MEMS Motion-Sensing Module Packs Five Degrees of Freedom

STMicroelectronics, a global semiconductor leader serving customers across the spectrum of electronics applications and the leading supplier of MEMS (Micro-Electro-Mechanical Systems) for consumer and portable applications, announced a multi-sensor module with five degrees of freedom. The integration of a 3-axis digital accelerometer with a 2-axis digital gyroscope in a single device improves sensing accuracy and reliability at reduced size and cost, opening new possibilities for high-precision motion detection-based applications in mobile phones, navigation systems, game controls and many other portable electronic devices.

ST’s newest high-performance motion-sensing module detects acceleration up to 16 g and angular rate up to 2000 dps along the pitch and yaw axes[2]. Advanced design of the mechanical sensing structure guarantees outstanding symmetry and resistance against mechanical and thermal stress, delivering best-in-class stability over time and temperature for zero-g offset, zero-rate and sensitivity. The module leverages the same micromachining technology process that ST has successfully applied to more than 1.2 billion motion sensors already sold in the market.

Packing five degrees of freedom in a single device increases system robustness, which together with high thermal and mechanical stability and advanced power management options, makes ST’s new multi-sensor module a perfect choice for a wide range of consumer and industrial applications.

These applications include intuitive user interfaces in mobile phones, game consoles, pointers, remotes and other smart consumer devices; dead-reckoning and map-matching in advanced navigation systems; smart power saving and free-fall detection in portable electronics; and vibration monitoring and compensation.

Addressing power constraints in battery-operated portable devices, ST’s multi-sensor module includes power-down and sleep modes and an embedded FIFO (first-

in first-out) memory block, which removes the need for continuous communication between the sensor module and the host processor. The device can operate with any supply voltage in the range of 2.4 to 3.6V.

ST's LSM320DL multi-sensor module is available now, with unit pricing at $3.50 for volumes in the range of 1000 pieces. This product is intended for high-volume OEMs and ODMs and is not available through distribution. If your company has a high-volume need, please contact your ST sales office.

For further information on ST's complete MEMS portfolio, see www.st.com/mems [1].

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