



## **First application in brake control systems Bosch ESP premium with FlexRay interface**

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- World's first brake control system with a FlexRay interface
- Fast exchange with other systems, also for large amounts of data
- Bosch is a core partner in the FlexRay development consortium

The Bosch ESP®premium installed in BMW's current 7 series is the first brake control system worldwide to feature a FlexRay interface. Via this new data bus, the system communicates with the corresponding sensors, the ACC adaptive cruise control, the integrated chassis management (ICM) system, as well as the engine and transmission control units. Compared with the CAN bus used to date, FlexRay delivers a higher data transfer rate with much larger data packets, and is also highly fail-safe. Like CAN, FlexRay is also capable of transmitting event driven information. In addition it provides the option to transmit real-time signals deterministically. "FlexRay paves the way for new possibilities of secure networking and provides a very solid basis for comprehensive and time-critical communication by current and future assistance and safety systems in the premium class," says Klaus Meder, member of the executive management of the Bosch Chassis Systems Control division. Besides the brake control system, Bosch also supplies the control units installed in the 7 series for the ACC and the diesel engine. These units also include an interface for the FlexRay databus.

The task of the electronic stability program (ESP®) is to stabilize the vehicle in critical driving situations by braking individual wheels. This possibility of electronically controlled braking is also used by assistance systems such as the Stop&Go function of the ACC adaptive cruise control. In combination with the passenger restraint system control unit, the ESP® sensor signals also assist processes such as faster airbag deployment. Real-time exchange of increasingly large amounts of data is an absolutely vital requirement for these and all future systems. FlexRay provides fast, fail-safe data communication with transmission options in up to two channels. These channels can be scaled flexibly and used either for redundant, error-tolerant data transfer at up to 10

Mbit/s or for high data-transfer performance at up to 20 Mbit/s. The high-speed variant of the CAN bus that has commonly been used up to now achieves a mere 1 Mbit/s.

Alongside BMW, Daimler, Freescale, General Motors, NXP Semiconductors, and Volkswagen, Bosch is a FlexRay consortium core partner and played a major role in the standardization of the protocol. Moreover, Bosch developed a protocol controller module for FlexRay that passed the conformance test as early as 2006. Eight semiconductor companies have so far purchased a manufacturing license for this module. It is the basis for several elements featuring a FlexRay interface, and has played a decisive role in making the required hardware components rapidly available around the world. Additionally, Bosch has developed CUBAS, a basic software for control units which already incorporate the AUTOSAR-standard FlexRay protocol stack.

## **Ends**

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### **Note to editors:**

#### **About Bosch**

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*The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as “Workshop for Precision Mechanics and Electrical Engineering.” The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.*

*Additional information can be accessed at [www.bosch.com](http://www.bosch.com).*