Accurate motion capture sensors are critical to the successful development of robots, smart agriculture, autonomous cars and drones. This requires high accuracy and reliability, and long mission life, which are not provided by standard consumer solutions. Honeywell has thus developed the HG1120CA50 inertial sensor to address what it calls ‘the Internet of Moving Things’ and related applications.

The HG1120CA50 is a compact 44 mm × 47 mm × 14 mm module designed to serve platform control, navigation and robotics applications. Mixing technologies developed for military applications and harsh environments with selected consumer MEMS sensors, the HG1120CA50 is a 9-axis inertial measurement unit (IMU) with ±500°/sec digital gyroscope sensing, a 16g accelerometer and a ±16 gauss magnetometer. It uses a low-cost MEMS technology based on STMicroelectronics’ device process.

In order to achieve a cost effective and small module, Honeywell uses five MEMS components from STMicroelectronics developed for the smartphone industry. This design allows Honeywell to exploit STMicroelectronics’ low-cost portfolio and thus to optimize manufacturing cost.

The report contains a detailed physical analysis with a process description and manufacturing cost analysis. Also, a full comparison with the Sensonor STIM210 and the ADIS16460 is included.

**COMPLETE TEARDOWN WITH**

- Detailed photos
- Precise measurements
- Material analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Selling price estimation
- Comparison with Sensonor STIM210 and ADI ADIS16460 industrial IMU
Overview/Introduction
• Executive Summary
• Main Chipset
• Reverse Costing Methodology
• Glossary
• Characteristics IMU

Company Profile
• Honeywell International Inc.

Physical Analysis
• Views and Dimensions of the System
• System Opening
• CPU Board
  ✓ Top side – External view
  ✓ Top side – Main and IC component markings
  ✓ Top side – Main component and IC identification
  ✓ Bottom side – External view
  ✓ Bottom side – Main component identification
• MEMS Board

Sensor Components
✓ 6-Axis MEMS IMU
✓ High-g 3-Axis accelerometer
✓ 3-Axis compass

Comparison with Sensonor STIM210 and ADI ADIS16460 Industrial IMUs

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• Accessing the BOM
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• BOM Cost – CPU Board
• BOM Cost – Mems Board
• BOM Cost – IMU-Mechanical Parts
• Material Cost Breakdown by Sub-Assembly
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• Accessing the Added Value (AV) Cost
• Electronic Board Manufacturing Flow
• Details of the Main Electronic Board AV Cost
• Details of the System Assembly AV Cost
• Added-Value Cost Breakdown
• Manufacturing Cost Breakdown

Selling Price

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RELATED REPORTS

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