MEMS inertial measurement units (IMUs) for tactical grade applications have made a lot of progress in the past few years in terms of performance, stability and reliability. They are now accepted in high-reliability environments and are even starting to replace Fiber Optic Gyros (FOGs) and other technologies in tactical applications. Today in new market opportunities, like robots, smart agriculture, autonomous cars and drones, highly accurate motion in a small space is mandatory, which could boost the IMU market. Already a leader in the military market, Honeywell has developed the HG4930CA51, a non-International Traffic in Arms Regulations (ITAR) tactical grade IMU for these applications they call the Internet of Moving Things.

With a gyroscope bias instability in-run of 0.25°/h and accelerometer bias in-run stability of 0.025mg, the HG4930CA51 is the highest performance non-ITAR silicon MEMS IMU from Honeywell. The analyzed module is a complete system utilizing three single-axis MEMS gyros and three single-axis MEMS accelerometers.

The HG4930CA51 is a 65 mm × 52 mm × 35 mm compact module addressing platform control, navigation and robotics applications. It mixes technologies developed for military and harsh environments and six high-grade inertial silicon MEMS sensors from Honeywell. The six MEMS sensors are associated with 13 ASIC dies, which provides flexibility in device configuration.

The report contains a detailed physical analysis with process description and manufacturing cost analysis. It also includes a full comparison with Sensonor STIM210 and the HG1120CA50.

**Honeywell HG4930CA51 6-Axis MEMS Inertial Sensor**

Aerospace performance integrated into a tactical-grade 6-axis IMU for industrial applications.
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AUTHORS

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RELATED REPORTS

Honeywell HG1120CA50 9-axis MEMS Inertial Sensor
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High precision 6-Axis Inertial Measurement Unit for industrial and harsh environments. June 2018 - EUR 3,490*

Sensonor STIM210 – High-precision MEMS Gyro Module
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Reverse Costing® is the process of disassembling a device (or a system) in order to identify its technology and calculate its manufacturing cost, using in-house models and tools.

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