2-761-7472	Fax: +886-2-2659-9595

© Copyright 2006 Zoran Corporation. All rights reserved. Zoran, the Zoran logo, and COACH are trademarks of Zoran Corporation. All other brand product names and company names are trademarks of their respective owners. The information in this document is believed to be reliable. However, Zoran Corporation makes no guarantee or warranty concerning the accuracy of said information and shall not be responsible for any loss or damage of whatever nature resulting from the use of, or reliance upon it. Zoran Corporation does not guarantee that the use of any information contained herein will not infringe upon patent, trademark, copyright, or rights of third parties. Zoran Corporation reserves the right to make changes in the product and/or specifications, or both, presented in this publication at any time without notice.