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Sensor Shipments Strengthen But Falling Prices Cut Sales Growth

Intense market competition and the pursuit of Internet of Things, wearable systems, and other high-volume applications drive down sensor ASPs at an accelerated pace.

Sensor shipments are getting a big boost from the spread of embedded measurement functions for automated intelligent controls in systems and new high-volume applications—such as wearable electronics and the huge potential of the Internet of Things (IoT)—but sales growth is being pulled down significantly by price erosion in this once high-flying semiconductor marketplace, according to IC Insights' new 2015 *O-S-D Report—A Market Analysis and Forecast for Optoelectronics, Sensors/Actuators, and Discretes*.

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Average selling prices (ASPs) for all types of semiconductor sensors are forecast to fall by a compound annual growth rate (CAGR) of -5% in the next five years, which is double the rate of decline in the previous five years (2009-2014), says the new IC Insights report. Unit volume growth is expected to climb by a strong CAGR of 11.4% in the 2014-2019 timeframe and reach 19.1 billion sensor shipments worldwide in five years and revenue growth is projected to rise by an annual rate of 6.0% in the forecast period. In comparison, sensor sales grew by a CAGR of 17.1% between 2009 and 2014 to reach a new record high of \$5.7 billion last year, according to analysis found in the 360-page annual *O-S-D Report*, which also covers actuators, optoelectronics, and discrete semiconductors.

ASP erosion is partly a result of intense competition among a growing number of sensor suppliers pursuing new portable, consumer, and IoT applications. Sensor ASPs are also being driven much lower because many new high-volume applications require rock-bottom prices. The fall in prices is not only undermining revenue growth in the highly competitive sensor segment, but it is also now squeezing profit margins among suppliers.

Semiconductor sensors make up nearly two-thirds of the total sensor/actuator market segment, according to the 2015 *O-S-D Report*. As shown in Figure 1, acceleration/yaw sensors (i.e., accelerometers and gyroscope devices) remained the largest sensor category, in terms of dollar sales volume, accounting for 26% of the total sensor/actuator market. The acceleration/yaw sensor category continued to struggle due to price erosion and a significant deceleration in unit growth to just 1% in 2014, which resulted in a

4% drop in worldwide sales to \$2.4 billion after falling 2% in 2013. Magnetic-field sensors (including electronic compass chips) rebounded in 2014 with an 11% increase in sales to set a new record high of about \$1.6 billion after slumping 1% in 2013. Pressure sensor sales remained strong in 2014, growing 15% to a new record-high \$1.5 billion after climbing 16% in 2013.

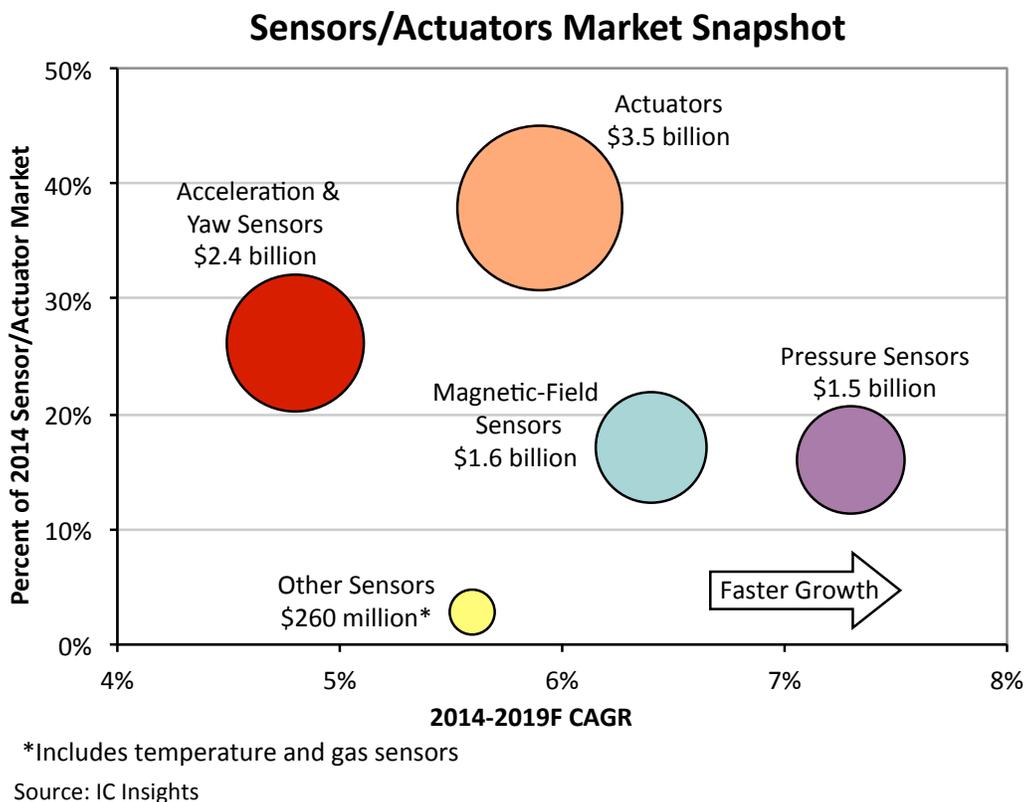


Figure 1

The forecast in the *O-S-D Report* shows total sensor sales growing 7% in 2015 to \$6.1 billion after rising just 5% in 2014. Sensor shipments are projected to climb 16% in 2015 to 12.9 billion units after a 13% increase in 2014.

About 80% of the sensors/actuators market's sales in 2014 came from semiconductors built with microelectromechanical systems (MEMS) technology—primarily pressure and acceleration/yaw sensors and actuator devices. MEMS-based product sales grew about 5% to a record-high \$7.4 billion in 2014 from \$7.0 billion in 2013. Sensors accounted for 53% of MEMS-based semiconductor sales in 2014 (\$3.9 billion) while 46% of the total (\$3.5 billion) came from actuators, such as micro-mirrors for displays and digital projectors, microfluidic devices for inkjet printer nozzles and other application, radio frequency (RF) MEMS filters, and timekeeping silicon oscillators.

In terms of unit volumes, sensors represented 80% of the 5.1 billion MEMS-based semiconductors shipped in 2014 (4.1 billion) with the remaining 20% being actuators (about 1.0 billion).

After dropping slightly more than 1% in 2012 and being flat in 2013, sales of MEMS-based semiconductors recovered in 2014 with actuators ending a two-year decline, rising 7%, and pressure sensors continuing double-digit growth with a 15% increase in the year. Sales of MEMS-based sensors and actuators are forecast to grow 7% in 2015 to \$7.9 billion and reach \$9.8 billion in 2019, representing a CAGR of 12.0% from 2014.

Report Details: *The 2015 O-S-D Report*

In a one-of-a-kind study, IC Insights continues to expand its coverage of the semiconductor industry with detailed analysis of trends and growth rates in the optoelectronics, sensors/actuators, and discrete market segments in its newly revised 360-page *O-S-D Report—A Market Analysis and Forecast for the Optoelectronics, Sensors/Actuators, and Discretes*.

Now in its 10th annual edition, the *2015 O-S-D Report* contains a detailed forecast of sales, unit shipments, and selling prices for more than 30 individual product types and categories through 2019. Also included is a review of technology trends for each of the segments. The *2015 O-S-D Report*, with more than 240 charts and figures, is priced at \$3,290 for an individual-user license and \$6,390 for a multi-user corporate license.

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IC Insights, Inc., based in Scottsdale, Arizona USA, is dedicated to providing high-quality, cost-effective market research for the semiconductor industry. Founded in 1997, IC Insights offers coverage of global economic trends, the semiconductor market forecast, capital spending and fab capacity trends, product market details, and technology trends, as well as complete IC company profiles and evaluations of end-use applications driving demand for ICs.

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