EIPC SPEeDNEWS

The Weekly On-Line Newsletter from the European Institute of Printed Circuits.
Issue 30 – October 2021

NEWS FROM THE EIPC

For those unable to attend our recent 12th Technical Snapshot themselves, a read of the review by Pete Starkey is the next best thing. Some would claim that it is actually better, as it saves them from having to concentrate for more than 5 minutes at a time. Happily, Pete's concentration is legendary, as you may see in the link below if you open it.

http://pcb.iconnect007.com/index.php/article/129211/eipc-technical-snapshot-updates-methods-and-interconnections/129214/?skin=pcb#129211

With our best regards to you, and our thanks to the moguls at I-Connect007.
The EIPC Team

The European Institute for the PCB Community

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NEWS FROM BELGIUM

ACB Group Invests in State of the Art Flying Probe Test System from ATG-LM

The ACB group is one of Europe's largest independent manufacturers of highest technology printed circuit boards. The group consists of manufacturing facilities at Dendermonde (Belgium), Atlantec and Cibel (France) www.acb.be

Following a comprehensive investment plan for the ACB Group, the group's subsidiary Atlantec took delivery and installation of the brand new A9 system from atg-LM through its distributor ADEON Technologies. The ACB group has a long term experience with the Flying Probe Electrical test systems from atg-LM. There is a clear increase of complexity throughout the range of Printed Circuits that are required by the end users. The demand for higher volume, as well as higher mix of products prescribe the need for reliable electrical test systems to secure the 100% functionality of the products. Additional fact is that the amount of circuits, and as a result the amount of testpoints, are increasing per design and the features to be tested are getting smaller all the time also.

It was therefore a rather obvious decision to purchase the state of the art new A9 system from atg-LM. The company are the world leaders by far in electrical testing of printed circuits with a proven track record. Besides the price to performance ratio atg-LM delivers reliability, robustness, speed, accuracy and a first class service through its distribution partner. The A9 systems are fully compatible with the other systems in use in the ACB group, but the speed and accuracy of the new system is unrivalled.
The increasing demand of supporting high-tech Printed Circuit Board manufacturing is recognised and supported also by the France Relance industry supporting project.

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NEWS FROM THE FED

More than 250 people from the electronics industry took part in the 29th FED Conference on 16/17 September 2021 in Bamberg. The organizer Fachverband für Design, Leiterplatten- und Elektronikfertigung (FED) drew a consistently positive conclusion: "The mood among participants, exhibitors and speakers was extremely good. You could literally feel the joy of finally being able to exchange ideas live again after a long time," says Christoph Bornhorn, FED Managing Director. The motto of the event was: "Sustainable and successful: design, manufacturing and management processes in a new world of work".

A taste of what was covered is included in the pre-conference publicity seen below.

Sustainable development
and manufacture of electronic hardware

LECTURES - THU/FRI - FROM 8:30 A.M.

Crises trigger change. Our new world of work is omnipresent, dependencies and supply chains are being reconsidered and responsible use of resources is more important than ever. Sustainability means rethinking processes and products and evaluating other factors than was the case in the past. The Fed conference shows ways and gives answers. What are the prerequisites for climate-neutral production and products? How do companies in electronics manufacturing live responsible entrepreneurship and what does economic, ecological and social sustainability mean in concrete terms? What are the risks and opportunities? How do you shape change with employees, suppliers and customers?
In hardware design and electronics manufacturing, there are other facets of sustainability, primarily initiated for economic reasons. Efficient design flow makes optimal use of the available technical resources and enables complex projects to be completed on schedule. Production-oriented design creates error-free production data and avoids errors from the outset. Validated processes enable durable and reliable assemblies. Self-learning expert systems automatically optimize production processes; Cobos and data glasses support employees during assembly.

NO
LIMITS How do I achieve my goal?

KEYNOTE - THU - 8:30 AM

In his keynote speech "NO LIMITS – How do I achieve my goal?" on Thursday, Joey Kelly impressively describes his life as an entrepreneur and endurance athlete. With perseverance, will and passion, he consistently pursues his goals. In his lecture, he reveals how he tackles this in concrete terms.
Among other things, he completed 50 marathons, 9 desert runs, three times the cycling race "Race Across America" (from the west to the east coast of the USA) and a total of over 100 marathons. In 2010, Joey Kelly crossed Germany from Wilhelmshaven to the Zugspitze in 17 days and 23 hours. On his 900 km long walk – with daily stages of at least 50 km – he fed only on what nature gave him. In the winter of 2010/2011 he contested the "Race to the South Pole" with Markus Lanz in the German team. In 10 days, they covered a distance of 400 km, at temperatures of up to minus 40 degrees Celsius. It all started years ago with a bet and endurance sports, as a balance to his musical work with the "Kelly Family". With absolute discipline and a lot of ambition, he purposefully achieves his goals and faces new challenges.

Beyond sustainability
Why sustainability does not only make ecological sense

KEYNOTE - FRI - 13:30

Andreas Huber (born in 1981) is a speaker for sustainability and sustainable developments. He explains the global challenges in the 21st century in a clear and comprehensible way, analyzes reasons for undesirable developments and creates awareness of the need for global change. In his lectures, he links global trends with local design possibilities and creatively relates different perspectives to each other. Andreas Huber is one of the youngest of the 40 members of the German Society CLUB OF ROME; a think tank for global issues of the future, which also includes Mojib Latif, Ernst-Ulrich von Weizsäcker and Franz-Josef Radermacher. Andreas Huber is Managing Director of the German Society CLUB OF ROME and honorary board member of the DESERTEC Foundation. He is also involved in the network of CLUB OF ROME schools and the Global Marshall Plan Initiative.

His lecture establishes connections between the major topics of our time and shows that there are also opportunities in change. Huber makes it clear why it is important for companies in the technology industry to rethink points of view and develop foresight in order to courageously shape the future as a changemaker.

Save the Date: 30th FED Conference on 29-30 September 2022 in Potsdam

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NEWS FROM GERMANY

Schweizer Electronic AG: Nicolas Schweizer appointed Chief Executive Officer until end June 2027

The Supervisory Board of Schweizer Electronic AG decided that SCHWEIZER's current CEO, Nicolas Schweizer, will continue to lead the company until end June 2027. The existing contract with Mr. Schweizer was to expire on 30 June 2022.

Dr. Stephan Zizala, Dep. Chairman of the Supervisory Board: "Nicolas Schweizer has decisively influenced the successful path of Schweizer Electronic over the past ten years. I would like to thank him for this in the name of the entire Supervisory Board. We are delighted that, as Chairman of the Board of Management, he will continue to drive the repositioning of the company towards growth markets together with the experienced team."

Nicolas Schweizer, CEO of SCHWEIZER: "I am greatly honoured by the great trust of the Supervisory Board. With the consistent continuity of our growth and internationalisation strategy, we will deploy the opportunities of increasing electrification in all areas of life for our company and benefit from them sustainably. I look forward to continuing the success story of SCHWEIZER together with our experienced team."

Nicolas Schweizer joined the Schweizer Electronic Board of Management in 2011 and was appointed CEO in 2020.

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ELECTRONIC INDUSTRY NEWS

ELECTRONIC COMPONENT SHORTAGE – A TALE OF TWO DECADES

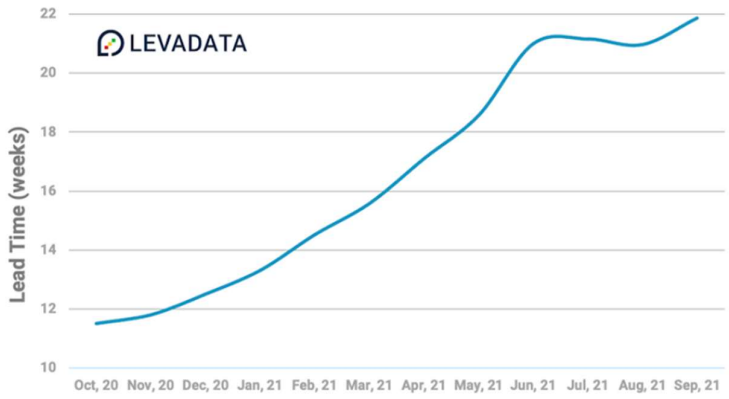
In 2001, there was so much excess component inventory in the supply chain that more than $13 billion worth of semiconductors alone was written down or off by component makers, distributors and customers. People still wince at the memory.

In 2021, there's such a severe shortage of semiconductors that the automotive industry is set to lose more than $100 billion in sales because it can't get chips. "Desperation" is a term that's been kicked around.

For two decades the electronics supply chain has been minimizing the level of inventory in its pipeline via just-in-time (JIT), build-to-order (BTO) and lean. The goal is delivering the "right amount" of components to manufacturing lines just as they are needed. These parameters are determined by end-customers, largely OEMs and EMS providers.

Forecasting in the electronics industry is notoriously bad.

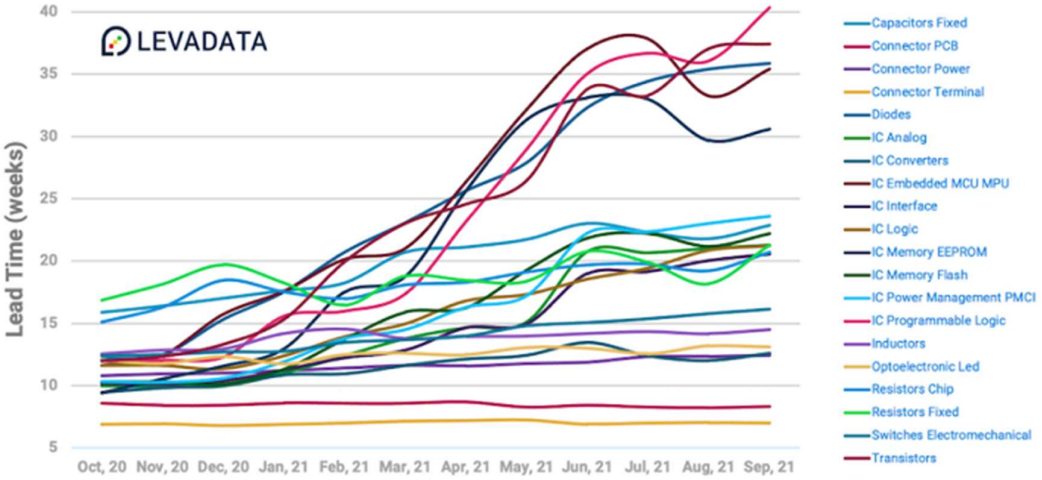
"The first time I get an accurate customer forecast will be the only time I get an accurate customer forecast," one chip maker recently said. When demand for electronics skyrocketed at the beginning of the year, no one was prepared. The current chip shortage is expected to last well into 2022.



An aggregation of commodities, both active and passive, shows a change in overall lead time momentum through the first week of September

One of the constants in the electronics industry is components take between 16 and 18 weeks to manufacture. So, lead times -- the span between placing a component order and receiving it – are an indicator of how well supply is meeting demand.

Currently, lead times for a basket of electronic components -- both active and passive -- average 22 weeks, according to market intelligence firm LevaData, and for some products are stabilizing. "After experiencing a dramatic 2x to 3x increase in average semiconductor lead times over the last eight to 12 months, it appears that the situation may be shifting again. The delays are shortening or, in some cases, beginning to flatten at the least."
In its most recent report, ECIA also noted significant easing on product lead times across all categories from July to August. Discrete semiconductors and capacitors remain under the most pressure. Some memory products are quoting lead times up to a year.



Lead times of commodities used electronic devices. MCUs, MPUs, and diodes initially saw sharp lead time spikes

There are a number of ways to interpret this trend:

- Supply/demand are beginning to moderate and trend back toward normal
- Customers, realizing they can't get devices when they need them, are placing orders farther out
- Manufacturers have adjusted their forecasts downward due to constrained supply
- Component makers are producing more parts

"For the first time in months there's a several-month streak of lead times either flattening or declining – especially in those categories that initially led the lead time increases," LevaData reported. "While supply constraints such as seasonality or new Covid-19 labour shortages are undoubtedly still present, the impact of these factors varies. They're worse at various nodes in the supply chain and affecting specific

components within a group more than others. Most component manufacturers' facilities are near or at 100 percent capacity."

Another possibility, the firm noted, is less hoarding. Many companies' cash flow was greatly affected by having to tie up more cash than usual to establish sufficient component supplies for enabling continuity of product supply to their customers. This change in lead time momentum might be pointing toward brighter days for companies, where "extreme" excess inventory is no longer needed.

There are guardrails against this practice since hoarding only makes a shortage situation worse. Component makers and distributors monitor customers' historic buying patterns and flag unusually high orders. They also work with customers on finding alternative devices for their designs.

Stabilizing lead times could mean the semiconductor market is beginning to shift back toward more balance between supply and demand, LevaData noted. However, unforeseen volatility factors, like Covid-19 shutdowns, will continue to impact that trend over the next three to six months.

Covid-19 has exposed some fundamental weaknesses in the supply chain, according to the McKinsey Global Institute and other consultancies.
"The shift to just-in-time and lean production systems has helped companies improve efficiency and reduce their need for working capital," reported McKinsey. "But now they may need to strike a different balance between just-in-time and 'just in case.' Having sufficient backup inventory of key parts and safety stock is a critical buffer that can minimize the financial impact of disrupted supplies. It can also position companies to meet sudden spikes in demand."

Don't count on an increase in ready-to-ship inventory. Component makers don't want to store it; publicly traded distributors are hammered if stock levels increase; and customers have become accustomed to JIT, BTO and lean.

It's fair to count customer forecasts as a volatility factor in the supply chain. The degree to which forecasts were wrong in 2001 and 2021 is remarkable. The supply chain reinvented itself after 2001. The chip industry plans to build roughly 29 fabs over the next few years.

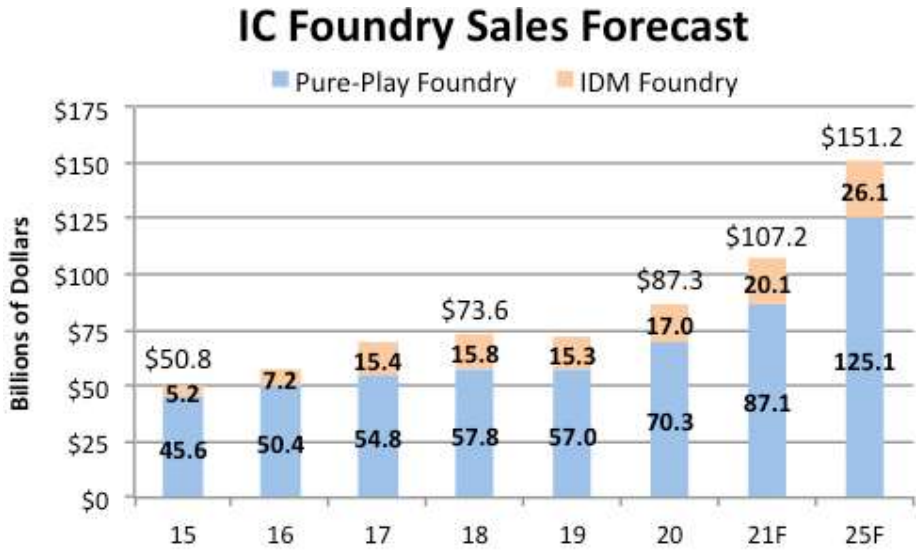
Overall demand for components isn't going to decrease, but if near-term demand for 5G, EVs, AI or any other high-growth industry misses the mark we could be looking at excess by 2023.

Foundry Sales to Surpass $100 Billion in 2021

Robust demand for advanced processors used in networking and data centre computers, new 5G smartphones, and ICs used in other high-growth electronics market applications such as robotics, self-driving vehicles and driver-assist automation, artificial intelligence, machine-learning and image recognition systems is forecast to lift total foundry sales to $107.2 billion in 2021, a 23 percent increase that would match the record growth rate set in 2017, according to IC Insights.

It is worth noting, the research firm said, that the strong growth rate in 2017 was primarily due to Samsung re-classifying its System LSI internal transfers as foundry sales, rather than strong organic market growth.

Total foundry sales this year are forecast to surpass the $100-billion mark for the first time and continue increasing at a strong 11.6 percent average annual growth rate through 2025 when total foundry sales are expected to reach $151.2 billion.



Source: IC Insights

The pure play foundry market is forecast to expand by a strong 24 percent this year to $87.1 billion, which would surpass the 23 percent growth witnessed in the pure-play foundry market just last year (2020). The pure-play foundry market is expected to grow to $125.1 billion in 2025, resulting in a 5-year (2020-2025) CAGR of 12.2 percent, accounting for 82.7 percent of total foundry sales in 2025, compared to 81.2 percent in 2021.

TSMC, UMC, and several specialty foundries are expected to post healthy sales growth this year. These same suppliers are also investing heavily in new capacity to support anticipated demand for their services during the forecast period.

Samsung, whose external sales are primarily driven by customers like Qualcomm, accounts for most of the IDM foundry market. IC Insights anticipates the IDM foundry market will grow by a solid 18 percent this year to $20.1 billion. The IDM foundry market is forecast to increase to $26.1 billion in 2025, resulting in a 5-year CAGR of 9.0 percent.

Intel has made it known that it intends to make a bigger splash as an IDM foundry in the coming years. Intel launched its “IDM 2.0” initiative in March 2021 to turn around its semiconductor manufacturing after falling behind TSMC and Samsung in sub-10nm process technologies.

Intel's two-part plan aims to pivot the company from decades of emphasizing its internal wafer fab capacity to manufacture chips. Instead, it plans to make greater use of third-party foundries for the most advanced process technologies while also turning itself into a major provider of contract-manufacturing (foundry) services.

For more information contact Bill McClean, President at IC Insights. Phone: +1-480-348-1133 email: bill@icinsights.com.

Counterfeit Risk Rises When Supplies Run Short

By Barbara Jorgensen

The risk of procuring counterfeit electronics rises considerably during periods of component shortages. With semiconductor supplies remaining tight through the end of 2022, the industry faces a prolonged interval of increased risk.

Industry sources have used the word "desperate" to describe the current shortage situation. When a high-priced product such as an automobile can't be manufactured for lack of a single part, procurement may circumvent approved vendor lists (AVL) for alternative sources of supply.

In electronics, there is no shortage of fly-by-night operations that falsely advertise parts; remark or mismark existing devices; or sell damaged or inferior parts as new. There are also reports of manufactured counterfeit semiconductors.

In June, anti-counterfeiting alliance ERAI posted a warning that hundreds of websites were advertising electronics components; requiring payment in advance; and never delivering orders. In July it identified multiple fraudulent websites operated by a single individual.

Although both ERAI and GIDEP – the Government-Industry Data Exchange Program – receive and process counterfeit-part complaints, comprehensive data for the components industry is difficult to find. Recent estimates suggest that that counterfeit electronics cost businesses around $250 billion a year. Data on counterfeit component incidents is not made widely available for privacy reasons.

Buyers may also turn to the open market where excess inventory from component makers, distributors and OEMs is bought and resold. Although many of these parts come from factories or from distributors authorized carry component brands, the provenance of devices can't always be verified. Distributors that source from this market are associated with a higher risk of counterfeits.

Top-tier independent – or non-authorized -- distributors have set themselves apart from shadier operations. Many have been authorized by component makers that painstakingly audit the quality control, storage and handling processes of distributors. They have also achieved standards accreditation from bodies such as the International Standards Organization (ISO) and those that oversee the defence, medical and automotive industries.

"It's important [distributors] have the right certification," said Art Figueroa, VP of operations and quality for independent distributor Smith. "That plays a big part in assuring quality and compliance. It tells customers you have processes in place – as well as test and inspection – so the product can be used in verticals such as automotive, military and aerospace." Standards organizations audit handling, operating processes and quality control, he explained. Smith's certifications have been issued by ISO, AS, ANSI and others.

Due to the pandemic, Figueroa said, Smith provides the option of virtual warehouse tours in addition to in-person meetings. "It's helped immensely. We walk a customer through our warehouse space, receiving and the inspection lab. Seeing what we offer and having certifications puts customers at ease and demonstrates we know what we're doing."

Two mission critical industries – automotive and defence/aerospace – have been hard hit by the semiconductor shortage. Both sectors are highly regulated and both are seeking additional sources of supply.

"I think the most eye-opening experience of this shortage was in the automotive sector," said Figueroa. "They're no longer able to source directly from chip suppliers so they've gone to distributors or the open market to source from that supplier base. It's been a nonstop evolution over the past 18 months as shortages have pushed through to other verticals."

All electronics distributors report an influx of customers that haven't used the channel in the past. Automakers historically have ordered devices directly from chip manufacturers and have cancelled orders when they no longer need the parts. As industrial and consumer electronics companies have grown exponentially, they've gained clout with chip suppliers and represent a relatively stable base of demand. They've been first in line during recent periods of component scarcity.

"Automotive demand went through the roof but it didn't stop demand from major industrial or consumer companies," said Tony Roybal, president, Americas Electronic Components, for distributor Avnet Inc. "Clearly, one of our jobs is to act as a buffer

for upside or downside demand. But we also reposition our inventory based on our suppliers' technology and our customer partnerships. It's always dynamic but I'd say we are expanding our horizons regarding how we're positioned in the supply chain."

Authorized distributors such as Avnet buy directly from component factories and pass-through quality assurance and warranties to their OEM and EMS customers. Authorized distribution has a very low risk of passing on counterfeits. However, the electronics industry's anti-counterfeiting efforts overall are fragmented – chip makers have individual authentication processes, for example. That information does not always accompany parts when they are resold on the open market and some suppliers will not service products sold by unauthorized distributors.

Although there are a host of anti-counterfeiting standards available -- AS, which focuses on aerospace and defence, has several -- no common standard is followed across the supply chain. Most recently, technologies such as Blockchain, AI, ML and digital twins are being examined as methods of authentication. The industry is also pushing for stiff consequences for counterfeiters. U.S. trade negotiations with China – and the tariff-fuelled trade war – are intended to crack down on that nation.

"The counterfeit problem is a big problem and we've always seen it increase during spikes in demand," Figueroa said. "We have been able to mitigate risk on the front end. We also carefully vet our suppliers."

For suppliers, distributors and reps, ECIA provides a variety of anti-counterfeiting resources. In general, electronics supply chain companies say the counterfeiting problem has worsened with the current shortage. Manufacturers most frequently turn to independents when they are short on parts or seeking hard-to-find components. Their loyalty to independents varies. Some OEMs integrate them into their supply chain to manage component shortages or excess.

"We hope that based on their experience and our quality this can lead to long-term relationships," said Figueroa. "It's certainly been a valuable lesson for companies in some sectors that are used setting their own terms that there's been a paradigm shift. We want to ensure peace of mind and become an element in their supply chain that they can turn to."

U.S. Pushes Companies for More Transparency on Chip Supply Chains

U.S. Secretary of Commerce Gina Raimondo met with auto giants (GM, Ford, and Stellantis), technology firms (Apple and Microsoft), chip makers (Intel and Micron), and foundries (Globalfoundries, TSMC, and Samsung) to discuss the chip shortage.

James Morra Electronic Design

The White House is prodding major auto manufacturers and chip vendors to share information about the global chip shortage in a bid to bring more transparency to a supply chain that has been strained for more than a year.

U.S. Secretary of Commerce Gina Raimondo and National Economic Council head Brian Deese met with major automakers, chip vendors, and other companies last Thursday to discuss the chip shortage and short- and long-term actions available to them to strengthen U.S. supply chains. The White House said the Biden administration called on industry players to take "the lead in resolving the supply chain bottlenecks that are occurring due to the global chip shortage."

The companies included automakers (the U.S. Big Three—GM, Ford, and Stellantis), technology giants (Apple and Microsoft), leading U.S. chip vendors (Intel and Micron); and foundries (TSMC, Samsung, and Globalfoundries).

The meeting followed get-togethers between the White House and industry leaders in April and May.

A severe chip shortage has plagued the electronics industry for more than a year at this point, exacerbated by demand for PCs and other devices that is soaring during the pandemic. The chip-supply constraints have forced cuts to U.S. auto production. They are also cascading into other sectors, including consumer devices from Sony's PlayStation 5 to Apple's iPhones, causing delays in shipping products and hiking costs that could hit consumers.

The Commerce Department said that it is trying to boost transparency within the semiconductor supply chain so that automakers and other buyers can improve their supply chain practices. The agency said it is calling on companies from all parts of the supply chain—chip vendors, buyers, and intermediaries—to share information on their inventory levels, demand, and delivery conditions. It is hoping to identify the worst bottlenecks in the supply chain so that it can address them—and, in the future, anticipate potential issues ahead of time.

The electronics industry depends on a globe-spanning supply chain. As a result, even short delays in one region can hinder production in others, creating inefficiencies that can ripple through supply chains, causing delays in shipping products and raising prices.

Over the last year, industry insiders have warned that the global chip supply chain has become more vulnerable to geopolitical conflicts and natural disasters because suppliers at different points in the supply chain are grouped in certain regions. In addition, a series of chip factory closures—due to a prolonged drought in Taiwan, a major power outage in Texas, a fire at a Renesas Electronics semiconductor fab in Japan—has exacerbated the global chip supply woes.

The global chip shortage has been complicated by new outbreaks of the coronavirus in Southeast Asia, which has become a major center for back-end chip assembly and testing. The flare-up has slowed production at factories in the region.

The Commerce and State Departments are also working to establish an "early alert" system to proactively identify and manage potential disruptions in the supply chain linked to coronavirus outbreaks or other health developments in trading partners.

“The goals of this enhanced effort include early detection of potential disruptions, enhanced engagement with foreign governments and industry, and promotion of transparency across the supply chain, while balancing worker health and safety and the safe reopening of critical industries and the safe reopening of critical industries,” the White House said in a statement last week.

The White House is also hoping to create a “supply chain resiliency program” within the Department of Commerce that will alert it to vulnerabilities in supply chains for chips and other critical goods and take action to close gaps.

The electronics sector has struggled to resolve supply chain bottlenecks in the short term. It takes a long time for fabs to start mass production and add to the industry’s total capacity. The sector is also trying to boost its supply of raw silicon wafers and chemicals used at fabs and substrates used in packaging chips. Delays in assembling and testing final chips are also up, industry insiders warn. Fixing all these problems will have to happen gradually.

TSMC has pledged to spend $100 billion over three years to expand production capacity to alleviate the crisis. Most U.S. chip vendors are completely (or for the most part) fabless, outsourcing production to TSMC or other foundries.

Intel is also building out its foundry services business, and it plans to allocate capacity at its largest production plant in Europe for car chips. In addition, top U.S. contract chip manufacturer Globalfoundries is on pace to more than double its output to the sector in 2021. It is also expanding its footprint by investing $6 billion in fabs in the U.S., Europe, and Southeast Asia.

Industry executives say constraints will likely continue in the first half of 2022 and then lessen in the second half.

To keep a global shortage from happening in the future, auto manufacturers are adapting their supply chains and overhauling the way they buy chips due to the procurement challenges they have grappled with for months.

For years, auto manufacturers rarely purchased chips directly—or worked with chip vendors at all. Instead, they sourced electronic control units (ECUs) and other pre-integrated modules from Tier-1 suppliers. But auto giants have started partnering more closely with chip vendors, sharing demand forecasts that vendors can use to plan production needs ahead of time. They are also striking deals directly with foundries to get guaranteed supplies.

Over the long term, car manufacturers want more say over the allocation of capacity for automotive-grade chips.

White House has been backing big programs to bolster the long-term self-sufficiency of the U.S. chip sector. President Biden signed an executive order early this year to examine weak points in America's supply chains, including semiconductors, and identify potential areas of improvement to prevent any shortages in the future. A report outlining the results was released in June. The White House has also backed more than $50 billion in subsidies for the chip sector.

In June, the Senate passed the U.S. Innovation and Competition Act (USICA) that includes $52 billion to fund the CHIPS for America Act. However, the proposal has not yet been voted on by the House of Representatives.

Trade groups representing the sector also support the proposed Facilitating American Built Semiconductors (FABS) Act, which would roll out a 25% tax credit for investments in U.S.-based fabs and the gear to go inside them.

The European Institute for the PCB Community

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NEWS FROM THE USA

L3Harris Selects Aegis' Platform for 20Manufacturing Locations with Over 5,500 Users

The FactoryLogix Platform to consolidate and synchronise systems that support operations by amplifying productivity to reinforce L3Harris' customer commitments

-Aegis Software, a global provider of Manufacturing Execution Software (MES), has signed an enterprise agreement with L3Harris Technologies (NYSE:LHX)to support 20manufacturing sites and more than 5,500 end users withtheAegis' FactoryLogix® platform.

The platform will consolidate IT systemsby digitizing and optimizing manufacturing data to help streamline operational processes. A key advantage of the suite of manufacturing software is the enhanced visibility into productivity and quality metrics.

"Our priority is to provide solutions that meet the critical needs of our customers and Aegis will help us do this across the selected sites," said Byron Green, Vice President, Global Operations, L3Harris. "We are always looking to invest in technology that supports continuous improvement and innovation, while helping us remain agile and deliver more quickly in a safe and secure manner."

“We are honored that our twelve-year relationship serving L3Harrishas now moved to an enterprise-level agreement. Aegis is excited towork with L3Harris at this level and see the efficiencies, cost savings, and operational excellence the FactoryLogix platform will bring to their enterprise,” stated Jason Spera, CEO and Co-Founder of Aegis Software. “Our modern IIoT-based MES platform, proven experience in the defense and aerospace industry, and rich domain expertise are why leading companies, like L3Harris, consistently turn to Aegis.

FactoryLogix is a holistic and modular IIoT-based MES platform that delivers leading-edge technology with easily configurable modules to support and execute a discrete manufacturer’s strategy towards Industry 4.0. FactoryLogix manages the entire manufacturing lifecycle: from product launch to material logistics, through manufacturing execution and quality management, to powerful analytics and real-time dashboards. This end-to-end platform is helping companies accelerate product introductions, streamline processes, improve quality and traceability, reduce costs, and gain greater visibility for competitive advantage and profitability.

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AboutL3Harris

L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers’ mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains. L3Harris has approximately $18 billion in annual revenue and 47,000 employees, with customers in more than 100 countries. L3Harris.com.

About Aegis Software

Founded in 1997, Aegis Software uniquely delivers a comprehensive and flexible end-to-end manufacturing execution system (MES) platform giving manufacturers the speed, control, and visibility they require. Aegis has international sales and support offices in Germany, UK, and China and partners with more than 37 manufacturing equipment suppliers. Since its inception, Aegis has been helping more than 2,000 factories across the military, aerospace, electronics, medical, and automotive industries, drive rapid and continuous innovation with the highest quality while reducing operational costs. Learn more by visiting https://www.aiscorp.com Speed, Control and Visibility for Manufacturing.

News from
WECC members

World Electronic Circuits Council

Issue 30 – September 2021

NEWS FROM THE IPC

Electronics Industry Faces Labour Shortages as Chip Deficit Drags On

Around 60% of electronics manufacturers and other industry players project the global chip shortage to last until at least the second half of 2022, according to the most recent survey by trade group IPC.
James Morra Electronic Design

The global chip shortage has plagued the electronic industry for close to a year. But a majority of electronics manufacturers now say they are also struggling to hire workers to run their factories, leading to longer delays in shipping products.

IPC, a leading electronics industry trade group, said around 80% of the companies that responded to its most recent survey are finding it "somewhat" or "extremely" difficult to hire highly qualified workers. More than two-thirds of the companies also said that, on top of rising component and materials costs, labor costs are also up.

IPC has more than 3,000 members that represent all facets of the global electronics industry, from contract manufacturers and OEMs to circuit board (PCB) makers and chip suppliers to assembly and test companies.

The lack of skilled labor is the latest crisis on the electronics industry's plate. A global chip shortage that has ravaged the automotive sector over the last year has started spreading to other industries, forcing electronics giants ranging from Apple and Sony to Dell Technologies and HP to fight over a limited supply of components. According to IPC, close to 60% of companies expect shortages to linger until at least the second half of 2022.

Only 5% of companies are open to the possibility the shortage will wrap up in the fourth quarter of 2021.

The chip sector is boosting its front-end and back-end production capacity by building or expanding fabs. But it can take several years for new factories to ramp up to mass production, leaving the industry with no short-term fixes. Most of the world's largest semiconductor firms are grappling with more demand than they have supplies. Executives at Intel and other industry giants warn the situation may not change before late 2022 or even 2023.

North American EMS Industry Down 3.2 Percent in August

IPC Releases EMS Industry Results for August 2021

BANNOCKBURN, Ill., USA, September 24, 2021 — IPC announced today the August 2021 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.48.

Total North American EMS shipments in August 2021 were down 3.2 percent compared to the same month last year. Compared to the preceding month, August shipments grew 16.9 percent.

EMS bookings in August rose 27.5 percent year-over-year and grew 29.3 percent from the previous month.

“August brought another strong month of orders for the EMS sector. Year-to-date bookings are up 22 percent,” said Shawn DuBravac, IPC’s chief economist. “During the month we also saw shipments pick-up, a hopeful sign that manufacturers will be able to deliver on their growing backlog of orders.”

Detailed Data Available

Companies that participate in IPC’s North American EMS Statistical Program have access to detailed findings on EMS sales growth by type of production and company size tier, order growth and backlogs by company

size tier, vertical market growth, the EMS book-to-bill ratio, 3-month and 12-month sales outlooks, and other timely data.

Interpreting the Data

The book-to-bill ratios are calculated by dividing the value of orders booked over the past three months by the value of sales billed during the same period from companies in IPC's survey sample. A ratio of more than 1.00 suggests that current demand is ahead of supply, which is a positive indicator for sales growth over the next three to twelve months. A ratio of less than 1.00 indicates the reverse.

Year-on-year and year-to-date growth rates provide the most meaningful view of industry growth. Month-to-month comparisons should be made with caution as they reflect seasonal effects and short-term volatility. Because bookings tend to be more volatile than shipments, changes in the book-to-bill ratios from month to month might not be significant unless a trend of more than three consecutive months is apparent. It is also important to consider changes in both bookings and shipments to understand what is driving changes in the book-to-bill ratio.

IPC's monthly EMS industry statistics are based on data provided by a representative sample of assembly equipment manufacturers selling in the USA and Canada. IPC publishes the EMS book-to-bill ratio by the end of each month.

Component Shortages are Driving Production Delays and Higher Costs for Manufacturers, According to a New Global Industry Survey

IPC found the electronics industry sees no immediate end to shortage woes, 58% expect problem to linger until late 2022 or beyond

BANNOCKBURN, Ill., USA, September 23, 2021 — A new global survey found that electronics manufacturers continue to be harmed by the global shortage in semiconductors and other components, parts and materials, leading to production delays, increased material goods costs, and a cloudy industry outlook. The survey, conducted by IPC, also found that companies continue to face significant challenges in hiring and keeping skilled talent.

"Supply shortages and other dislocations are impacting the global electronics supply chain and every downstream industry these manufacturers serve," said Shawn DuBravac, IPC chief economist and lead researcher on the study. "Strong demand is helping industry sales, but shortages are delaying shipments and increasing backlogs. Manufacturers are facing higher prices as they compete for limited supply. This is a global phenomenon that is going to take well into next year to resolve."

The survey results found that:

- **Shortages are leading to delays.** 88% of respondents have experienced increased lead times, and 31% saw production delays of eight weeks or more.
- **Companies report the issue will not be resolved soon**. 58% of companies expect the shortages to end in the second half of 2022 at the earliest.
- **Global inventories – already depleted – are declining**. 59% of respondents said that backlogs are increasing. 25% say inventory available to customers will continue to decline, and 48% say inventories will stay flat.
- **Shortages are forcing companies to spend more to produce their products.** 90% of respondents have paid increased prices to suppliers because of shortages.
- **Companies are increasing wages and upskilling workers to address workforce hiring and retention.** 80% of respondents believe the challenge of finding qualified workers isn't likely to ease. Firms have increasingly taken to upskilling their workers on their own (46% of respondents), boosting wages (44% of respondents) and other measures to fill the gaps.

"While there has been plenty of attention paid to the shortage in semiconductors, it's important to point out that electronics companies around the

globe are facing additional shortages and backlogs, experiencing diminished inventories, and paying higher materials prices," added John Mitchell, IPC president and CEO. **"**The current situation is unsustainable. If the current shortages extend beyond 2022 as feared, they will continue to have serious consequences for all industries tied to electronics manufacturing."

IPC surveyed hundreds of companies from around the world, including a wide range of company sizes and representing the full electronics manufacturing value chain. Survey respondents were from North America (44%), Asia (20%) and Europe (17%).

North American PCB Industry Sales Up 5.3 Percent in August

IPC Releases PCB Industry Results for August 2021

IPC announced today the August 2021 findings from its North American Printed Circuit Board (PCB) Statistical Program. The book-to-bill ratio stands at 1.31.

Total North American PCB shipments in August 2021 were up 5.3 percent compared to the same month last year. Compared to the preceding month, August shipments fell 2.7 percent.

PCB year-to-date bookings in August were up 21.9 percent compared to last year. Bookings in August fell 16.7 percent from the previous month.

"While North American PCB bookings declined during August, shipments remain constrained due to supply constraints and other dislocations in the supply chain," said Shawn DuBravac, IPC's chief economist. "As a result, the book-to-bill rose to 1.31, a thirty-year record high. The last two months have seen shipments fall far short of what I would expect given recent order volume."

Detailed Data Available

Companies that participate in IPC's North American PCB Statistical Program have access to detailed findings on rigid PCB and flexible circuit sales and orders, including separate rigid and flex book-to-bill ratios, growth trends by product types and company size tiers, demand for prototypes, sales growth to military and medical markets, and other timely data.

Interpreting the Data

The book-to-bill ratios are calculated by dividing the value of orders booked over the past three months by the value of sales billed during the same period from companies in IPC's survey sample. A ratio of more than 1.00 suggests that current demand is ahead of supply, which is a positive indicator for sales growth over the next three to twelve months. A ratio of less than 1.00 indicates the reverse.

Year-on-year and year-to-date growth rates provide the most meaningful view of industry growth. Month-to-month comparisons should be made with caution as they reflect seasonal effects and short-term volatility. Because bookings tend to be more volatile than shipments, changes in the book-to-bill ratios from month to month might not be significant unless a trend of more than three consecutive months is apparent. It is also important to consider changes in both bookings and shipments to understand what is driving changes in the book-to-bill ratio.

IPC's monthly PCB industry statistics are based on data provided by a representative sample of both rigid PCB and flexible circuit manufacturers selling in the USA and Canada. IPC publishes the PCB book-to-bill ratio by the end of each month.

PCB Designers to Put Skills to the Test and Compete to Become IPC Design Champion of 2022

Three finalists to compete for title of best board designer at IPC APEX EXPO 2022

IPC announces a new IPC Design Competition, inviting printed circuit board designers to compete to become the IPC Design Champion of 2022. The IPC Design Competition is composed of two heats – a virtual preliminary heat and an in-person layout final for the three top contestants on January 25, 2022 at IPC APEX EXPO in San Diego, Calif.

The preliminary heat will be held November 1, 2021 to December 1, 2021, allowing designers to use their preferred tools to complete a full board buildup within 30 days. Provided with only a schematic and a BOM (bill of materials), competitors will be judged against their interpretation and implementation of design per IPC standards and general DFX (design for excellence) principles. Three finalists will be invited to participate in the four-hour layout final at IPC APEX EXPO 2022.

"Every year, design engineers spend hours completing and perfecting their designs. The IPC Design Competition gives us the chance to meet those designers and put their skills to the test," said Patrick Crawford, manager, design standards and related industry programs. "We can't wait to see the results and crown a design champion at IPC APEX EXPO."

Registration for the IPC Design Competition is free, but space is limited to 20 contestants. Registration ends October 29, 2021. For more information, visit www.ipc.org/ipc-design-competition-2022

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2021

KPCA Korea
6-8 October

12th EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
14 October

EIPC @ Productronica 2021
Stand B3-529
Messe München
16-19 November

13th EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
24 November

EIPC @ Evertiq Tampere
Tampere, Finland
1 December

TPCA Taiwan
21-23 December