Largest electronica yet

Bethan Grylls reports on the latest technology to emerge from this year's electronica, which was the biggest to date

Earlier this month, Munich welcomed the biggest electronica yet, with over 80,000 visitors – a rise of 10% from 2016 – while more than 3,100 exhibitors from over 50 countries provided insight into the electronics industry.

Among the exhibitors New Electronics spoke to was Murata, which used the fair to launch the SCL3300-D01, a 3-axis inclination sensor with a tilt angle output and digital SPI interface. The inclinometer features four user selectable measurement modes which can be used to optimise the sensor's performance for different applications, a mixed signal ASIC for signal processing and a flexible digital interface that removes the need for an external ADC.

It operates from a single 3.3 V supply and is suitable for battery-powered operation in remote locations, due to a typical sleep mode current draw of 3µA.

Murata also showcased its new narrowband Internet-of-Things (NB-IoT) cellular modem module which, at just 12.6 mm x 10.6 mm x 1.8 mm, is said to be the smallest in the world.

The module includes an ARM Cortex-M4 microcontroller (MCU) running at 156 MHz and is able to run AT commands due to the onboard SRAM and 4 MB of Flash memory. It also includes multiple GPIO lines, a UICC interface for SIM cards and SPI, UART interfaces and an open MCU option that allows designers to run their own applications.

Amid the various Rohde & Schwartz announcements at electronica, including a modular RF switch and control platform and increased functionality of its ELEKTRA EMC test software, was its Bluetooth Low Energy (BLE) signalling test solution.

This latest tool makes it possible to determine the RF characteristics of a Bluetooth LE device via a Bluetooth over-the-air (OTA) link or over a wired connection to the antenna. With this approach users can, for example, measure the level, modulation and receiver characteristics of individual or all data channels for frequency-hopping transmissions.

electronica welcomed more than 80,000 visitors to its halls this year for a range of expert talks and demos

R&S also offers an advertiser testing option for its CMW test platform to measure the RF parameters of advertiser channels. The BLE signaling functionality enhances the BLE direct test mode and the BLE advertiser mode. With the R&S CMW, users can choose among all three BLE RF test modes to match their respective applications.

Cypress used the exhibition to introduce a nonvolatile data-logging solution with ultra-low power consumption, designed for the latest generation of portable medical and wearable devices and other IoT applications that demand nonvolatile memories to continuously log an increasing amount of user and sensor data while using as little power as possible.

The Excelon LP Ferroelectric Random Access Memory (F-RAM) has been created to deliver instant-write capabilities with virtually unlimited endurance, enabling these applications to perform mission-critical data logging requirements while maximising battery life.

While Melixis announced a major upgrade to its Time-of-Flight (ToF) technology for the automotive industry. The portfolio now includes its next-generation QVGA ToF sensor chipset and a forthcoming VGA ToF sensor. Both sensors are AEC-Q100 qualified and suitable for a wide range of automotive applications, including gesture recognition, driver monitoring and people/object detection.

The MLX75024 ToF QVGA sensor doubles the sensitivity of the previous generation while maintaining the same resolution (320 x 240 px) and ambient light robustness. This allows it to operate in lower light levels or reduce the illumination power required by at least 30%. System efficiency is further enhanced by a 50% reduction in current consumption and the resulting lower heat generation allows the design of more compact cameras. A new selectable gain feature allows designers to find the optimum trade-off between illumination power, accuracy and ambient light robustness. As a result, the SNR is two times better in low light conditions and distances greater than 1m.

To support this ToF sensor, Melexis has developed the MLX75123BA ToF companion chip, which offers a three-fold improvement in front-end noise over its predecessor. The companion chip is used to configure parameters such as pixel gain, and now supports pixel binning to simplify hardware and software for lower resolution applications.

Smart, safe and secure

Electronica saw record attendees and exhibitor numbers. **Neil Tyler** reports on some of the announcements from this year's show

Record visitor numbers, exhibitors and much increased floor space saw electronica 2018 once again highlight the importance of this bi-annual event to the electronics industry, with the focus this year on blockchain, artificial intelligence and medical electronics.

Falk Senger, Managing Director of Messe München, said of the four-day event that, "electronica remains the most important meeting place for the electronics industry and this year was a record."

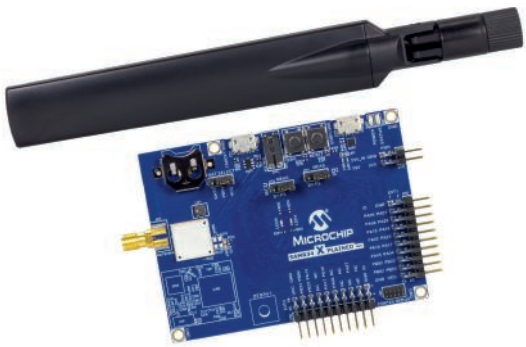
With over 3000 exhibitors from around the world there were plenty of new products and services on show.

Renesas Electronics unveiled a new energy-harvesting embedded controller that can eliminate the need to use or replace batteries in IoT devices.

The device, based on Renesas' SOTB (silicon-on-thin-buried-oxide) process technology, delivers an extreme reduction in both active and standby current consumption, a combination that was not previously possible in conventional microcontrollers (MCUs).

The extreme low current levels of the SOTB-based embedded controller will enable system manufacturers to completely eliminate the need for batteries in some of their products through harvesting ambient energy sources.

Renesas' first commercial product using SOTB technology, the R7F0E embedded controller, is a 32-bit, Arm Cortex-based embedded controller capable of operating up to 64MHz for rapid local processing of sensor data and execution of complex analysis and control functions.



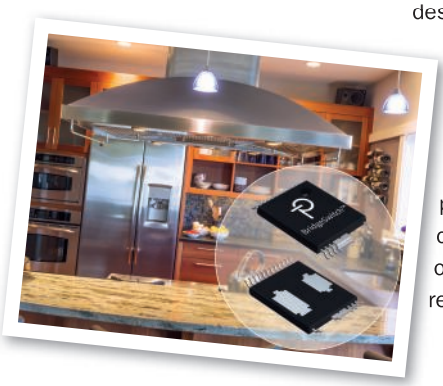
Above: Microchip unveiled a highly integrated LoRa SiP family of devices

Power Integrations, a specialist in high-voltage integrated circuits for energy-efficient power conversion, released its BridgeSwitch integrated half-bridge (IHB) motor driver IC family.

These devices feature high- and low-side advanced FREDFETs (Fast Recovery Diode Field Effect Transistors) with integrated lossless current sensing, resulting in an inverter conversion efficiency of up to 98.5% in brushless DC (BLDC) motor drive applications to 300W and eliminates the need for a heatsink.

Despite a fire at its stand, Analog Devices had plenty on display with a broad range of solutions within its advanced Industry 4.0 roadmap.

"Our customers want to move fast toward Industry 4.0 but also need to ensure their investments are part of a viable, long-term plan," said Brendan O'Dowd, general manager, Analog Devices' Industrial Automation Business Unit. "This can be extremely difficult to navigate given the current pace of innovation. The solutions on show are critical building blocks in these strategies, which include Deterministic Ethernet, security, and condition-based monitoring."



Below: Power Integrations released its highly efficient BridgeSwitch IHB motor driver IC family

The ADcmXL3021 module, for example, is a complete sensing system based on ADI's micromechanical (MEMs) sensor technology and monitors early indicators of machine fatigue and failure across industrial equipment and transport vehicles.

In terms of Industry 4.0 ams, a supplier of high performance sensor solutions, introduced a shutter image sensor for machine vision and Automated Optical Inspection (AOI) equipment that supports the 1" optical format.

The CSG14k isensor features a 3840 x 3584 pixel array, giving 14Mpixel resolution at a frame rate considerably higher than any other comparable device on the market.

The high performance and resolution of the CSG14k are the result of innovations in the design of the sensor's 3.2µm x 3.2µm pixels. The new pixel design is 66% smaller than the pixel in the previous generation of 10-bit ams image sensors, while offering a 12-bit output and markedly lower noise.

Microchip unveiled a highly integrated LoRa System-in-Package (SiP) family with an ultra-low-power 32-bit microcontroller (MCU), sub-GHz RF LoRa transceiver and software stack.

The combination of long-range wireless connectivity with low-power performance is designed to accelerate the development of LoRa-based connected solutions.

The SAM R34/35 SiPs are supported by certified reference designs and proven interoperability with major LoRaWAN gateway and network providers, significantly simplifying the entire development process with hardware, software and support. The devices also provide the industry's lowest power consumption in sleep modes, offering extended battery life in remote IoT nodes.

• electronica returns in 2020