



The European Institute for the PCB Community

EIPC SPEeDNEWS

*The Weekly On-Line Newsletter from the European Institute of Printed Circuits.
Issue 13 - April 2021*

NEWS FROM BELGIUM

Elsyca has won its first award in the PCB industry

Last week the NPI awards were handed out virtually, and Elsyca CuBE was the big winner in the Plating category.

“Winning the NPI Award is a true recognition by the PCB industry”, said Robrecht Belis, Manager Surface Finishing and PCB at Elsyca. “It clearly illustrates the importance of understanding the impact of a PCB design on final layer thickness”.

Elsyca CuBE is an innovative technology and the first-ever simulation software that translates a PCB design into a detailed copper layer thickness graph and KPI information. It extends the DFM capabilities and allows predicting, and resolving, product and production issues before handing on to the fabricators.

For more information please contact Robrecht Belis at robrecht.belis@elsyca.com.

About Elsyca

Headquartered in Belgium, Elsyca is a software company and global leader in electrochemical intelligence for many clients across the globe.

Elsyca (www.elsyca.com) is the engineering innovation partner of choice for corrosion engineering and corrosion resistant design, cathodic protection & AC mitigation, as well as for surface finishing and electrochemical manufacturing. With a powerful combination of a unique computer simulation technology and practical engineering skills, Elsyca is capable of designing, modelling, simulating and optimizing the complete range of electrochemical processes.



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NEWS FROM THE FED

29th Fed Conference | 16.-17. September 2021 | Bamberg

Present your company



More than 2,000 m² of conference space is available for our conference and company exhibition in the listed brick building connected to the hotel.

The exhibition stands are 3 m wide x 2 m deep and contain a table, two chairs and a power connection. Premium exhibitors can reserve their exact location in advance of the event

[Registration exhibitor and sponsor](#)

The 29th FED conference will take place on 16th & 17th September in Bamberg. The conference offers a programme full of exciting topics that move the electronics industry. It shows new business areas and models. On the two days of the conference, the participants have the opportunity to exchange specialist knowledge and receive targeted further training.

Your advantages as an exhibitor

- Presentation of your company on two conference days to a wide professional audience
- Participation in the conference and gala evening is included for stand supervisors
- modern, spacious and bright exhibition space
- Conference breaks in the middle of the exhibition area
- Free choice of seats for premium exhibitors (according to the exhibitor plan and depending on availability)
- Target group-specific approach and reach through sponsoring

Registration as an exhibitor and sponsor

- [Offers and information for exhibitors and sponsors](#) PDF, 207 KB
- [Exhibitor plan 2021](#) PDF, 57 KB You can download the exhibitor plan here
- Conditions of participation
- [privacy](#)
- [Overnight stays - hotel allotments / booking links](#) Book your overnight stays in good time, as the number of rooms is very limited



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SEMICONDUCTOR INDUSTRY NEWS

Future Horizons Newsletter

April 2021

AEPONYX Eyes 5G Networks

AEPONYX, the start-up building the integrated photonics with MEMS devices, has closed a new \$10 million funding round. The Montreal, Canada-based firm is picking telecom and 5G networks as the first market vertical for its tunable transceiver designs.

The company employs fast-tuning and ultra-small MEMS devices and silicon nitride photonics to create optical transceivers for dense wave division multiplexing (DWDM) communications over single fiber-optic links. That's crucial in facilitating high data rates in small form factor fiber-optic gear.

The use of ultra-small MEMS also lowers latency and power consumption in high-speed data applications. AEPONYX's planar micro-optical switch chips are based on a platform that combines silicon photonics with MEMS technology. Besides telecom and 5G, AEPONYX is eyeing its silicon photonics on MEMS technology for quantum computing, LiDARs, and sensors.

Arm v9: First New Architecture in a Decade Doubles Down on AI and Security

Arm has launched a major architecture revision, Arm v9, which provides additional features for security, confidential computing and AI as well as boosting overall performance. Arm said it expects v9 to deliver more than 30% performance uplift in the next two mobile and infrastructure generations. AI features, thus far most typically available with GPUs, will be available across the company's GPUs, CPUs, and NPUs.

The previous architecture from Arm, v8, launched a decade ago, and Arm expects v9 to dominate computing silicon from IoT to supercomputing applications for the next 10 years.

"Even I still marvel at how pervasive our technology has become," said Arm CEO Simon Segars. "In a years' time, our partners will have shipped a cumulative total of 200 billion chips. Putting that in context, half of that number, the first 100 billion took 26 years to reach the market. If our prediction is correct, the second 100 billion chips will have shipped in just five years. Our objective is to allow the broadest set of developers to write fast, run fast on Arm."

Dialog Semiconductor Adds Multi-Channel Input Capability to New Nanoamp GreenPAK™ Device

Dialog Semiconductor plc (XETRA:DLG), a leading provider of battery and power management, Wi-Fi®, Bluetooth® low energy, and Industrial edge computing solutions, today announced the expansion of their popular GreenPAK™ solution suite with the SLG46811, the market's smallest GreenPAK device to include an I2C communication interface.

The GreenPAK products are extremely cost effective programmable mixed-signal ASICs that are customer designed with GreenPAK Designer Software. The GreenPAK products feature in many

cases sub uA active current consumption, nano second response times, schematic based design and simulation, and tools that allow prototyping and programming when connected to a standard PC USB port. GreenPAK products are widely adopted in the industry with hundreds of millions of units shipped annually to many of the large and trend setting IoT, computing and industrial OEM's.

The SLG46811 integrates traditional GreenPAK programmable logic with new shift register macrocells, a multichannel sampling analog comparator and a 92 x 8-bit pattern generator, all within a small 1.6mm x 1.6mm package.

Intel Surprises With \$20B Expansion Of Foundry Business

Intel is going to dive headlong into the foundry business, starting with a \$20 billion investment in not one but two fabs in Arizona. New CEO Pat Gelsinger said the company is establishing the contract manufacturing endeavor as a standalone business called Intel Foundry Services.

IFS will be run by Randhir Thakur, a longtime executive at Applied Materials who joined Intel in 2017 to manage the company's global supply chain; he most recently held the title of chief supply chain officer. Thakur will report directly to Gelsinger.

That Intel is getting deeper into foundry services is exactly the opposite of what some Intel critics wanted to hear for a lot of reasons. Once considered the most advanced chip maker in the world, Intel's manufacturing operations have stumbled; the company has been eclipsed by Taiwan Semiconductor Manufacturing Company (TSMC) and Samsung, and it will be exceedingly difficult to catch up. Partly to compensate for those stumbles, Intel itself is committed to using other foundries (those plans have not changed at all). Building and operating fabs is fabulously expensive and risky. Even though Intel's doing some limited foundry work now, being a foundry is both a business model and a technological approach, neither of which Intel has ever excelled at. At a macro level, manufacturing moves to countries with trailing economies for reasons.

Qualcomm Extends The Leadership Of Its 7-Series With The Snapdragon 780G 5G Mobile Platform

Qualcomm Technologies, Inc. announced the latest addition to its 7-series portfolio, the Qualcomm® Snapdragon™ 780G 5G Mobile Platform. Snapdragon 780G is designed to deliver powerful AI performance and brilliant camera capture backed by the Qualcomm Spectra™ 570 triple ISP and 6th generation Qualcomm® AI Engine, allowing users to capture, enhance, and share their favorite moments seamlessly. This platform enables a selection of premium-tier features for the first time in the 7-series, making next generation experiences more broadly accessible.

"Since introducing the Snapdragon 7-series three years ago, more than 350 devices have launched based on 7-series mobile platforms. Today, we are continuing this momentum by introducing the Snapdragon 780G 5G Mobile Platform," said Kedar Kondap, vice president, product management, Qualcomm Technologies, Inc. "Snapdragon 780G was designed to bring in-demand, premium experiences to more users around the world."

STMicroelectronics and OQmented to Jointly Develop, Manufacture, and Market Advanced MEMS Mirror-Based Laser-Beam Scanning Solutions

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, and OQmented, a deep-tech startup focused on MEMS[1]-mirror technology, have agreed to collaborate on the advancement of the technology for Augmented Reality and 3D-sensing markets. The joint effort aims to build on the expertise of both companies to advance the technology and products behind the leading MEMS-mirror-based laser-beam scanning (LBS) solutions in the market.

ST, a world leader in the design, manufacture, and sales of a broad portfolio of MEMS sensors, actuators, and related components including drivers, controllers, and laser-diode drivers, is contributing its vast MEMS design and manufacturing resources to the collaboration.

Industry News & Trends

Imagination Launches IMG Labs Incubator for Next-generation Semiconductor IP

Imagination Technologies announces IMG Labs, a specialist division tasked with developing breakthrough innovations fundamental to new, advanced semiconductor products.

IMG Labs' mission is to understand and accelerate future trends in the semiconductor industry, translating these into new licensable technologies that will enable world-leading products for Imagination's partners. Headed up by Tim Mamtora, IMG Labs' initial focus is on AI, GPU, heterogeneous compute, and ray tracing.

Tim Mamtora, Chief of Innovation, Imagination Technologies, says; "IMG Labs is Imagination doubling down on what it does best, core R&D for new technology that our customers want and need. The creation of Labs further demonstrates our long-standing commitment to developing commercial IP products that offer unique differentiation for customers. It enables our partners to be first to market with cutting-edge solutions and the exceptional quality that they have come to expect."

Global Chip Shortage Means Thinner New-Car Supply, Higher Prices

The thin line between just-in-time auto manufacturing and an idled production plant has become crystal clear again with the spreading effects of a global semiconductor chip shortage and other logistical problems.

That there's a chip shortage isn't news. We reported last month that the shortage would likely mean that a million fewer cars will be built around the world, costing the industry \$61 billion in this quarter alone. The problem stems from a change in who the semiconductor manufacturers are making chips for right now.

At the start of the pandemic a year ago, automakers reduced their orders, thinking that they wouldn't be able to build as many new cars as they originally thought. When the market rebounded, automakers discovered that chip suppliers were busy fulfilling orders for computers and gaming consoles, given that the companies building consumer electronics didn't see a pandemic-related decline. Just the opposite, in fact.

Clinattec Leverages NIR Light to Slow Down Parkinson's Disease

Parkinson's disease cannot be cured, but French biomedical research center Clinattec has designed a neuroprotective approach leveraging near-infrared (NIR) light to reduce or slow down the neurodegenerative process. The core of the 10-year research program is the first clinical trial on parkinsonian patients in the first half of 2021.

Parkinson's disease is a progressive neurodegenerative disease that causes dopaminergic neurons to die. More than 10 million people worldwide are currently living with Parkinson's disease, according to the Parkinson's Foundation. Men are 1.5 times more likely to be affected than women.

No curative treatment exists today. Symptomatic treatments can ease the symptoms, but neither cure nor slow down the progression of the disease. Neuroprotection in Parkinson's disease has become a key area of research to delay or prevent the death of dopaminergic neurons. "There is a real need for innovative therapies to slow down the neurodegenerative process, and light could be the solution," said Cécile Moro, Clinattec project manager, CEA-Leti, at last week's Leti Photonics Workshop.

Future Horizons Ltd, • Blakes Green Cottage, Stone Street Seal TN15 0LQ • England Tel: +44 1732 740440 • Fax: +44 1732 740442 Affiliates in Europe, India, Israel, Japan, Russian, San Jose California, USA e-mail: mail@futurehorizons.com • www.futurehorizons.com 9



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ELECTRONIC INDUSTRY NEWS

TSMC Boosts Capital Budget Again, to \$30B

By [Alan Patterson](#)

Taiwan Semiconductor Manufacturing Co. (TSMC) has again raised its 2021 capital expenditure target to \$30 billion after customer demand exceeded the company's expectations three months ago.

The world's biggest chip foundry, which is running full tilt with capacity utilization in the neighbourhood of 100%, [in January](#) was aiming for capex this year to reach about \$28 billion. The new \$30 billion figure nearly doubles the \$17.2 billion the company spent in 2020.

TSMC said during a conference call with analysts that it upgraded the target in order to meet increasing demand for advanced and specialty technologies in the next several years. About 80% of the budget will go to leading process technologies, including 3nm, 5nm and 7nm, with the remaining 10% earmarked for advanced packaging and mask making, and about 10% for specialty technologies.



C.C. Wei (Source: TSMC)

“We are witnessing a structural increase in underlying semiconductor demand as a multi-year megatrend of 5G and HPC (high-performance computing)-related applications are expected to fuel strong demand for our advanced technologies in the next several years,” TSMC CEO C.C. Wei said on the call. “Covid-19 has also fundamentally accelerated the digital transformation, making semiconductors more pervasive and essential in people’s lives.”

Wei added that TSMC expects to invest about \$100 billion during the next three years to increase capacity and R&D for leading-edge and specialty technologies, at the same time helping to strengthen confidence in global supply chains.

Some analysts found the forecast a surprise.

“This is the first time for TSMC to announce a multi-year capex,” Goldman Sachs analyst Bruce Lu said during the call. “This suggests very, very strong growth even beyond 2023.”

TSMC said it expects customers and the supply chain to prepare for higher levels of inventory throughout 2021, which will persist into 2022 given the industry’s continued need to ensure supply security. That expectation comes as chip buyers ranging from Apple to Volkswagen have been forced to idle production lines for smartphones and automobiles because of semiconductor shortages.

TSMC said that snowstorms in the US state of Texas as well as factory disruptions in Japan have impacted global chip production. A drought in Taiwan should have no impact on TSMC’s output, according to CEO Wei.

The company that’s a bellwether for the electronics industry said that for 2021, the overall semiconductor market, excluding memory, will grow by about 12% while foundry will expand by about 16%. TSMC’s revenue growth will be around 20%, the company said. While TSMC declined to say it will raise prices for the silicon wafers it makes, the company noted that it aims to “firm up” wafer pricing while it works to deliver cost improvement.

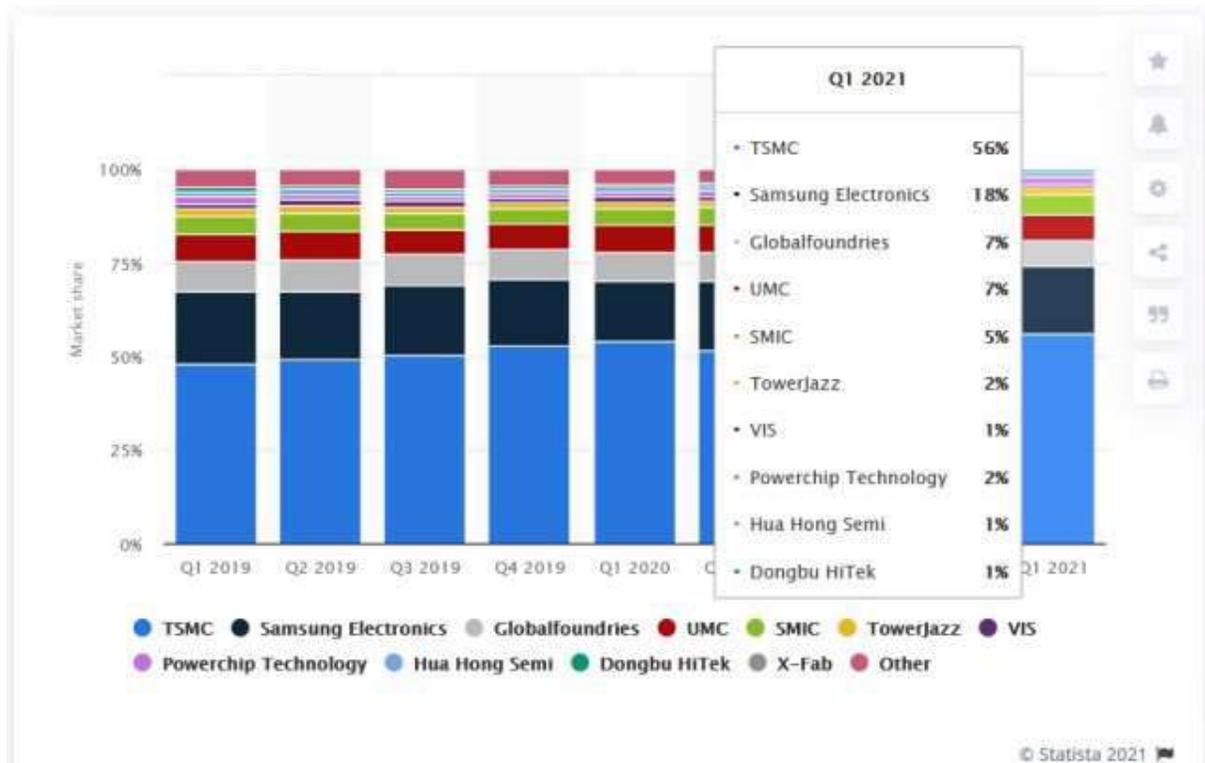
Ramping up

In the meantime, the company said it is on track with bringing new production technology to bear. TSMC will ramp up its 4nm process (a 5nm extension) during the second half of 2021, and start volume production in 2022.

The company will initiate 3nm commercial production in the second half of next year.

TSMC departed from its usual practice of not talking about customers in response to a question from Credit Suisse analyst Randy Abrams regarding Intel’s \$20 billion plan to re-engage in the foundry business in renewed competition with TSMC.

“Intel is an important customer, and we will collaborate in some areas and compete in other areas,” Wei said. “We always work with our customers to develop the necessary technology to support their products. We do not have internal products that compete with our customers. So we can be the trusted technology and capacity provider for years to come.”



Q1 2021 foundry market share by revenue. The figures in the box correspond to the bar on the graph to the immediate right of the box. (Source: Statista)

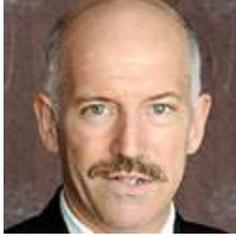
In response to a question from Abrams regarding geopolitical issues that TSMC faces from governments in the US, Europe and China to move more production around the globe, Wei said Taiwan will continue to be the focus for TSMC. The company’s R&D and main production lines will continue to be located on the island, he said.

Wei said that with a new commitment from the Taiwan government to expand educational programs, TSMC will be able to find sufficient engineering talent on the island.

Even so, the company said that it may expand its new project in the US state of Arizona.

“We are starting in 2024 with a 20,000 wafer-per-month 5nm technology,” Wei said. “But in fact, we have acquired a large piece of land in Arizona to provide flexibility. So further expansion is possible.”

Based on the operational efficiency and cost economics in Arizona as well as customer demand, TSMC will decide its next steps, he said.



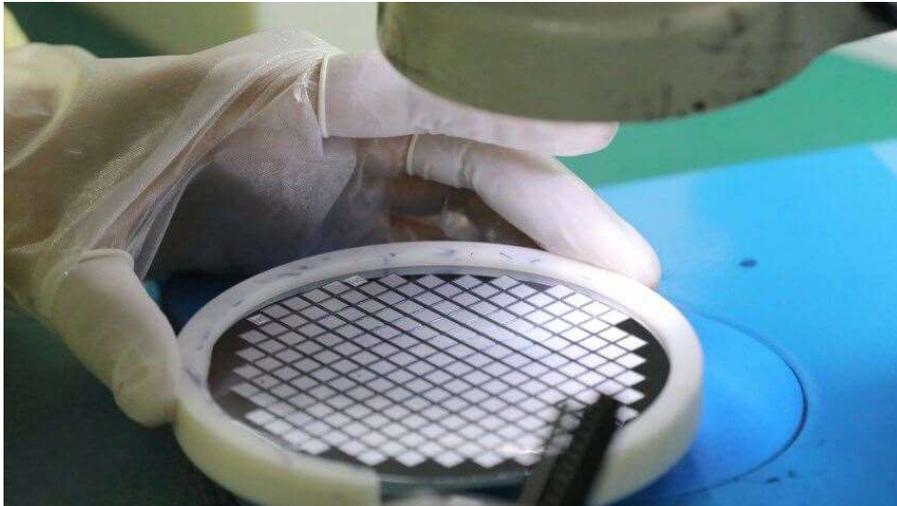
Alan Patterson

Alan has worked as an electronics journalist in Asia for most of his career. In addition to EE Times, he has been a reporter and an editor for Bloomberg News and Dow Jones Newswires. He has lived for more than 30 years in Hong Kong and Taipei and has covered tech companies in the greater China region during that time.

The US\$1 chip that triggered a crisis within the global semiconductor industry

A shortage of inexpensive display driver chips has delayed the production of the LCD panels used in almost every tech product category one can think of.

13 April 2021



- **There's a global shortage of a US\$1 chip that is essential for every display panel that needs to be manufactured**
- **The tech industry now can't keep up with the demand for screens**
- **Demand for everything with a screen has only increased over the last year, so electronics aren't getting any cheaper that quickly**

One dollar is the price of a display driver – the chip that has lurched the US\$450 billion semiconductor industry into a crisis. Display driver chips, a tiny chip that sends instructions and signals to the display, are ubiquitous, and many devices can't function without them.

Of course, there are hundreds of different kinds of chips that power the industry, with the flashiest ones from Qualcomm Inc. and Intel Corp. going from US\$100 apiece to more than US\$1,000. Those run powerful computers or expensive smartphones while a display driver chip is mundane by comparison, with the purpose of conveying basic instructions for illuminating the screen on phones, monitors or navigation systems.

In general, as a result of a combination of factors, the current **global shortage within the semiconductor** industry will probably not change until the end of next year, as claimed by market experts. Since the world went into a lockdown due to the pandemic, carmakers have been slashing production, PlayStations are getting harder to find in stores and even aluminum producers warn of a potential downturn ahead. All have one problem in common: an abrupt and cascading global shortage of semiconductors. Otherwise known as integrated circuits or more commonly just chips, they may be the tiniest yet most exacting product ever manufactured on a global scale.

Specifically, a Bloomberg report stated that there is now a serious shortage of display driver chips that is creating headaches for manufacturers of LCD and OLED panels in particular. The lack of it in turn will affect all manner of consumer devices, from the lowly smartwatch to smartphones, tablets, laptops, computer monitors, TVs, smart appliances, and infotainment systems. Every new car or plane comes with one or more display panels which only adds to the demand. Generally, companies don't need to use their most advanced process nodes to manufacture display driver chips.

Nevertheless, the shortage of these driver chips will likely cause further delays and price hikes for products that are currently in high demand, and the manufacturers of these chips don't see a solution in sight. The shortfall is already visible in the doubling of prices for large LCD panels over the last year.

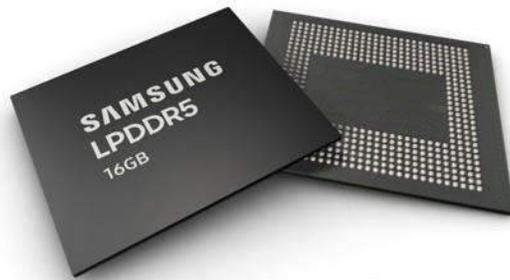
Samsung expands dominance in smartphone memory market in 2020: report

SEOUL, April 13 (Yonhap) -- Samsung Electronics Co. expanded its dominance in the global smartphone memory market in 2020, a report showed Tuesday, as it represented nearly half of the industry.

Samsung, the world's largest supplier of DRAM and NAND chips, accounted for 49 percent of the global smartphone memory market last year, up 2 percentage points from a year earlier, according to a report from industry tracker Strategy Analytics.

Samsung was followed by its smaller South Korean rival SK hynix Inc. with a 21 percent share and U.S. chipmaker Micron Technology Inc. with a 13 percent share.

The worldwide smartphone memory market in 2020 grew 4 percent on-year to US\$41 billion, rebounding from oversupply of chips that led to a revenue decline in 2019.



By sector, Samsung had a revenue share of 55 percent in the smartphone DRAM market last year, up from 50.9 percent a year earlier.

SK hynix's presence plunged from 29.2 percent to 24 percent over the cited period, while Micron's share increased slightly from 18.5 percent to 20 percent.

The overall smartphone DRAM revenue had marginal growth of 1 percent, with high demand of multi-chip package (MCP)-based DRAM chips, Strategy Analytics added.

In the smartphone NAND flash market, Samsung registered a revenue share of 42 percent, followed by Japan's Kioxia Holdings Corp. with 22 percent and SK hynix with 17 percent.

The global NAND flash market for smartphones saw a revenue growth of 8 percent year-on-year, Strategy Analytics said, due to robust demand for high-capacity universal flash storage-based NAND flash chips.

kdon@yna.co.kr

Issue 13 - April 2021

NEWS FROM THE IPC

Europe's Economic Recovery and Long-Term Future Depend on Attention to Electronics Manufacturing Industry, New IPC Study Says

The European Electronics Industry Has a Direct Impact on €3.8 Trillion of European GDP

A new IPC study, [*Digital Directions, Greener Connections*](#), finds the electronics manufacturing industry has largely withstood the negative effects of the COVID pandemic and is poised to help drive Europe's economic recovery and resilience, especially if anticipated government decisions take a supportive approach.

The study highlights the importance of electronic systems, especially those embedded into end user-electronics from industrial robots to an Airbus A350 to 5G infrastructures, as a main driver of global GDP growth. It forecasts the industry's global compound annual growth rate at 3.7 percent per year for the 2018-2023 period while the World Bank forecasts overall global growth of 1.8 percent over the same period. As Europe transitions to a digital and green economy, its electronics manufacturers are poised for robust growth following many years of declining global market share.

The study, conducted by Decision Etudes & Conseil and commissioned by IPC, a global electronics manufacturing association, includes a detailed analysis of Europe's strengths and challenges in this critically important sector and government policy recommendations to boost the resilience and competitiveness of the industry in Europe.

"Although the pandemic shattered many industries, the data shows the electronics manufacturing industry will be a key sector responsible for driving European's economic recovery and meeting future market

needs” said Alison James, IPC Senior Director of European Government Relations. "For critical mission sectors – transportation, industrial equipment, aerospace and defense, IT and telecommunications, and healthcare – to rebound from the pandemic and build towards the future they'll need government policies that strengthen the resiliency of the electronics manufacturing industry as a whole."

The study highlights the electronics manufacturing industry accounted for €301 billion in production value in 2019 and directly impacted €3.8 trillion in European GDP. It reveals that today, however, the EU accounts for only around 5 percent of the overall global production of printed circuit boards (PCBs) and 10 percent of electronics manufacturing services (EMS), key elements of the electronics manufacturing ecosystem.

The study comes as crucial decisions are being made at the European Commission (EC), which is releasing a revised industrial policy strategy later this month; and in national capitals, where COVID-recovery plans are being developed for potential financial support from the EC. Momentum also is building to invest in next-generation processors and semiconductor technologies. The European Union's Recovery and Resilience Facility will make €672.5 billion in loans and grants available to support reforms and investments undertaken by Member States, with 20 percent of the funding dedicated to foster the digital transition. Member States are set to submit their plans for spending by the end of the month.

"This report makes a powerful argument for a holistic policy approach to the electronics manufacturing industry as the EU seeks to revive economic growth and further its digital and green transitions," said James. "There is now a series of opportunities to align policies, partnerships and investments to achieve these ends."

To support the electronics manufacturing industry, the report offers a series of recommendations including:

- **Recognize electronics manufacturing as a strategically important industry and invest in neglected parts of the value chain.** While semiconductors and microelectronics' strategic importance is generally well recognised, the report notes that progress also depends on investments in the manufacturing of PCBs and

electronic board assemblies. When governments invest in microelectronics, there should be gap analyses to assess corresponding needs in PCB fabrication and assembly. These sectors also should benefit from dedicated funding initiatives, such as the Recovery and Resiliency Funds.

- **Support European manufacturers in their transition to factories of the future, strengthening the industry and promoting digital transformation.** As most European PCB and EMS companies are small and medium-sized enterprises, they particularly need support for investments in R&D, equipment upgrades, and workforce training to create the more connected, efficient factories of the future.
- **Enhance vocational training and lifelong training.** The European Microelectronics Pact for Skills, launched in 2020, aims for an overall public and private investment of €2 billion to upskill and reskill more than 250,000 workers and students by 2025. Here again, the report recommends including PCB makers and assemblers in those programs, and it suggests that Member States' recovery plans should include projects dedicated to upskilling workforce in Industry 4.0 tools and technologies, paying special attention to small and medium-sized enterprises.
- **Focus on Europe's leadership in embedded electronics – which account for 85 percent of its electronics output – to help achieve successful green and digital transitions.** Supporting these end-user sectors will help drive overall growth and bring about cleaner, more connected, autonomous vehicles and more intelligent, secure, and efficient homes, factories, and healthcare systems.
- **In defining the European concept of "open strategic autonomy," strike a careful balance between support for regionalized production and a flexible global supply chain.** This includes working with like-minded partners at the multilateral and bilateral levels to enforce trade rules and avoid creating new trade barriers.



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Issue 13 — April 2021

International Diary

2021

8th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

May 19

9th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

June 16