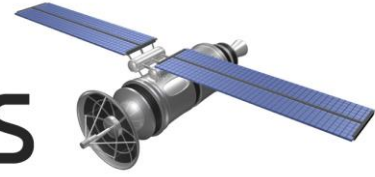


# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

### **March 2023**

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## **Industry News By Company**

### **[British Semiconductor Bosses Threaten To Move Overseas As U.S. And EU Splurge On Chips](#)**

The U.K.'s semiconductor industry is crying out for financial support from the government, with insiders warning the country risks losing its microchip firms to the U.S. and other countries if it doesn't act soon.

Prime Minister Rishi Sunak's government is yet to announce a strategy outlining U.K. efforts to support the chip industry. And semiconductor bosses in the country are growing frustrated.

Pragmatic Semiconductor, a Cambridge, England-based startup that produces nonsilicon chips, warned it may be forced to relocate overseas if the government doesn't issue a plan for the industry soon.

"It has to make economic sense for companies like ours to continue to operate and manufacture here, and if there are greater potential economic benefits and governmental support packages abroad, then relocation is the only sensible business decision," Scott White, CEO of Pragmatic Semiconductor, told CNBC.

Britain is an understated player in the global chip market, specializing in design, intellectual property, research and fabrication of compound semiconductors.

It is also home to one of the most coveted semiconductor-related assets in the form of chip designer Arm. Based in Cambridge, Arm-licensed chips are used in roughly 95% of the world's smartphones.

### **[GlobalFoundries and GM Announce Long-Term Direct Supply Agreement for U.S. Production of Semiconductor Chips](#)**

General Motors Co. (NYSE: GM) and GlobalFoundries (NASDAQ: GFS) (GF) today announced a strategic, long-term agreement establishing a dedicated capacity corridor exclusively for GM's chip supply. Through this first-of-its-kind agreement, GF will manufacture for GM's key chip suppliers at GF's advanced semiconductor facility in upstate New York bringing a critical process to the U.S.

This agreement supports GM's strategy to reduce the number of unique chips needed to power increasingly complex and tech-laden vehicles. With this strategy, chips can be produced in higher volumes and are expected to offer better quality and predictability, maximizing high value content creation for the end customer.

Semiconductors are the foundation of the technologies that are powering the electrification, autonomous driving and connectivity of the auto industry, and they have been center stage in the global chip shortage that has impacted automakers the last couple of years.

### **Intel Coughs Up For Something Other Than Stock Buybacks: Avoiding Wafer Spoilage**

A Swiss-based startup focused on cutting particle contamination in semiconductor manufacturing has raised \$14 million in seed funding with Intel's venture capital arm leading the round.

Unisers develops tech that is able to identify sources of contamination that cause defects in semiconductor materials during production, which can lead to chips or entire wafers being ruined. The funding is expected to enable the company to deliver the first systems to semiconductor industry customers.

According to the Unisers, it is developing on-wafer analysis techniques capable of identifying the source of any defect-causing pollutant, helping fabrication plant operators to take steps to eliminate it in the shortest possible time

### **Infineon Presents User-Friendly LCC Design Tool, Enabling Highly Efficient LED Driver Design**

Lighting accounts for a significant portion of the world's total electricity consumption, emphasizing the importance of energy-efficient solutions in this sector. Power factor correction (PFC) plus LCC resonant topology for constant current output has proven to offer outstanding efficiency combined with a large output voltage range in high-power LED lighting applications, such as outdoor and horticultural lighting. However, the high design effort and complexity have been limiting the widespread usage of this well-suited and efficient topology in LED drivers.

Bridging this gap, Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces the LCC design tool, aiming to make a highly efficient yet complex design topology such as PFC plus LLC accessible to a broad LED driver manufacturer community at no additional cost. PFC plus LCC topology is 5 to 6 percent more efficient than other commonly used two-stage topologies. However, the design of LED drivers with this topology is highly time-consuming. Infineon's LCC tool, which is a novelty in the market, makes the design work much faster and easier..

## **Industry News & Trends**

### **[TI Makes Largest Economic Investment In Utah With New Fab](#)**

Semiconductor vendor Texas Instruments (TI) plans to invest \$11 billion in a new 300 mm chip wafer fabrication in Lehi, Utah, in what is claimed to be the largest economic investment in Utah history.

The fab will be located next to the company's existing 300 mm semiconductor wafer fab in Lehi (LFAB) and once completed, the two fabs will operate as a single fab, TI said. TI acquired the LFAB from Micron Technology in 2021 and paid \$900 million for the facility.

The current Lehi fab features 65 nm and 45 nm production nodes for both analog and embedded processing semiconductors. The fab will move beyond these nodes if required, TI said.

The LFAB expansion will be in addition to the four 300 mm fabs TI already has planned for analog and embedded chips in Sherman, Texas.

Construction of the Lehi expansion is expected to begin in the second half of 2023 with production as early as 2026. When completed, the fab will manufacture tens of millions of analog and embedded processing chips daily.

### **[DoD Testing Smart Repeaters With SLIC for 5G Networks](#)**

There is much excitement around 5G private networks and the use cases the technology can enable for many enterprises. Such networks promise to deliver the best of all worlds—purpose-built networks with unprecedented data rates, low latency, secure connectivity and reliable indoor and outdoor coverage, as well as security and privacy of data.

This is a welcome development, because for years, industrial enterprises have struggled with Wi-Fi as a means to deliver mission-critical connectivity, partly because Wi-Fi was never designed for mobile, indoor-outdoor, reliable, deterministic and low-latency connectivity.

However, a challenge that remains is achieving good coverage at a cost acceptable to industrial enterprises. One way to achieve lower cost is to substitute high-cost radio network elements like base stations with lower-cost ones like repeaters where feasible. Smart interference-cancellation repeaters (ICRs) that have higher gain further help optimize cost, as fewer repeaters are needed.

### **[Globalfoundries, Amkor To Establish Back-End Facility In Europe](#)**

Semiconductor packaging vendor Amkor Technology and pure-play foundry GlobalFoundries (GF) are collaborating to bring what they claim is the first at-scale back-end facility in Europe. Under the partnership, GF will transfer its 300 mm bump and sort lines from its Dresden site to Amkor's Porto, Portugal, operations. GF will maintain ownership of the transferred tools, processes and IP at the Porto factory. The partnership will also include future collaboration for upcoming efforts in Portugal.

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Amkor is the only high-volume, Tier 1 outsourced semiconductor assembly and test (OSAT) vendor in Europe and GF's Dresden fab is Europe's largest semiconductor manufacturing services company, the companies claim. Additionally, the partnership will enable the first chip foundry through advanced packaging semiconductor supply chain outside of Asia.

"GF remains committed to growing our European manufacturing ecosystem to support local and global customers, especially in the automotive markets, said Mike Hogan, chief business officer at GF. "This partnership with Amkor in Portugal will provide much needed services within the EU and expand the US-European semiconductor supply chain."

### **[Infineon Gets Green Light for Dresden 300-mm Fab](#)**

Infineon Technologies announced it is kicking off the construction project of its 300-mm fab expansion in Dresden, Germany. Completion is planned for 2026.

Infineon capitalizes on the decarbonization and digitization megatrends by continuously expanding its manufacturing capacities. In September 2021, the German chipmaker inaugurated a €1.6 billion power semiconductor fab in Villach, Austria. It now plans to invest about €5 billion in the Dresden plant.

"We are investing €5 billion in an additional plant in Dresden, and it's the biggest single investment in the history of our company to date," Infineon CEO Jochen Hanebeck said during the group's recent Virtual Annual General Meeting 2023.1 "These additional capacities will meet rising demand for our customers in the second half of the decade, and we are expanding our position as a global supplier in the field of power systems.

"The expansion is strengthening our manufacturing base both in analog/mixed-signal technologies and in power semiconductors," he added. "Combining power semiconductors, analog/mixed-signal chips, microcontrollers and software enables particularly energy-efficient and smart system solutions. The new plant, therefore, combines the two growth themes of decarbonization and digitalization."

### **[Samsung's Foundry To Build Ambarella's Automotive AI Chip](#)**

Samsung Electronics' foundry service will use its 5 nm process technology to build Ambarella's automotive artificial intelligence (AI) central domain controller.

The AI semiconductor will be used for autonomous driving and vehicle safety systems as the chip is used for AI processing performance, power and reliability.

Called CV3-AD685, the semiconductor is the first production version of Ambarella's automotive AI central domain controllers. The companies announced that Tier-1 automotive suppliers have already signed on to offer vehicles using the CV3-AD685 system-on-chip.

According to Samsung, its 5 nm process technology is optimized for automotive-grade semiconductors with advanced IP for reliability and traceability.

“Samsung brings 5 nm EUV FinFET technology to automotive applications for unprecedented ADAS and vision processor performance,” said Sang-Pil Sim, executive VP and head of foundry services at Samsung Electronics. “With Tier-1 automotive suppliers already adopting the technology, we believe other automotive companies will also consider using the Ambarella CV3-AD SoC product family manufactured in Samsung’s 5 nm process.

## **East European News & Trends**

### **New Material To Improve Storage Batteries**

Researchers at the Center for Energy Science and Technology, which is a department of Skoltech University in Moscow, have offered a simple and scalable method of increasing the capacity of a wide range of cathode materials to be used in metal-ion storage batteries.

Research results may find their way into a possible new generation of advanced rechargeable energy storage devices.

At the core of the new approach is treating cathodes with reducing agents solutions, specifically alkali metal salts derived from aromatic molecules. Several types of such agents that come from substances like naphthalene were proven to be suitable.

### **Predictive Analytics Backs Health Risk Factors Identification**

K-Sky, an IT developer from Russia's northwestern region of Karelia now based in Moscow's Skolkovo Technopark, has developed a sophisticated predictive analytics and patients risk management system for healthcare applications.

This system, called Webiomed, is reported to enable a user to automatically analyze medical records, identify risk factors and the probability of a disease, and, based on the data, generate forecasts containing all-inclusive assessments of the likelihood of a health problem and possible lethal outcome. The Webiomed database currently has records of more than a million patients in a de-personalized digital format and in excess of 41 million medical protocols; all the data is updated on a daily basis.

### **Russia Is Getting Around Sanctions To Secure Supply Of Key Chips For War**

Russia looks to be successfully working around European Union and Group of Seven sanctions to secure crucial semiconductors and other technologies for its war in Ukraine, according to a senior European diplomat.

Russian imports in general have largely returned to their pre-war 2020 levels and analysis of trade data suggests that advanced chips and integrated circuits made in the EU and other allied nations are being shipped to Russia through third countries such as Turkey, the United Arab Emirates and Kazakhstan, the diplomat said, pointing to those private assessments.

EU and G-7 countries have introduced multiple rounds of sanctions since the invasion of Ukraine a year ago in an effort to degrade the Russian war machine and undermine its economy. The data suggest that the real effect in some areas is so far falling short of what officials might have hoped for. "Just signing up to new sanctions is not enough," said Daniel Tannebaum, global anti-financial crime practice leader at consulting company Oliver Wyman. "Governments now need enforcement mechanisms."



Shipments from China to Russia have also surged as Beijing plays an increasingly important role in supplying Moscow, the diplomat added, asking not to be named discussing sensitive information. Those countries outside the EU haven't sanctioned Russia themselves, but most have repeatedly denied they are helping the Kremlin.

## **World Economic Round Up**

The global economy is showing vigour, with business surveys pointing to a widespread revival in growth despite rising borrowing costs and elevated energy and food prices, a sign that central banks may need longer than anticipated to bring inflation under control. Data from the U.S., China and Europe have shown surprising vitality in these regions' economies since the start of 2023, confounding predictions from the World Bank and other economists that the global economy was set for one of its weakest years in recent decades. While this is promising for governments, that resilience may persuade central bankers that they need to raise key interest rates further than anticipated to cool prices—effectively pouring more cold water on an economy that is still running a little too hot

*The latest economic news by country to include USA, Europe, UK, Japan, China, Asia Pacific and India can be found each month in our [Semiconductor Monthly Report](#).*

## Industry Events 2022

### Future Horizons Events

- Silicon Chip Industry Training Seminar – London – March 2023
- Industry Forecast Briefing, London – September 2023

*To book your place on any of our events please contact us on:*

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[Download Future Horizons Full Events Calendar Here](#)

### Industry Events

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**MARK YOUR CALENDER FOR THE NEXT**

**SILICON CHIP INDUSTRY WORKSHOP**

**MONDAY March 2023**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY September 2023**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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