

Kynix: Nine trends in the semiconductor industry in 2023

After nearly two years of prosperity, the global semiconductor industry entered a repair phase in the second half of last year.

HONGKONG, February 28, 2023 /EINPresswire.com/ -- The semiconductor sector saw nearly two years of growth before entering a repair phase in the second half of last year to deal with inventory backlog and excess issues.

In addition, the business has suffered from weak consumer electronics demand, increasing inflation, and rising interest rates. The semiconductor sector will expand by roughly 7% in 2022 as opposed to the 26.3% growth in 2021. It will face a loss of about 2.5% in 2023. We ought to realize that a wide range of applications, including artificial intelligence (AI), augmented reality (AR), virtual reality (VR), the Internet of Things (IoT), autonomous and electric vehicles, high-performance computing (HPC), satellite communications, 5G and 6G, smart cities, health technology, etc., all depend on advancements in semiconductor technology to realize their innovations. In other words, the semiconductor sector has a broad and significant development base. It will unavoidably resume the fast route of development after a little correction.

This makes it more and more important for companies and individuals to grasp trends and win opportunities. Therefore, [Kynix](#) made a forecast for 2023 and the development trend of the semiconductor industry.

1. A lackluster consumer electronics market

The semiconductor business has been adversely affected by the weak demand for consumer devices, such as tablets, smartphones, and personal computers. Global shipments of smartphones are anticipated to reach 1.27 billion units in 2022, a 6.5% year-over-year decline, while shipments of PCs and tablets are projected to fall 12.8% and 6.8%, respectively, to 305.3 million and 156.8 million units. The market for PCs and tablets is expected to continue to contract in 2023, with a predicted decrease of 2.6%. The good news is that, despite being well below the 24.5% growth rate predicted for 2021, the smartphone market is still anticipated to expand at a positive rate of 5.2% in 2023.

2. Automotive electronics fuel the expansion of semiconductors

Automotive electronics, as opposed to consumer electronics, are now a new factor in the expansion of the semiconductor industry. Data indicate that the automotive electronics market will expand at a compound annual growth rate of 13% from US\$42 billion in 2021 to US\$125 billion in 2030. The blessing of chips is crucial to all significant advancements in automotive electronics and intelligence, including power regulation, central control, environmental perception, Internet of Vehicles, audio and video, and AI capabilities. The demand for automotive chips with sophisticated processes is expected to increase at a compound annual growth rate of 24% in the following ten years due to the need for strong computational capacity for advanced functionalities like autonomous driving, ADAS, and real-time traffic monitoring.

Another development that merits emphasis is the direct involvement of automakers in the chip supply chain and collaboration with chip manufacturing facilities. It is known that Volkswagen is working with chip manufacturers like Qualcomm and TSMC as well as packaging plants to find innovations. Also, in order to have more insight and control over the semiconductor supply chain, automakers have started investing in chips that they have created.

3. There is a lessening of tension in the semiconductor supply chain

The epidemic has disrupted semiconductor logistics during the last two years, and the supply chain is on the edge of breaking down. In 2023, this momentum will slow down. The new supply chain ecosystem is currently rebuilding and developing, and the trend is positive. It is anticipated that the pandemic would progressively ease and the macroeconomic position will also become better as the prevention and control of the disease become more precise and scientific.

4. The semiconductor industry is continuing its trend of regional and localization.

Currently, regions and nations all around the world are pushing for more domestic chip production. At the same time, the longer-than-expected Russia-Ukraine conflict has compelled semiconductor firms to look for other suppliers and material sources in order to improve the supply chain's resilience. Production of chips close to the primary application market or assembly site has gradually come to be accepted due to the industry's emphasis on ESG, which undoubtedly strengthens the trend of regionalization and localization in the semiconductor sector. Net zero carbon emissions have also been put on the agenda of businesses.

5. Moore's Law's continuance in the Amy Era

The largest wafer foundries in the world are working to build devices with smaller forms, more powerful computing capabilities, and lower energy consumption. These technologies include carbon nanotubes, memory computing, 3D chip heterogeneous integration, composite materials, etc. chip. The "Era of Amy" is also marked by a steady influx of new competitors. The Amy age will see the continuation of Moore's Law due to inventive efforts in supply and production, together with novel terminals and applications increasing demand for chips below 2nm.

6. Fresh Product Introductions Increase Demand

Each company has plans to release new CPU and GPU devices in 2023, including AMD, Intel, and NVIDIA. In 2023, Apple will also release new laptops with TSMC's 3nm chips as well as new AR/VR gadgets. These new products will inevitably lead to new applications, which will increase chip demand and increase end-product sales. The existing substantial stockpile of different semiconductor devices and completed goods is expected to steadily deplete in the first half of 2023.

7. The memory oligopoly race intensifies

To mitigate the price decline, some businesses have indicated they will cut the production of DRAM and NAND. A 50% reduction in capital expenditures has also been announced by SK Hynix at the same time. These actions help to fend against the price decline in memory. Samsung's decision is still significant because it is the only business that is refusing to reduce production or capex. There will be a vigorous competition to introduce NAND flash with more than 200 layers. While Micron began mass production of its 1 β processing node chips in Taiwan in 22Q4 and is presently preparing to mass produce 1 γ node in 2024, SK Hynix expects to introduce 1 β processing node DDR5 chips in the first half of 2023.

8. More businesses will use RISC-V and [Arm](#) architecture.

Designing one's own chips is a trend that more and more businesses are starting to adopt. The majority of them chose to use RISC-V or Arm architecture. By 2025, 14% of the global CPU market and 10% of the global automotive core market are expected to be accounted for by RISC-V, and 2023 might see another 100% rise for RISC-V cores. At the same time, the Arm architecture will account for 30% of laptop sales and 50% of the server industry by 2026.

9. Talent shortage for semiconductors

Numerous businesses are currently working to strengthen the resilience of the chip supply chain while also significantly increasing capital and resource investment in production capacity; however, the talent gap is still very challenging to close quickly and can even reduce the effectiveness of investment. There isn't enough talent in the short run to meet the needs of the semiconductor industry due to the complexity of the labor division in the supply chain. The skills shortage will be particularly severe in those nations that are only beginning to build the ecosystem for the semiconductor sector.

Conclusion

The year 2023 might not be very promising for the global semiconductor market. Consumer electronics manufacturers must contend with a number of issues, including persistently rising

inflation, geopolitical unpredictability, an increase in regionalization and localization of the industrial chain. Yet it's also clear that the automotive electronics sector is moving forward with a lot of force, continually bringing new ideas to the semiconductor sector's growth, and creating a lot of demand.

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