



## NXP Opens Electronica 2018 with Solutions for Machine Learning at the Edge for Industry 4.0 Applications

November 7, 2018

### Highlights

- Showcase includes live demonstrations of secure edge computing, machine learning use cases in smart automation, factories, cars, logistics and robotics.
- Company officially launches Industrial Competency Center (ICC) to help customers and partners tackle some of industrial IoT's toughest hardware and software development challenges.

MUNICH, Germany, Nov. 07, 2018 (GLOBE NEWSWIRE) -- NXP Semiconductors N.V. (NASDAQ:NXPI) will showcase solutions that pave the way for the Industry 4.0 revolution including edge-based machine learning (ML) at next week's Electronica 2018. Featured applications include facial recognition for access control, object recognition for operator safety, local voice control commands, and artificial intelligence (AI) derived anomaly detection for predicting and preventing failures of industrial systems.

Today, NXP also announced it is officially launching its Industrial Competency Center (ICC), a dedicated multidisciplinary team, including a laboratory based in Hamburg, to support global industrial customers in their digital manufacturing strategies.

"To accelerate and deploy machine learning applications, both hardware and software support are key enablers," said Sylvain Gardet, director of NXP's ICC "We want to provide the missing link to give manufacturers the flexibility to build their own solutions covering today's Industry 4.0 hot topics: machine learning, secure industrial communication such as OPC UA and edge-computing, enabling smarter industrial processes and robots."

The laboratory team led by Christian Wiebus, CTO of ICC, will cooperate closely with customers, standard bodies, system integrators and research partners to develop best-in-class hardware, software and service solutions for Industry 4.0 / Industrial IoT (IIOT).

"NXP's ICC is already delivering key solutions to its customers and we look forward to further advancing our partnerships," Wiebus said.

The ICC targets customers who are focused on developing next-generation smart industry applications and addresses the demand to tailor solutions for core IIOT applications such as time sensitive networking (TSN) and Industrial Linux enablement.

### See Industry 4.0 Solutions in Action at Electronica 2018 in Hall B5-502

NXP will showcase its ICC's capabilities, secure OPC UA solutions, and its broad advanced edge-computing portfolio that underpin NXP's industrial automation expertise through interactive demonstrations at Electronica 2018 from the 13th to 16th of November in Munich.

Demonstrations include:

- **ICECAT (Industrial Control by Edge Computing for Automation Technology) – windshield demo with the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University**, with robots, sensors and actuators to address thermal effects resulting from deviations in the glass geometry that can disturb handling processes at cleaner, primer and quality stations in windshield production. The demonstration, built on top of the AWS Cloud, uses NXP's i.MX8M application processors for edge devices. NXP has implemented a serverless edge infrastructure using AWS Greengrass which enables robots to adjust to each windscreen.
- **Industry 4.0 demo** to illustrate how to enable end-to-end security from the user to the robot based on OPC UA using NXP's i.MX6, A71, NFC, Layerscape.
- **Low-latency crypto – safety demo** for control systems that require secure, low latency data transmission using NXP's LPC5500 that features PRINCE cipher hardware implementation, from innovation to product integration.
- **Secure machine-to-machine authentication** with mobile wired control device in an industrial environment. A71CH secure element is used for mutual authentication between the control device and a machine (NXP's i.MX6UL microcontroller (MCU)).
- **Motor control with NXP's i.MX RT1050 crossover processor** as a one chip for four motor control to solve the increased need for cost-constraint, centralized motion control systems that need to support integrated Human Machine Interface (HMI), security and communication over the industrial ethernet with mutual authentication using NXP's A71CH secure element.

- **Tool identification via Near Field Communication (NFC)** for automatic detection of an accessory type and re-configuration of the main device based on the accessory; recording of wear and tear on the accessory; and detecting counterfeit accessories using NXP's NTAG and ICODE products, and CLRC663 plus high-performance NFC readers.
- **Machine anomaly detection with NXP's NTAG SmartSensor** to monitor normal behavior of rotating machines and bearings. Data is collected using an NFC reader.
- **An ML-based vision demo** using NXP's i.MX RT1050 crossover processor with the highest performing Arm Cortex-M7, 3020 Core Mark / 1284 DMIPS @600MHz, developed using [Au-Zone's](#) DeepView Machine Learning ToolKit.
- **Graphics demonstration with advanced multimedia** for GUI enhanced HMI on the i.MX RT1050 crossover processor.
- **Edge computing, neural net object detection with NXP's i.MX 8QuadMax and i.MX 8QuadXPlus** applications processors consuming data from a camera and applying a Convolutional Neural Net (CNN) engine to classify object types. The data is then fed to another GPU dedicated to a neural network inference engine that recognizes the object.
- **NXP's LPC5500 with Digital Signal Processor (DSP) hardware accelerator** that enables Industry 4.0 with NXP's MCU-based ML solution for power-conscious nodes performing real-time data analytics at the node, reducing latency and eliminating the need for cloud communication.
- **NXP's i.MX7 ULP low power heterogeneous sensor hub for sensor data acquisition** . In partnership with Antmicro, Sensor Hub demonstration showing continuous data acquisition on FreeRTOS (Cortex-M4) for power savings, while waking up Cortex-A7 to graph data on the LCD through Linux as needed.
- **Facial recognition for the smart factory** using the facial recognition algorithm on an AI-IoT base board for NXP's i.MX 7ULP. Upon Facial Detection, further processing is done to match a set of faces downloaded to the device.
- **Industrial safety using ML on a Layerscape platform** to demonstrate machine learning for detecting safety goggles with the highest accuracy. The system uses an NFC reader that securely detects an operator when an NFC card is swiped, and NXP's 24 Ghz Low Power doppler radar to set the digital safety zone and flag an operator to wear goggles.

#### NXP at Electronica 2018

To see NXP's complete set of industrial demonstrations, visit Hall B5-502 at Electronica 2018. To schedule a booth tour, please contact [pr@nxp.com](mailto:pr@nxp.com).

NXP will host a press conference on November 13th from 4:00-5:00 p.m. at the show.

To RSVP your attendance, please contact [pr@nxp.com](mailto:pr@nxp.com).

#### About NXP Semiconductors

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 over 30,000 employees in more than 30 countries and posted revenue of \$9.26 billion in 2017. Find out more at [www.nxp.com](http://www.nxp.com).

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