Lessons learned from the chip crisis in the automotive industry

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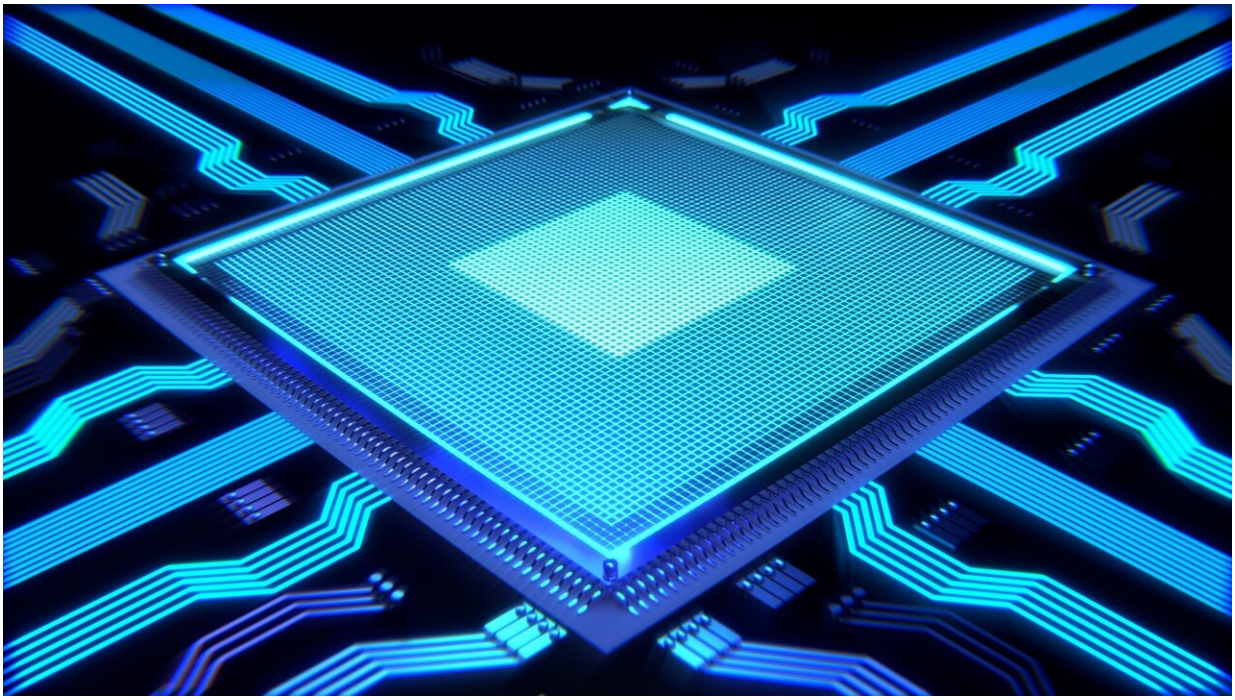

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The chip crisis has kept the automotive industry on its toes in recent years. In many companies, shifts had to be canceled, model series had to be put on hold and entire plants had to be temporarily closed due to a shortage of semiconductors. The background and lessons learned from the chip crisis have now been analyzed by the ISF Munich in a study within the BMBF project HyValue.

The analysis shows that "business as usual" is no longer an option for companies in the automotive industry. Instead, a comprehensive redefinition of semiconductor strategies and cooperation with the semiconductor industry is required. The report published today presents the key areas for action along this path.

The chip crisis in the automotive industry was triggered by a classic supply chain problem: at the beginning of the COVID-19 pandemic, car manufacturers expected a slump in demand, revised their production plans and passed this information on to their suppliers. Suppliers of electronic components in turn canceled orders with chipmakers.

However, when demand for cars picked up unexpectedly quickly after the initial lockdowns, semiconductor companies had redirected capacity previously reserved for the automotive industry to meet demand for chips for office and consumer electronics, which had grown rapidly during the initial shutdowns. As chips are now used in many areas of the car, from the window regulator to the engine control unit, a large number of vehicles could suddenly no longer be completed.

More than a supply chain problem

At the ISF Munich, the chip crisis in the automotive industry, its background and the lessons learned in the companies so far have now been examined in a study from the perspective of industrial sociology. This analysis shows that the "chip crisis" in the automotive industry is more than just a supply chain problem, and that in the long term it will not be possible to get a grip on the developments at stake with classic supply chain management measures alone.

Electrification and software change the role of semiconductors in cars

"With the electrification and softwareization of vehicles, which are shaping the current transformation of the industry, the role of semiconductor use in vehicles is changing fundamentally," says Dr. Alexander Ziegler, who led the implementation of the study at ISF Munich. Not only are more chips needed in quantity, they are also evolving in quality as both power electronics and high-performance computing become strategic components in the software-defined electric vehicle.

A redefinition of semiconductor strategies is required

"The overarching significance of the chip crisis is that it has brought to the fore this crucial turning point in the use of semiconductors in the automotive industry and the challenges it poses for the established companies," the researcher emphasizes.

What is needed, according to the study, is a far-reaching redefinition of their semiconductor strategies and cooperation with companies in the semiconductor industry. In their analysis, the Munich researchers have identified six action areas that companies in the automotive industry need to address as a matter of priority.

The study presents six action areas

The study, "The Chip Crisis in the Automotive Industry. Challenges, Measures, Action Areas," is published today. It examines the background to the chip crisis in the automotive industry and presents the six action areas. The study is based on interviews with industry experts, managers, employees and works councils in the German automotive industry, as well as an analysis of numerous documents. It is aimed at a broad professional audience.

More information: Study: www.isf-muenchen.de/pdf/The_Ch … e_Study_2023_ENG.pdf

Provided by ISF München

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