World Automotive Sensors

Industry Study with Forecasts for 2014 & 2019

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Global demand to advance 11.8% yearly through 2014

Global demand for light vehicle original equipment manufacturer (OEM) automotive sensors will advance 11.8 percent annually to $15.9 billion in 2014, rebounding from depressed 2009 levels. In addition to the expected recovery from the 2009 recession, automotive sensor demand will gain uplift from increasing regulatory pressure and the continued search among automakers for cost-effective ways to differentiate their products. Sensor demand grows hand-in-hand with electronics demand, which itself has expanded substantially during the past decade, despite the impact of the recession in developed markets.

Developed markets to favor newer technology

However, the 2009 recession did cause developed and emerging automotive markets to bifurcate. Light vehicle sales in the key developed markets of the US, Western Europe and Japan fell 9.2, 2.1 and 4.4 percent per year, respectively, from 2004 to 2009, while ascendant emerging markets Brazil, China, and India grew 14.1, 26.4 and 12.1 percent, respectively, during the same period. While the faster-growing emerging markets will likely set the global pace going forward, they do not produce the same per-vehicle sensor revenues because many of the sensor technologies they currently contain and will use in the future have already been commoditized in terms of price.

Developed markets to favor newer technology

The automotive OEM sensor industry in developed markets is dynamic and constantly changing, as new sensing technologies experience massive growth while well-established products face flat or declining prospects as they are superseded by newer technology or integrated into other applications. In developed markets, the coming decade is rapidly shaping up to be one focused on expanding the driver’s capabilities to react to events or to see further and anticipate more fully any potential challenge ahead on the roadway, and sensor technologies are slated to play major roles. However, in the medium term, society’s new focus on frugality could signal a reduction in interest in the latest automotive sensor applications.

Emerging markets typically have more basic sensor needs and focus on technologies long-standard in developed countries. Examples include now-basic safety technologies such as standard airbags and antilock brake systems, powertrain and emissions applications, and closed-loop catalytic converter systems. Many of these applications require sensor technologies that have already been perfected in developed markets, and OEMs often select commoditized sensor technologies for use in emerging markets to lower costs. Sensor suppliers face a continuing mandate to deliver more functionality at lower costs.
South Korea: Sensor Demand

Demand for OEM automotive sensors in South Korea is expected to increase from $720 million in 2009 to $860 million in 2014, according to the Freedonia Group. Growth of nearly 14 percent per year represents an increase from 2004 to 2009. This rate of growth in South Korea over the past five years represents an increase from 2004 through 2009, due in large part to the rebound from the 2009 recession, in addition to increases in sensor applications.

As in the case of Japan, South Korea has benefited substantially from the rapid growth in light vehicle production, though production growth will slow after 2014 as companies such as Hyundai and Kia set up transplant assembly facilities in other nations. Like Japan’s, South Korea’s light vehicle industry is largely geared toward the export market, so OEM sensor demand serves a much larger market than domestic vehicle sales might indicate. Nevertheless, South Korea in 2009 ranked third in the Asia/Pacific region behind Japan and China in terms of OEM automotive sensor demand.

Demand for engine and drivetrain sensors in South Korea is expected to grow 7.8 percent annually to $320 million in 2014, driven by increased production levels and by the move upscale that Korean automakers are attempting, especially in terms of vehicles slated for export. Safety and security sensor demand will rise nearly ten percent per year to $285 million in 2014 as Korean OEMs continue to equip vehicles with new active and passive safety technologies. Demand for emission control sensors will rise a healthy 8.2 percent annually to $185 million, driven by both growing light vehicle production levels and increased sensor content per vehicle. Entertainment, communication and navigation sensor demand will increase 9.0 percent per year to $57 million, 2014 with the introduction of new audio, multimedia and navigation system sensors. Demand for other sensors will increase just over ten percent annually to $13 million as upscale-oriented vehicles include additional sensors.

TABLE VI-7
SOUTH KOREA: MACROECONOMIC ENVIRONMENT

<table>
<thead>
<tr>
<th>Item</th>
<th>1999</th>
<th>2004</th>
<th>2009</th>
<th>2014</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (million persons)</td>
<td>46.6</td>
<td>48.0</td>
<td>48.6</td>
<td>49.2</td>
<td>49.6</td>
</tr>
<tr>
<td>GDP/capita</td>
<td>18910</td>
<td>23880</td>
<td>27260</td>
<td>32830</td>
<td>39820</td>
</tr>
<tr>
<td>Gross Domestic Product (bil 2008$)</td>
<td>881</td>
<td>1146</td>
<td>1325</td>
<td>1615</td>
<td>1975</td>
</tr>
<tr>
<td>light vehicle sales/mil $ GDP</td>
<td>1.25</td>
<td>0.86</td>
<td>0.98</td>
<td>0.87</td>
<td>0.71</td>
</tr>
<tr>
<td>Light Vehicle Sales (000)</td>
<td>1100</td>
<td>990</td>
<td>1300</td>
<td>1410</td>
<td>1405</td>
</tr>
<tr>
<td>+ net exports &amp; sales from inventories</td>
<td>1510</td>
<td>2340</td>
<td>2085</td>
<td>2715</td>
<td>2995</td>
</tr>
<tr>
<td>Light Vehicle Production (000)</td>
<td>2610</td>
<td>3330</td>
<td>3385</td>
<td>4125</td>
<td>4400</td>
</tr>
</tbody>
</table>

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Sample Profile, Table & Forecast

COMPANY PROFILES

Lear Corporation
21557 Telegraph Road
Southfield, MI 48033
248-447-1500
http://www.lear.com

Revenues:
- Geographical Revenues: 2009, as percent of total: North America 36%, Europe 49%, Other Regions 15%
Employment:
- 74,870 (2009)

Key Products:
- tire pressure monitoring and other sensor integrated systems

Lear is one of the largest independent suppliers of automotive interior systems in the world. In 2008, the Company operated in two segments: Seating, and Electrical and Electronic. In 2009, the Electrical and Electronic segment began reporting as the Electrical Power Management segment. In November 2009, Lear completed a reorganization and exited bankruptcy protection, which the Company had entered in July 2009.

Lear is active in the world automotive sensor industry via the Electrical Power Management segment, which had 2009 revenues of $1.9 billion. The segment produces wireless systems, body control modules, electrical distribution systems, smart junction boxes and specialty electronics. Among these products are a variety of sensor integrated systems, including tire pressure monitoring systems and adaptive front lighting systems. The Electrical Power Management segment’s tire pressure monitoring systems are sold under the INTELLITIRE brand name. These systems feature sensors that detect tire pressure and temperature, and are engineered to alert the driver when a tire has low...

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TABLE VI-8
SOUTH KOREA: OEM AUTOMOTIVE SENSOR DEMAND
(million dollars)

<table>
<thead>
<tr>
<th>Item</th>
<th>1999</th>
<th>2004</th>
<th>2009</th>
<th>2014</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Vehicle Production (000)</td>
<td>2610</td>
<td>3330</td>
<td>3385</td>
<td>4125</td>
<td>4400</td>
</tr>
<tr>
<td>$ sensors/vehicle</td>
<td>113</td>
<td>137</td>
<td>168</td>
<td>209</td>
<td>247</td>
</tr>
<tr>
<td>OEM Auto Sensor Demand</td>
<td>295</td>
<td>455</td>
<td>570</td>
<td>860</td>
<td>1085</td>
</tr>
<tr>
<td>Engine &amp; Drivetrain</td>
<td>130</td>
<td>180</td>
<td>220</td>
<td>320</td>
<td>380</td>
</tr>
<tr>
<td>Safety &amp; Security</td>
<td>80</td>
<td>135</td>
<td>180</td>
<td>285</td>
<td>385</td>
</tr>
<tr>
<td>Emission Control</td>
<td>70</td>
<td>110</td>
<td>125</td>
<td>185</td>
<td>225</td>
</tr>
<tr>
<td>Entertainment/Comms/Navigation</td>
<td>12</td>
<td>25</td>
<td>37</td>
<td>57</td>
<td>76</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>% South Korea</td>
<td>18.2</td>
<td>17.6</td>
<td>15.0</td>
<td>13.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Asia/Pacific OEM Auto Sensor Dmnd</td>
<td>1625</td>
<td>2590</td>
<td>3800</td>
<td>6310</td>
<td>9590</td>
</tr>
</tbody>
</table>

“Growth in demand in South Korea for automotive sensors is expected to surpass growth levels seen over the 1999-2009 period as overall market conditions stabilize and as the OEMs continue to push up-market. These companies are attempting to move beyond the entry-level vehicle segment in the United States in part by including high levels of electronics and sensor content in their vehicles.”

--Section VI, pg. 176
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World Light-Duty Green Vehicles

Global “green” vehicle demand will grow rapidly through 2014, driven by government subsidies, technology breakthroughs and erratic oil prices. North America will remain the largest and fastest growing market. Conventional hybrid-electric vehicles will surpass natural gas types to become the most commonly sold. This study analyzes the 1.8 million unit world green vehicle industry, with forecasts for 2013 and 2018 by type, world region and for 13 countries. It also evaluates market share and profiles industry players.

Other Studies

Sensors

Demand for sensors in the US will rise 6.1% annually through 2014. The motor vehicle market will grow the fastest based on a rebound in motor vehicle production and the rising use of newer sensor-laden systems. Proximity and positioning and chemical property sensors will be the fastest growing types. This study analyzes the $9.7 billion US sensors industry, with forecasts for 2014 and 2019 by product and market. The study also reviews sensor technology, evaluates company market share and profiles industry competitors.

Automotive Aftermarket in North America

The aftermarket for light vehicle components in North America will increase 2.9% annually through 2014. Mechanical products will remain the largest category while electronics grow the fastest. The dominant professional service provider segment will outpace the DIY market. This study analyzes the $66 billion automotive aftermarket in North America, with forecasts for 2014 and 2019 by country (US, Canada, Mexico) and product. It also evaluates company market share and profiles industry participants.

Automotive Aftermarket in China

The automotive aftermarket in China will grow 18.3% yearly through 2014, driven by the country’s expanding and aging stock of light vehicles. Mechanical products will remain the most common types, while electronics grow the fastest. Low-speed vehicles will continue to be a key aftermarket in rural areas. This study analyzes the 71 billion yuan automotive aftermarket in China, with forecasts for 2014 and 2019 by product and service performer. It also evaluates company market share and profiles industry participants.

World Motorcycles (including Electric Bicycles & Mopeds)

Global motorcycle demand will grow 7.6% per year through 2013, driven by rising living standards in developing areas that make motorcycles more affordable to use. ICE motorcycles will remain dominant while electric types lead gains. Sales in the Africa/Mideast and Asia/Pacific markets will grow the fastest. This study analyzes the 79.2 million unit world motorcycle industry, with forecasts for 2013 and 2018 by product, world region and for 21 countries. It also evaluates market share and profiles industry players.

World Light-Duty Green Vehicles

Global “green” vehicle demand will grow rapidly through 2014, driven by government subsidies, technology breakthroughs and erratic oil prices. North America will remain the largest and fastest growing market. Conventional hybrid-electric vehicles will surpass natural gas types to become the most commonly sold. This study analyzes the 1.8 million unit world green vehicle industry, with forecasts for 2013 and 2018 by type, world region and for 13 countries. It also evaluates market share and profiles industry players.

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#2621 ................ March 2010 ................. $5300
#2537 ................ August 2009 ............... $5700
#2510 ................ August 2009 ............... $5700