Broadcom, Freescale and OmniVision Enable World's First Ethernet-Based 360-Degree Surround View Parking Assistance System

Collaboration results in lower cost, higher resolution solution –
technology now accessible for broad range of automobiles

IRVINE, SANTA CLARA, Calif. and AUSTIN, Texas — October 10, 2011 — Broadcom Corporation (NASDAQ: BRCM), Freescale Semiconductor (NYSE: FSL), and OmniVision Technologies, Inc. (NASDAQ: OVTI), today announced a jointly developed 360-degree surround view parking assistance system – the world's first Ethernet-based parking assistance solution.

The collaboration, combining best-in-class semiconductor innovation and automotive electronics expertise, is an important step in the migration from a closed application to an open and scalable Ethernet-based driver assistance network in which several systems can easily access information. The cost advantages offered by Ethernet technology, combined with the high image resolution now available from affordable CMOS image sensors, dramatically expand the opportunity for OEMs to deploy 360-degree parking assistance camera systems across vehicle classes, bringing valuable assistance options to luxury and non-luxury markets alike.

The system is based on the Broadcom® BroadR-Reach® BCM89810 standalone physical layer transceiver (PHY), the Freescale Qorivva MPC5604E 32-bit microcontroller (MCU), and OmniVision's AEC-Q100 qualified OV10630 color high dynamic range (HDR) system-on-a-chip (SoC) CMOS image sensor.

The OV10630's unique color HDR SoC structure with fully processed YUV output format enables a streamlined camera module architecture. Using this approach, the video signal can be fed directly into the Freescale Qorivva MPC5604E MJPEG encoding pipeline without the need for any additional processing ICs for RAW image to YUV format conversion.

Key Facts:
- Industry analysts project significant digital camera growth for advanced driver assistance systems[1].
- The Broadcom® BCM89810 BroadR-Reach PHY enables low-cost Ethernet connectivity at 100Mbps over unshielded single twisted pair cable.
- The new highly-integrated Freescale Qorivva MPC5604E 32-bit MCU, built on Power Architecture® technology, manages video streaming and camera control, reducing the required communication bandwidth to less than 100 Mbps. The MPC5604E MCU uses low-latency video compression together with an intelligent bandwidth management for maximum quality. The MPC5604E supports Ethernet AVB compliant IEEE 802.1AS Precision Time Protocol for accurate synchronization of camera exposure.
- The 1/2.7-inch OV10630 sensor combines megapixel resolution (including 720p HD video) with the industry's best color HDR and low-light sensitivity. It is built on OmniVision's high-sensitivity OmniPixel3-HS™ architecture, enabling best-in-class low-light performance (3.5V/lux-sec) and detail-rich, HD-quality color video capture. Ideally suited for wide field of view and multi-camera applications, the OV10630 also incorporates special features and output formats for automotive machine vision applications. Using a proprietary new HDR concept and processing technology, the new automotive sensor delivers excellent scene reproduction in the most demanding lighting environments. Employing auto dynamic range control to rapidly adjust to changing conditions, the OV10630 is capable of producing a clear, detailed and low-noise color image across a wide range of circumstances that drivers may encounter.

Quotes:

Strategy Analytics
"The continuously improving cost efficiencies of automotive vision and sensing systems are now enabling the adoption of multi-camera surround view systems across a much broader range of vehicles," said Kevin Mak, automotive industry analyst for Strategy Analytics. "Despite the recession and delayed model cycles, reports are projecting up to 90 million parking and driver assist systems will be deployed by 2018."

Broadcom Corporation
"Broadcom develops innovative technologies to meet the unique requirements of the automotive industry" said Dr. Ali Abaye, senior director of product marketing, Broadcom Corporation. "Our BroadR-Reach Ethernet technology reduces connectivity costs and helps manufacturers to deliver advanced safety features to a broad range of vehicles."

Freescale Semiconductor
"Freescale is committed to providing innovative embedded processing solutions that help enable automakers engineer new capabilities, reduce their costs and proliferate advanced safety features for consumers," said Dr. Peter Schulmeyer, director of strategy for Freescale's Automotive Microcontroller Division. "This newest MCU in our Qorivva 32-bit MCU portfolio will help the auto industry bring 360-degree parking assist systems to more of the mainstream market."

OmniVision Technologies, Inc.
"A highlight of the OV10630 is that it can simultaneously deliver excellent visual images and superior scene information content, providing for concurrent access by both machine and vision-based applications," said Dr. Mario Heid, automotive marketing manager at OmniVision. "The system components in this Ethernet-based architecture enable full utilization of the sensor's built-in driver-assistance features. This allows the OV10630 to also support such driver-assistance applications as object and pedestrian detection and collision warning and avoidance. Additionally, the OV10630's ability to produce clear, detailed, high dynamic range and low-noise color images in any automotive scene condition and at any view angle is an extremely important performance feature for 360-degree surround view applications that are designed to operate under widely varying lighting conditions."

Availability
A demo system is now available. Visit www.freescale.com/automotive to learn more.

About Broadcom
Broadcom Corporation (NASDAQ: BRCM), a FORTUNE 500® company, is a global leader and innovator in semiconductor solutions for wired and wireless communications. Broadcom® products seamlessly deliver voice, video, data and multimedia connectivity in the home, office and mobile environments. With the industry's broadest portfolio of state-of-the-art system-on-a-chip and embedded software solutions, Broadcom is changing the world by Connecting everything®. For more information, go to www.broadcom.com.

About Freescale Semiconductor
Freescale Semiconductor (NYSE:FSL) is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial and networking markets. The company is based in Austin, Texas, and has design, research and development, manufacturing and sales operations around the world. www.freescale.com.

About OmniVision
OmniVision Technologies (NASDAQ: OVTI) is a leading developer of advanced digital imaging solutions. Its award-winning CMOS imaging technology enables superior image quality in many of today's consumer and commercial applications, including mobile phones, notebooks, tablets and webcams, digital still and video cameras, security and surveillance, entertainment devices, automotive and medical imaging systems. Find out more at www.ovt.com.

[1] TSR "CCD/CMOS Area Image Sensor Market Analysis" June, 2011

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