

EDITORIAL – Autonomous driving, in-vehicle electronics to be among dominant themes at CES 2017

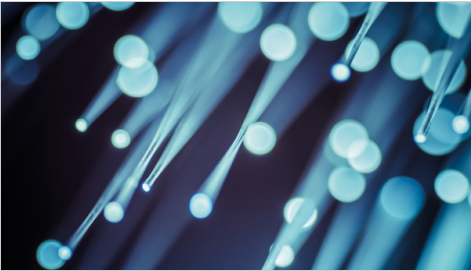
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Arti Anand

S&P Global

Supply Chain and Technology, Automotive

Like last year’s edition, the 2017 CES will reflect automakers’ and suppliers’ rising focus on developing technologies for autonomous driving, connected cars and in-vehicle electronics



The 2017 Consumer Electronics Show (CES) in Las Vegas, Nevada (United States) is about to get underway and in the run-up to the show automakers as well as auto parts suppliers have started giving indications on what products they will be showcasing at the event. ‘Autonomous driving technologies’ and ‘in-vehicle electronics’ are likely to be one of the dominant themes at the show. The auto industry is scrambling to bring self-driving, electric-powered, and connected vehicles to the market and the CES offers customers a sneak peek into what technologies are ready to hit market.

Autonomous vehicles, while not quite ready to start off the lot, will inch closer to the market. Incremental advancements across technology and focus on software will pave the way for a much more integrated future. At the show, suppliers are now focusing on software at the center of everything they are showcasing, from autonomous cars to robotics to the Internet of Things (IoT). Major companies exhibiting autonomous technology include Continental, NXP Semiconductor, ZF, Visteon, Pioneer, Autoliv, Denso, Nvidia, Mobileye and Delphi.

Key suppliers and their solutions to be displayed at 2017 CES:

Company	Key products
Bosch	Connected mobility, various sensor solutions, HMI, cloud
Continental	Biometrics, cloud services, 3D cockpit display, 3D flash LiDar, autonomous vehicle related solutions
Delphi + Mobileye	Automated driving system
Denso	Various auto tech such as machine learning, deep learning
Harman	Cloud-based services and infrastructure to support autonomous driving
Infineon	Radar, in-cabin sensing, gesture control, network and data security
Magna	Autonomous driving solutions
NXP	ADAS demo, new radar
ZF TRW	Sensors and control units

Self-driving technology

Autonomous driving will be one of the main focus areas at CES, with trends such as personalization of the driver experience via cloud connectivity and a further expansion into smart mobility. Automotive supplier Delphi will showcase its self-driving technologies at the 2017 CES. The company has equipped an Audi SQ5 with sensors and self-driving capability, and will be showcasing its new partnership with Mobileye, a computer vision processing company. The Audi models will use cameras, radars, sensors, and software, including six Lidar devices. One highlight of Delphi's self-driving demonstration during CES will be how its car handles a tunnel, where its GPS signal fails. Also, Japanese supplier Pioneer Electronics will showcase its advanced solutions for connected and autonomous vehicles at the show. The company will display three-dimensional (3D) Lidar, a key component for autonomous driving; a head-up display (HUD) that projects key driving information on the vehicle's windshield and a driver monitoring system for detecting signs of driver drowsiness. Canada-based supplier Magna will also display its expertise in cameras, sensors, Lidar and radar system that enables automated driving. The company will showcase latest innovations in advanced driver assistance system (ADAS) and how they are helping automakers to reach various levels of autonomous driving.

Bosch will showcase connected mobility in a new concept car at the 2017 CES. The concept car will feature 'Driver Monitor Camera', which will make quick face recognition and personalization as soon as the driver enters the car. The car will also feature touchscreen with haptic feedback, giving the touchscreen buttons the feeling of real buttons, which will allow driver to operate the infotainment system without looking. The concept car will have an OLED (organic light emitting diode) display that offers a crystal clear display and mirror cam system, which is a camera-based solution that replaces both exterior mirror. German supplier Schaeffler will display bio-hybrid, a compact mobility solution for urban areas. Schaeffler claims its electric minivehicle, measuring just over 2 meters in length and 85 centimeters in width, provides high driving stability. Schaeffler will also showcase changes happening at component level to meet the growing need of digitalization. The rolling bearing, for example, is becoming a sensor for future connected vehicles.

Chipmakers will also be on hand to show their latest technologies for automotive and other applications. Japanese chip company Renesas, which counts clients ranging from automotive to factories, will display a prototype self-driving car at the show. Likewise, NXP, which focuses on chips for the automotive industry, will be presenting a self-driving vehicle demonstration. In addition, TriLumina, in collaboration with LeddarTech, will showcase a 256-pixel, three-dimensional (3D), solid-state Lidar solution for autonomous driving applications at the event.

In-vehicle electronics, software, services and apps

The cockpit of a car is also poised for a transformation with the advent of autonomous and connected vehicles. Among automakers, there an intense focus on integrating advanced electronics, software and apps in vehicles. Following this trend, Visteon will exhibit its expertise in instrument clusters, head-up displays (HUDs), information displays, infotainment and connectivity at the CES. The display will include next-generation infotainment platform called Phoenix™. The company claims that Phoenix, based on HTML5 and offering a JavaScript-based application program interface (API), is the first automotive infotainment system to offer SDK and software simulation to enable easy development of apps. Denso will showcase automotive solutions including holographic haptic controller, V2X technology, and touchless human-machine interface (HMI) for cockpit at the CES.

Continental will showcase a voice- and location-based social networking application, VoicR™ app. The app enables subscribers to create short voice messages and send them to other nearby users or on personalized citizens band (CB) style channels to users globally. Users can also create virtually an unlimited number of user-defined channels based on user interests, such as friends' lists,

destinations, events, shared interests and specific services. Additionally, certain closed channels can be used for business, public services or governmental use.

Continental will also demonstrate some high-tech biometrics solution at CES. Taking a hint from phones and smart locks, Continental will bring a dashboard-ready fingerprint authentication system to the show. The fingerprint recognition would be used to add an additional layer of security. Using two-factor authentication, the driver would need to have the key fob and be able to confirm their identity via the fingerprint sensor. The company will also show a facial recognition system that could recognize drivers and load their personalized settings, such as seat and mirror positions, all automatically. An interior camera will be able to scan the driver's face and offer vehicle personalization, like adjustments of the seat and mirrors, music, temperature and navigation.

CONTACTS

The Americas

+1 877 863 1306

Europe, Middle East & Africa

+44 20 7176 1234

Asia-Pacific

+852 2533 3565

www.spglobal.com/mobility

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