The high-end inertial systems market was worth more than US$3 billion in 2019, according to Yole Développement. It may surpass the US$4 billion milestone by 2025. Defense accounted for 40% of this market, while commercial aerospace comprised 26%.

In this dynamic context, System Plus Consulting provides a full reverse costing study to give insight into technology data, manufacturing cost and selling price of the STIM318 Inertial Measurement Unit (IMU) supplied by Sensonor.

STIM318 is the newest IMU proposed by Sensonor. It is a tactical grade, non-GPS aided, 9-axis IMU containing three highly accurate MEMS gyroscopes, three single-axis accelerometers and two dual-axis accelerometers.

The MEMS gyroscope dies use a ButterflyGyro™ structure. They are associated with Application Specific Integrated Circuit (ASIC) dies, mounted on a silicon interposer and connected to the housing of the module, reducing mechanical strain.

Compared to STIM210 gyro module, the STIM318 IMU’s single-axis accelerometers and dual-axis accelerometers are new. A detailed comparison between STIM318 IMU and STIM210 gyro module is included in this report. The comparisons highlight differences in terms of structure and cost.

A full reverse costing dedicated to the technology and cost analyses of the single-axis and dual-axis accelerometers found in STIM318 IMU is available in another System Plus Consulting report, namely: “Safran Colibrys MS1010 & MEMSIC MXA2500M High-End Accelerometers”.

**Sensonor STIM318 Inertial Measurement Unit (IMU)**

*Newest IMU with 9-axis detection and gyro bias instability of 0.3°/h from Sensonor.*

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**Complete teardown with**

- Analysis of the IMU structure, including package, electronic board, ASIC and MEMS dies
- Detailed optical and SEM photos
- Precise measurements
- Supply chain evaluation
- Manufacturing cost analysis
- Estimated selling price
- Technology and cost comparisons between STIM318 and STIM210
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## RELATED REPORTS

- **Safran Colibrys MS1010 and MEMSIC MXA2500M High-End Accelerometers**
  - Detailed technology and cost analysis of the high-end single-axis and dual-axis accelerometers integrated in the STIM318 IMU.
  - July 2020 - EUR 3,990*

- **Honeywell HG1120CA50 9-axis MEMS Inertial Sensor**
  - The first high reliability and highly rugged 9-axis IMU for industrial applications from Honeywell.
  - January 2019 - EUR 3,990*

- **Sensonor STIM210 – High-precision MEMS Gyro Module**
  - Tactical grade with bias instability of 0.5°/h in a miniature 33cm² package.
  - March 2014 - EUR 4,490*
WHAT IS A REVERSE COSTING®?

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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