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The Real Reason Behind the Automotive Industry IC Shortage — A Step-Function Surge in Demand!

After years of moderate increases, IC suppliers blindsided by automotive IC demand spike in 2021.

IC Insights has updated and released its comprehensive forecast and analysis of the worldwide semiconductor industry in its January *Semiconductor Industry Flash Report*, which is included as part of the 2022, **25th edition of *The McClean Report service***. Next month, the company will release the first of its four quarterly updates to the service. The February quarterly update will include, among numerous other topics, an in-depth analysis of the automotive IC market. An excerpt from this analysis is presented in this *Research Bulletin*.

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The vast majority of the current headlines regarding the auto industry revolve around the semiconductor device shortage that began in earnest in 2021 and has carried over into 2022. The commonly accepted reason for this shortage is as follows:

In March of 2020, in the very early stages of the Covid-19 pandemic, auto demand plunged worldwide and automakers subsequently began to shut down plants and halt semiconductor orders from their suppliers. While this was happening, there was a surge in demand for cellphones, TVs, computers, games, and home appliances from a global population that was sheltering in place and increasingly working from home. As a result, semiconductor suppliers switched their production capacity away from automotive devices to devices that were being used in the other electronic systems that were in higher demand.

When the auto industry came back online in the latter half of 2020, it found that semiconductor suppliers, after having shifted production capacity away from automotive applications, couldn't meet their renewed demand and a serious shortage ensued.

IC Insights believes that the above scenario is not the primary reason for the IC shortage now impacting the automotive industry. **In IC Insights' opinion, the real reason behind the automotive IC shortage lies in the surge in demand for automotive ICs in 2021 and not from the semiconductor suppliers' inability to ramp up production. In fact, device suppliers shipped 30% more IC units to the automotive industry in 2021 as compared to 2020 (Figure 1),**

which was much greater than the 22% increase in total worldwide IC unit shipments last year. Moreover, 27% more IC units were shipped to the auto sector in 2021 as compared to the pre-pandemic year of 2019.

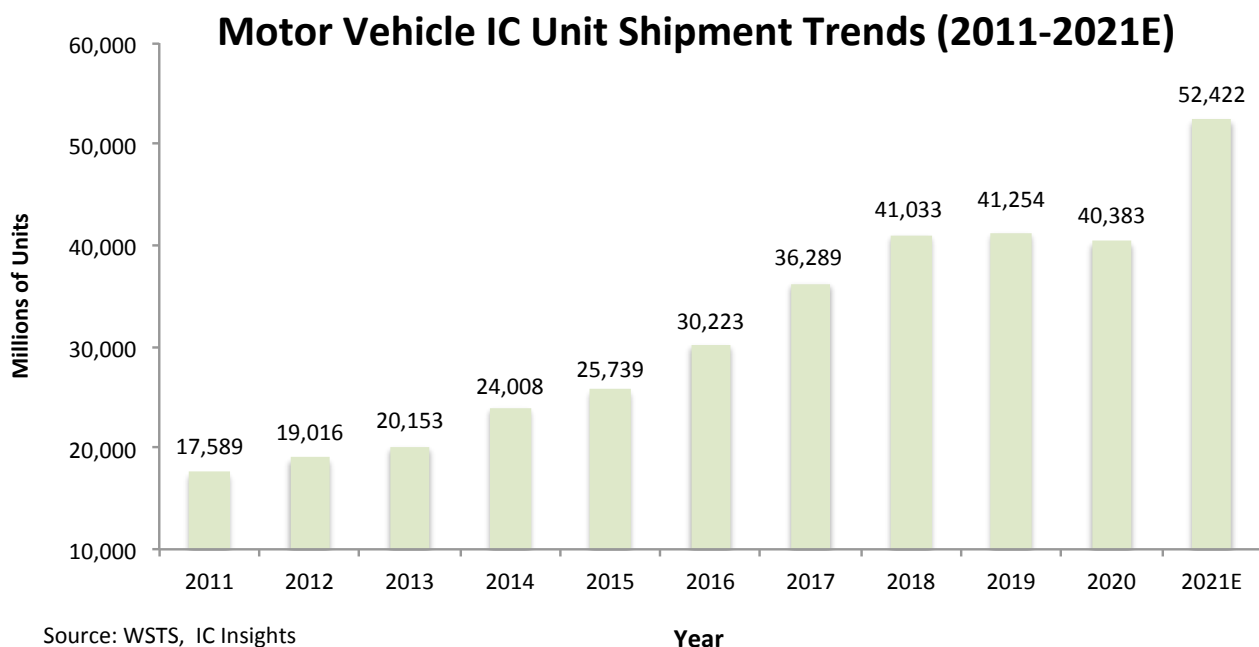


Figure 1

The 2021 jump in automotive IC unit shipments was by far the highest percentage increase since 2011, easily exceeding the 20% increase in auto IC shipments logged in 2017. As shown, the 52.4 billion in automotive IC shipments last year was 3x the 17.6 billion in auto IC shipments registered in 2011. In comparison, total worldwide shipments of ICs in 2021 (394 billion) were about 2x what they were in 2011 (194 billion).

In IC Insights' opinion, the IC suppliers should be recognized for the amazing accomplishment of ramping up and supplying a tremendous amount of IC devices to the auto industry last year. However, when demand for ICs takes a "step-function" jump, as it did in the auto industry in 2021, there is bound to be a temporary mismatch in the supply/demand situation, which is really what is behind the shortage of IC devices in the automotive electronics industry.

Report Details: *The 2022 McClean Report*

The January *Semiconductor Industry Flash Report* to the 2022 edition of *The McClean Report—A Complete Analysis and Forecast of the Semiconductor Industry*, has been released with the 1Q Update scheduled to be released next month. A subscription to *The McClean Report* service includes the January *Semiconductor Industry Flash Report*, which provides clients with IC Insights' initial overview and forecast of the semiconductor industry for this year through 2026. In addition, *Quarterly Updates* to the report will

be released in February, May, August, and November of this year. An individual user license to the 2022 edition of *The McClean Report* is available for \$5,390 and a multi-user worldwide corporate license is available for \$8,590. The Internet access password and the information accessible to download will be available through November 2022.

<https://www.icinsights.com/services/mcclean-report/pricing-order-forms/>

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About IC Insights

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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