

Kynix: Semiconductor Industry Analysis to 2022

Kynix semiconductor analysis points out that the chip market is slowly cooling as the three markets of cell phones, computers and automobiles are sluggish.

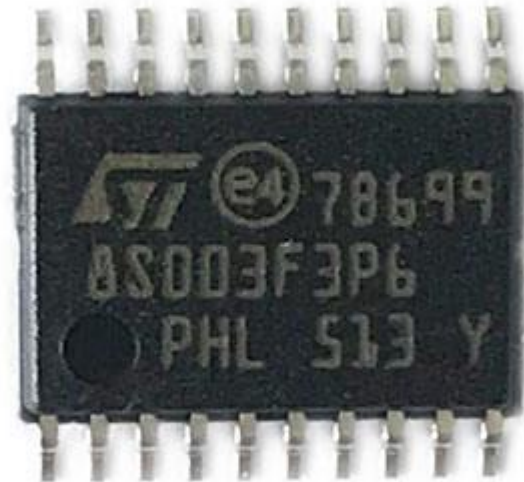
HONG KONG, CHINA, May 19, 2022 /EINPresswire.com/ -- Since entering 2022, the chip industry, which has been hot for several years, is showing signs of slowing down. 2022 global semiconductor industry sales in March were \$50.58 billion, up 23.2% year-on-year. Among them, the Americas market grew by 42.85%, Europe by 25.81%, and China by 16.3%. China's growth rate lagged behind the Americas and European markets and fell by 2.3% YoY, which can be described as a rare situation in recent years. The main reason is the simultaneous downturn in the three major downstream markets of cell phones, computers, and automobiles, which account for three-quarters of the overall chip market size.

1. The impact of the slowdown in demand for chips

The slowdown of chip demand greatly impacts the foundry industry chain of wafers, equipment, packaging, and testing. First look at the equipment side. On March 2022, China's semiconductor equipment imports amounted to 2.63 billion yuan, down 10.7% year-on-year, the first year-on-year decline in the past two years.



Kynix semiconductor



STM8S003F3P6TR

The important reason for this is that the industry's expansion has suddenly come to a halt. According to SEMI's tracking, capital expenditure of mainland China's fabs has started to slow down in the first quarter, and according to its forecast, capital expenditure will decline by about 30% for the whole year of 2022.

According to SEMI, 2021 is a boom peak for the global chip industry due to the chip shortage caused by the 2020 epidemic.

In 2021, global semiconductor manufacturers started construction of 19 new high-capacity fabs, while in 2022, it was significantly reduced to 10, a 47% decrease.

Generally speaking, it takes two years from the start of new capacity to production, so this year is not yet overcapacity, but the industry has regained its sanity and feel the crisis ahead.

2. Structural differentiation brought about by the different downstream demand markets

However, even if the same mature process of the chip, due to the different downstream demand market, structural differentiation is also very obvious.

Take the three major markets of computers, cell phones, and automobiles as an example.

The computer market, is mainly affected by the fading of the housing economy . It lacks incremental potential, so the impact on CPU and memory chips will be more severe.

Let's talk about the cell phone market. Due to the decline in innovation, consumer willingness declined. The replacement demand has been significantly reduced, but the cell phone market technology is still in progress, carrying over the epidemic. There is still room for incremental demand for future upgrades and overseas.

The auto market, mainly affected by the domestic epidemic shutdown, is more of a short-term event. With the resumption of work and production, the demand in the second half of the year to restore to a higher boom state is not a big problem.

And, new energy vehicles as the core pillar of China's industrial upgrading, in the global market to seize the space of fuel cars is great, so the long-term boom is guaranteed.

Among them, the two segments with the fastest growing demand: IGBT and silicon carbide, will remain in short supply for a longer period of time.

IGBT

The new energy vehicle market is the largest increment of IGBT. The global new energy vehicle IGBT market size is expected to reach 38.3 billion yuan in 2025, with a CAGR of 48% from 2020 to

2025.

The global new energy vehicle IGBT market size reaches 76.5 billion RMB in 2030, with a CGAR of 31% from 2020 to 2030.

From this data, we can see that the demand for IGBT has two characteristics: long-term high growth prospects and a high growth rate of nearly 50% in the past five years.

It is because the demand growth is so fierce and the technical threshold is not low, making it difficult for domestic enterprises to meet the huge appetite of the market in a short period of time even if they expand their production in a big way.

In addition, the photovoltaic and energy storage markets also need IGBTs, which is the second-largest incremental market.

The industry expects that the global PV & energy storage IGBT market will reach \$10.8 billion in 2025, with a CAGR of 30% from 2020 to 2025.

The global PV & energy storage IGBT market size reaches \$28 billion in 2030, with a CGAR of 25% from 2020 to 2030.

Silicon Carbide (SiC)

Silicon carbide is the representative of the third generation semiconductor, suitable for new energy vehicles, wind power PV, and other high-voltage fields, with the technical advantages of fast charging and energy saving.

At present, SiC modules are mainly used in the rear drive of high-performance 4WD vehicles. Tesla, BYD, and Xiaopeng all use this solution, which has a certain substitution effect on IGBT.

According to industry estimates, the SiC module market for new energy vehicles reaches 21.8 and 47.8 billion yuan in 2025 and 2030, with a five-year and ten-year CAGR of 72% and 42%.

The growth rate demand is also more fierce than IGBT.

3. Popular chip material identification

ST: King of the list

In this hot chip material number list, ST hot search models accounted for up to 68% (accounting

for 11).

9 of the STM32F series, 4 of the F103 (basic type), 4 of the F407/F405 (high-performance type), and 1 of the F030 model (an upgrade of the F103 with DSP and analog peripherals).

There are 2 for STM8S series (standard S series), [STM8S003F3P6TR](#) belongs to SMT base library and STM8S003F3P6 belongs to SMT extension library.

STM32 & STM8 product categories are mainly divided into: automotive grade A series, basic type F series, ultra-low power type L series, standard type S series, tactile products T series, and wireless products WB series.

Take STM32 series as an example, the product application scenarios are mainly in the Internet of Things, industrial control, fingerprint recognition, etc. The basic F series is mainly used in consumer electronics, IoT terminals, industrial control and other products.

Nordic

NRF52832-QFAA-R with high-frequency heat appeared in the ST, TI, NXP and many other brands of MCU between, from the fourth quarter of 2021 heat all the way up, soaring fast, the heat remains high.

NRF52832-QFAA-R of the heat is unusually high, but the price is more volatile. The current price is about 3 times higher than the norm, and the original delivery period of 52 weeks is also quite long.

By performance, from low to high for: nRF52805, nRF52810, nRF52811, nRF52820, nRF52832, nRF52833, nRF52840.

Hot search model NRF52832-QFAA-R is Nordic (Nordic Semiconductor) a multifunctional Bluetooth 5.2 SoC (system-on-chip), belonging to the mid-to-high-end performance.

TI: dedicated PMIC hotter

As the leading analog chip, TI market share of the largest power management chip appeared on the hot search, following a wave of ST's MCU heat. Compared to most general-purpose analog chips, some dedicated analog chips are hotter.

TI in the hot search on the two chips belong to the TPS (Ti power solution), are power management chips. Among them, TPS51200DRCR is dedicated to DDR memory power management IC, TPS92692QPWPRQ1 is dedicated to the automotive LED driver power

management IC.

According to the official website, the TPS51200DRCR is a DDR memory solution with LDO.

The TPS51200DRCR is used in the DDR terminator product family and has features for DDR2, DDR3, DDR3L and DDR4 on these products with multiple application categories. In terms of performance, memory mainly plays the role of the CPU "data warehouse" in the device, so the performance of the product (such as CPU) increases, the capacity and performance of the memory must also keep up, so the demand for DDR memory power ICs is also large.

The TPS92692QPWRQ1 is a converter chip for automotive headlight lighting solutions. In addition, the hot and soaring TPS61194PWPRQ1 is also an LED driver chip for automotive lighting.

NXP and ATMEL: MCUs are hot

Two hot models of NXP and ATMEL are MCU chips, with ATMEL's hotness soaring fast. In addition, ATMEL's other three models of 8-bit MCU became the dark horse of hotness.

LPC1769/68/67/66/65/64/63 all belong to NXP's 32-bit ARM Cortex-M3 microcontroller series. The [LPC1768FBD100](#) of the hot search LPC1768 series is NXP's consumer-grade general-purpose 32-bit MCU.

LPC1768FBD100 is used in electronic metering, lighting, industrial networks, alarm systems, white goods, motor control, etc. Some users disassembled DJI's early flight control and found that its early use is NXP's LPC1768.

[ATMEGA328P-AU](#) is the AVR series of 8-bit microcontrollers from Microchip's ATMEL, with low power consumption and high performance, and is officially recommended for automotive use.

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