

STMicroelectronics Reveals Latest Innovation in Electric-Vehicle Energy Management for Cleaner and Safer Mobility

- ❖ *New Battery-Management System chip delivers enhancements to extend driving range, reliability, and safety of electric vehicles*
- ❖ *Introduces industry-leading sensing accuracy, temperature monitoring, and innovative features*

Geneva, February 18, 2020 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has revealed new battery-management technology that increases reliability, safety, driving range, and cost-effectiveness of electric vehicles (EVs).

EVs are predicted to reach cost parity with conventional combustion-engine vehicles before the end of this decade and overtake in sales volume by 2038¹. ST, leveraging its technical capabilities to help car makers achieve these goals, has announced an advanced battery-management system (BMS) controller that features the industry's best voltage accuracy for longer driving range and battery life, with extra temperature-monitoring inputs for enhanced safety.

[The L9963 controller](#) is the latest generation from ST's BMS program, which has already created advanced semiconductors for joint projects with major organizations developing EV batteries. These include ongoing cooperation with LG Chem, begun in 2008, and the cooperation with Chinese R&D institute IMECAS and EV-battery technology company EPOCH announced in 2017.

"We are extending our expertise in electronic technologies in every way possible to help realize cleaner mobility," said Alberto Poma, ADG Vice President, Smart Power Solutions MACRO-Division General Manager, STMicroelectronics. *"Building on over 10 years of work with key partners in EV battery-management technology, our new battery-management chip further improves every aspect of energy management in EVs, which directly enhances important end-user experiences to increase market appeal and consumer confidence."*

¹ <https://about.bnef.com/electric-vehicle-outlook/>

[A typical BMS application](#) uses multiple L9963 devices to monitor groups of cells in the battery stack, managed by a host microcontroller (MCU) such as ST's SPC5 high-performance, safety-critical automotive-qualified MCUs.

The L9963 is in production now and ready for new designs. Please contact your local ST sales office for further information and pricing options.

Further technical information:

The L9963 can monitor up to 14 stacked battery cells, measuring voltages with accuracy better than 2mV in the 1.7V–4.7V range to maintain superior cell condition. Simultaneous digitization of all sensed values, considered to be a first for this type of battery-management product, eliminates cell-synchronization delays.

The L9963 can also monitor up to seven external temperature sensors, enhancing the system's ability to detect fluctuations and maintain stability.

Meeting ASIL-D requirements in compliance with the ISO 26262 standard, the L9963 integrates a fully redundant cell-measurement path that enhances safety and provides support for a 'limp home' mode. Comprehensive fault-detection and notification functions meeting automotive safety requirements are also built in.

Together with a serial peripheral interface (SPI), the L9963 features a 2.66Mbps vertical communication interface for high-speed communication between multiple L9963 ICs monitoring the entire battery stack. This permits eight devices to convert and read 96 cells in less than 4ms, and can work with any combination of transformer-based or capacitive isolation.

The L9963 also features a robust design that allows hot plugging without the external Zener diodes usually needed to protect the BMS because the battery cannot be powered down. The L9963 allows designers to eliminate these components and hence further reduce costs.

Further information can be found on www.st.com/automotive-bms

About STMicroelectronics

ST is a global semiconductor leader delivering intelligent and energy-efficient products and solutions that power the electronics at the heart of everyday life. ST's products are found everywhere today, and together with our customers, we are enabling smarter driving and smarter factories, cities and homes, along with the next generation of mobile and Internet of Things devices.

By getting more from technology to get more from life, ST stands for life.augmented.

In 2019, the Company's net revenues were \$9.56 billion, serving more than 100,000 customers worldwide. Further information can be found at www.st.com.

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