NXP Launches World's First Scalable, Single-Chip Secure Vehicle-to-X Platform

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- New DSRC/802.11p solution "sees" around corners to deliver a safe and secure autonomous driving experience
- Builds on NXP's leadership in delivering industry's first complete 5.9 GHz secure V2X solution, now in vehicle production

FRANKFURT, Sept. 12, 2017 – NXP Semiconductors N.V. (NASDAQ:NXPI), the world's largest supplier of automotive semiconductor solutions, has expanded its leadership in secure vehicle-to-everything communications (V2X) with its next generation RoadLINK™ solution. The new NXP SAF5400 is the world's first automotive qualified, high-performance single-chip DSRC modem. Its unique scalable architecture, new industry-leading security features, and leading edge RFCMOS and software defined radio (SDR) technologies offer OEMs flexible options for cross-regional secure V2X adoption and field upgradeability.

V2X technology allows vehicles to communicate with other cars, infrastructure and vulnerable road users to increase driver safety and smooth out the autonomous driving experience. The DSRC/802.11p version of V2X delivers minimum latency for real-time communication and an operating range that exceeds 1 mile even in areas where cellular network connections are not available. DSRC also provides dedicated secure safety channel operation to enable the secure communication of safety messages and other data in real time, forming an essential part of the suite of autonomous driving sensors for today's connected cars and trucks. V2X based on DSRC is also instrumental in truck platooning, a forerunner of future eco-friendly driving scenarios.

The NXP SAF5400 modem integrates advanced transceiver technology plus the full baseband, MAC and firmware into a complete one-chip standalone modem. It provides superior RF performance for industry-leading range under all channel conditions and is the industry's first single-chip modem with the capability to verify more than 2000 messages per second on chip. The SAF5400 architecture is fully scalable to enable its

combination with application processors such as NXP's powerful i.MX family, security, power management and in-vehicle networking solutions, all offered as part of the NXP secure V2X system platform.

To enable the highest security, NXP provides the SXF1800, a dedicated hardware secure element based on technology used today in many of the world's most sensitive security environments from electronic passports, banking cards, smartphones and now automobiles. Confirmed by third party security evaluations and certifications, the SXF1800 demonstrates very high resistance to physical probing and tampering. V2X security requirements can also be met with software functions on NXP's i.MX processors, offering customers a performance/cost trade-off choice.

The secure single-chip V2X solution incorporates NXP's software defined radio technology which provides customers with a platform that supports different regional standards with a single hardware solution. This integration reduces development, qualification and maintenance efforts significantly and eases the challenges of global V2X rollouts. The ultra-compact, one-chip integration of analog RF with digital baseband processing into a single chip leverages NXP's RFCMOS technology for a smaller hardware footprint.

"NXP has delivered a secure single chip V2X platform that will enhance a vehicle's ability to "see" around corners and will contribute to our efforts to save lives," said Kurt Sievers, executive vice president and general manager, NXP Automotive. "The next generation NXP RoadLINK™ builds on NXP's existing industry leading solution, which is already on the roads of the world and provides a high-performance platform that is scalable and easy for OEMs to adopt across the globe."

The NXP V2X system platform operates in the 5.9 GHz and 760 MHz bands and is compatible with global software protocols from all leading vendors, enabling a true global V2X solution. The platform meets and exceeds the current guidelines of the US DOT's Notice of Proposed Rulemaking, as well as emerging standards in Europe, Japan and Korea.

The NXP SAF5400 Modem

The NXP SAF5400 single-chip modem is the core of the secure V2X system platform called RoadLINK™. RoadLINK is the secure V2X solution of choice across the globe, as it has completed more than 1 million test days to date and is the only 5.9 GHz V2X system solution proven in volume production today.

Quick Facts on SAF5400:

- Based on the proven first generation NXP secure V2X solution that is on the road today and used in many RSU/smart city trials
- SAF5400 has a unique scalable architecture which enables combination with the i.MX product family, offering the option to use the same V2X silicon in a system platform to scale from "low end" toward "high end" OBUs
- SXF1800 V2X secure element can be added to the system to provide a very high level of security for today's connected cars and trucks
- Software stack agnostic, backward compatible with NXP's first generation RoadLINK chipset
- Supports all global V2X standards in US, EU, JPN and KOR
- Supports dual antenna diversity use cases and provides the highest integration and lowest system cost V2X solution in the market
- Enables very low system power consumption and superior RF performance under all channel conditions
- Optimized scalability and built-in antenna compensator support leveraging NXP's safe launch approach and high quality standards
- NXP has completed more than 1 million days of V2X field testing with a solution already in automotive production
- NXP's secure V2X solutions are automotive grade, offer industry leading range and RF performance and follow all proven automotive development processes

Availability of NXP SAF5400:

- Sampling with lead customers starting December 2017

About NXP
NXP Semiconductors N.V. (NASDAQ:NXPI) enables secure connections and infrastructure for a smarter world, advancing solutions that make lives easier, better and safer. As the world leader in secure connectivity solutions for embedded applications, NXP is driving innovation in the secure connected vehicle, end-to-end security & privacy and smart connected solutions markets. Built on more than 60 years of combined experience and expertise, the company has 31,000 employees in more than 33 countries and posted revenue of $9.5 billion in 2016. Find out more at www.nxp.com.

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