



The European Institute for the PCB Community

EIPC SPEeDNEWS

The Weekly On-Line Newsletter

Issue 10 – April 2022

NEWS FROM THE EIPC

Pete Starkey of iConnect007 has written with his usual total comprehension and verbal artistry on the matters raised at the recent EIPC WEBINAR held on 23rd March. We are grateful to the publishers for their permission to provide a link to this

<http://pcb.icconnect007.com/index.php/article/131439/eipc-technical-snapshot-high-end-pcb-market-requirements-and-technology-trends/131442/?skin=pcb>



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NEWS FROM ITALY

E-TECH Europe Exhibition April 12-13-, Bologna, Italy – Booth C30-D29

E-TECH EUROPE BOLOGNA 12-13 April

Seica SpA, a global leader in test for over 35 years, will be presenting the latest innovative test solutions developed specifically for the EV sector at the E-Tech Europe exhibition taking place in Bologna on April 12th and 13th, booth C30-D29.

The rapid rise in demand for Electrical Vehicles within the automotive market has introduced a series of new electronic and electrical technologies and vehicle components that present new challenges for manufacturers in terms of process and, in particular, test.

One of the main concerns of many OEMs, integrators, and new start-ups is the testing of EV battery packs: the need to increase production throughput, improve reliability of the manufactured product while optimizing the cost of battery pack testing is a major challenge. A case in point is the electrical connections between the cells of an EV battery: these connections are fundamental to the correct performance and safety of the battery, so testing the bondings is a mandatory step of the battery manufacturing process.

Seica has over 10 years experience in providing solutions for this type of testing, and the Pilot BT, on display at E-Tech Europe, represents the new generation of flying probe test solutions for the specific test requirements of this increasingly high-volume manufacturing process. With its impressive parallel testing architecture, the **Pilot BT** is able to perform parallel, very precise Kelvin tests of 16 cells at once, achieving production rates of nearly 2400 battery cells per minute, more than doubling first generation performance. Its' very large test area (1050 x 865 mm) not only enables it to handle the many battery configurations currently on the market,

but also the capacity to manage the configurations of the future. The standard system configuration includes a pass-through conveyance by Bosch, but it can also be configured with customer-specified conveyance solutions integrated into completely automated lines. No matter the battery technology, type, size or shape, Seica has a solution for high production, reliable, and repeatable test.

The Battery Management System (BMS) is another fundamental component of any EV, and its correct operation is essential to ensure the performance, reliability and life of the batteries. The **Compact BMS Test System**, on display for the first time at E-Tech, is the latest addition to Seica's Compact line of functional test solutions.



Equipped with all of the standard test instrumentation of the Seica VIP platform, *it also includes dedicated instruments designed specifically to meet the functional test requirements of Battery Management Systems (BMS)*. These include Battery Cell Simulators which, along with hardware and software modules which provide CAN and LIN communication protocol capability, are able to simulate the full operating conditions of the BMS, providing the stimuli and measurements required to test all of its functions.

In addition to the Pilot BT and Compact BMS test systems, visitors to booth C30-D29 will be able to see Canavisia's Industry 4.0 software and hardware solutions for the acquisition and digitalization of data coming from machines, factories and buildings with the goal of optimizing processes, maintenance and intelligent energy management on-site, over the web and from the Cloud. The system Dashboard and APP provide a real-time view of the connected resources as well as statistical reporting, and the solutions are compatible with the most widely used protocols and management software, for easy integration into existing infrastructures.

About Seica S.p.A.

Founded in 1986, Seica S.p.A. is an innovative, high technology company that develops and manufactures leading-edge solutions for the test and selective soldering of electronic boards and modules. Moreover, Seica provides battery test solutions, automotive electronic board test solutions, infotainment test, as well as electric vehicle inverter and battery charging station test systems. Seica has fully embraced the concept of Industry 4.0, developing solutions to monitor and collect

information from machines and industrial plants to enable the optimization of manufacturing processes, maintenance and energy management. Company headquarters are located in Italy, with direct offices in USA, Germany, China, Mexico and France.

www.seica.com

About Canavisia

Canavisia is an Italian company based in Strambino (TO), part of the Seica SpA group, specialized in Energy Management, Industrial Monitoring (Industry 4.0) and Smart City solutions. Canavisia designs and manufactures products, applications, solutions and services for the acquisition and digitization of data from machines, factories, buildings and cities, allowing the connection, monitoring and control of resources with the goal of optimizing processes, maintenance and intelligent energy management. Canavisia is also the official Italian reseller of one of the world leader in Manufacturing Execution System software, able to manage all the logistic and production processes in a lean and cost effective way. All the Canavisia Solutions are compliant with the requirements of the Industry 4.0 incentives program

www.canavisia.com



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NEWS FROM THE UK

MicroTech 2022

NEXT GENERATION OF ELECTRONICS AND PEOPLE 5 KEY QUESTIONS TO BE ADDRESSED

- Can Hybrid Bonding achieve cost-effective high-density interconnect?
 - Can E-Planes replace High Speed Rail?
 - Can Copper Sintering replace silver?
- How thin can semiconductor wafers be ground?
- How can UK companies win in the global semiconductor market?

Don't miss out on this opportunity to hear the answers to the above questions and many more by registering for MicroTech 2022 below.

Registration for MicroTech 2022:

<https://www.imaps.org.uk/events/microtech-2022-next-generation-of-electronics-and-people/>

A Pre-Conference Training Workshop on Microelectronic Packaging Techniques for Power Electronics (PEP-IT-UP) will also be held on the afternoon of Monday 25 April 2022.

If you have registered to attend MicroTech 2022, you can register for a place at the Training Workshop for free, by booking Ticket PEP-IT-UP-03. However, there are only limited places available and they will be allocated on a first come, first served basis.

Registration for PEP-IT-UP Workshop:

<https://www.imaps.org.uk/events/pep-it-up-training-workshop-microelectronic-packaging-techniques-for-power-electronics-monday-25-april-2022/>



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ELECTRONICS INDUSTRY NEWS

Teetering On the Brink of U.S.-Russia Cybersecurity War

By Ann R. Thryft

In just the past week, President Biden, the FBI and the Department of Homeland Security (DHS) have warned U.S. critical infrastructure and industrial companies that Russia is likely to be planning cyber attacks.

One month into Russia's brutal invasion of Ukraine, President Biden warned that "evolving intelligence" indicates Russia is "exploring options for potential cyberattacks" against the U.S., in retaliation for the economic sanctions imposed against Russia by the U.S. and its allies.

"Critical infrastructure owners and operators must accelerate efforts to lock their digital doors," Biden said on Mar. 21 in a briefing room statement. That critical infrastructure is what keeps society going, even during a pandemic or a war.

On the same day, Anne Neuberger, deputy national security adviser of cyber and emerging technology for the White House, told reporters in a press briefing there's no evidence yet of a specific threat to the U.S. But she also described the intelligence as "fragmentary" evidence of preparations for a cyberattack.

Both statements emphasize the potential threats to critical infrastructure such as utilities, as did previously unrevealed letters from Biden to state governors dated Mar. 18. These letters asked officials to increase their state's readiness for countering potential Russian cyberattacks, especially against critical infrastructure, as reported by *Politico*.

Also on Mar. 23, an *AP News* article said the FBI warned in an advisory that Russian hackers known to have previously "conducted destructive cyber activity against foreign critical infrastructure" have scanned at least five U.S. energy companies for vulnerabilities; in this instance, likely signalling a prelude to attacks. In that advisory, dated Mar. 18, the FBI said at least 18 other companies in the defence industrial base and financial service sectors had also been scanned.

On Mar. 22, the DHS's Cybersecurity and Infrastructure Security Agency (CISA) held a conference call with 13,000 industry stakeholders, warning about the potential for

cyberattacks and urging them to step up protection by implementing the agency's mitigation guidelines.

CRITICAL INFRASTRUCTURE IS PRIVATE, AND CYBERSECURITY UNREGULATED

Biden's announcement, combined with other warnings by the feds, struck some within the cybersecurity industry as unprecedented and alarming because most critical infrastructure is in private — not public — hands, as we've reported, as well as mostly unregulated.

"Critical infrastructure" means more than the obvious utility companies, water systems and transportation networks. To define "essential workers" during COVID-related lockdowns, CISA listed 16 different categories. These include chemical plants, commercial facilities, communications, critical manufacturing, dams, defence, emergency services, financial, food & agriculture, government facilities, healthcare and public health, and IT. Cybersecurity practices in these areas are still very hit-and-miss, and security holes abound.



Eric Noonan

"President Biden was making it clear that the government can't do this for us," CyberSheath CEO Eric Noonan told *EE Times*. "We need business and private industry to get their defences ready. They need to implement the recommendations that the government has been making for a decade now, spanning multiple administrations."

The feds' statements come on the heels of their [recent warnings](#) as attacks by Russian state-sponsored actors on the U.S. and Europe escalated in the lead up to the invasion of Ukraine. But now, Noonan said "there is a tone and an urgency in Biden's statement that I don't think we've ever seen before from a sitting president. We should listen but more importantly we should act."

Noonan emphasized that the tone of the President's statement was similar to those the Biden Administration has made before about intelligence preceding the physical invasion by Russian ground forces. "[It's] like they're following the same track with President Biden forecasting what we should expect to see next: he is telling us they are seeing preparatory actions for a cyberattack," he said. "The Administration has been very coherent in their messaging that connects Russia's preparations and the actual attacks."

In addition to incomplete cybersecurity, there's also the big problem that it's unregulated. Noonan thinks many assume federal government regulates cybersecurity like it does safety in, for example, the airline industry; but it doesn't.

"In cybersecurity for critical infrastructure and the defence industrial base, there's no real oversight or level of authority, no mandate, for the government to inspect and enforce

compliance across these private networks,” he said. There are also no federal resources for enforcing compliance.

That’s why we have public–private partnerships between industry and government security agencies like CISA and the FBI.

“But only the biggest companies with many resources can participate in a meaningful way,” Noonan said. “The smaller companies that operate key parts of the supply chain or critical infrastructure facilities such as energy utilities and water treatment facilities are not equipped for these threats.”



CYBERATTACKS ESCALATING BY, AND AGAINST, RUSSIA

Meanwhile, since the invasion on Ukraine, Russian cyberattacks against Ukraine and other European countries have escalated even more, as well as retaliatory attacks against Russia by the West.

Attacks against Russia have been many, performed by a wide variety of operatives, from hackers associated with the Anonymous collective to Ukraine’s IT Army of volunteer hackers set up by the country’s digital minister Mykhailo Federov.

Attacks claimed by Anonymous members have included data leaks and disabled websites of Russian government, news and corporate organizations. Research by Jeremiah Fowler, co–founder of cybersecurity company Security Discovery, working with Website Planet researchers appears to have verified many of these claims. But cybersecurity specialists continue to remind potential anti–Russian hackers of the legal risks and the dangers of counterattacks by Russian operatives.

A few days before the invasion, the European Union deployed a cyber rapid-response team across Europe, after the U.S. and U.K. blamed Russia for cyberattacks that briefly took Ukrainian government and banking websites offline. The team of experts from Lithuania, Croatia, Poland, Estonia, Romania and the Netherlands is dedicated to help defend Ukraine in cyberspace both onsite and remotely.

One of the biggest and most wide–reaching cyberattacks against the West is the sabotage of European satellite internet networks that permanently disabled tens of thousands of SATCOM modems. It began on the day of the invasion, striking major Ukrainian cities,

including military and police networks, but soon spread to other cities in Europe. Thousands of users are still offline.

Google's Threat Analysis Group [reported](#) earlier this month that Russian nation-state threat groups were targeting the networks of Ukrainian and other European governments and organizations.

A threat actor connected to Belarus and possibly also Russia was responsible for [phishing Ukrainian military personnel's email](#) accounts. Later, malicious emails were sent to European government organizations from a member of the Ukrainian armed services, possibly a compromised account from that phishing campaign.

Since a few days after the invasion, [Russian-based phishing attacks and credential harvesting](#) have increased eight-fold against the U.S. and European customers of email cybersecurity firm Avanan.

Noonan said that we can either learn by hindsight or by foresight to do a better job of protecting our infrastructure.

"It took 9/11 to get the hindsight needed to put airline security in place," he said. "And it took 15 months after SolarWinds to get the mandatory breach reporting law that's just been signed into law. But that will take two more years to implement, which is not encouraging. We don't have to have a cybersecurity 9/11 to put critical infrastructure security practices into play; we can and should do this with foresight instead of hindsight."



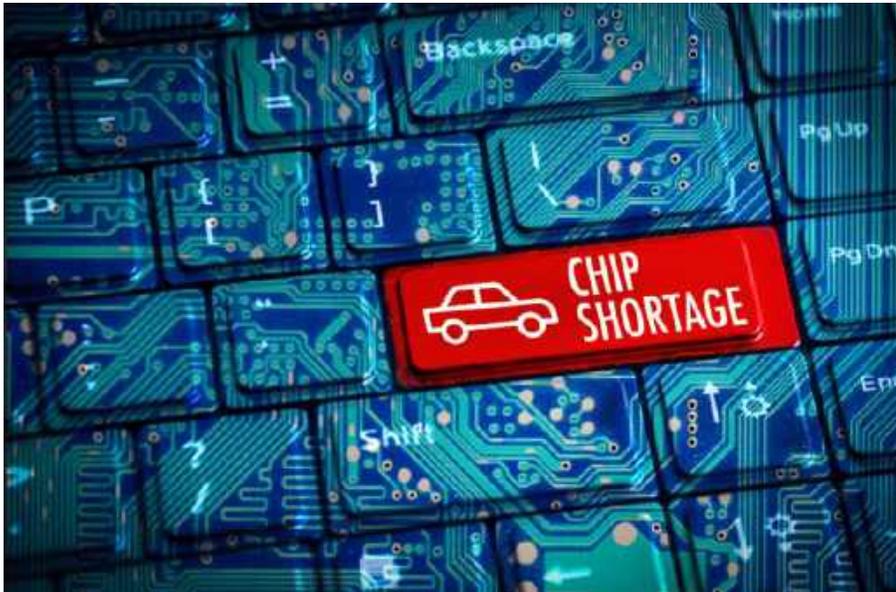
Ann R. Thryft

Ann R. Thryft has written about manufacturing- and electronics-related technologies for Design News, Test & Measurement World, EDN, RTC Magazine, COTS Journal, Nikkei Electronics Asia, Computer Design, and Electronic Buyers' News. She's introduced readers to several emerging trends: industrial cybersecurity for operational technology, industrial-strength metals 3D printing, RFID, software-defined radio, early mobile phone architectures, open network server and switch/router architectures, and set-top box system design. At EBN Ann won two independently judged Editorial Excellence awards for Best Technology Feature. Currently, she is the industrial control & automation designline editor at EE Times. She holds a BA in Cultural Anthropology from Stanford University and a Certified Business Communicator certificate from the Business Marketing Association (formerly B/PAA).

What the Semiconductor Chip Shortage Means For You

By Steven Loveday

<https://www.usnews.com/>



Adrian825 / Getty Images

Perhaps you've already been affected by the automotive chip shortage, and if you haven't, there's a reasonable chance you will be soon. Tens of thousands of cars sit on lots waiting for chips, some car dealers are practically empty and automotive factories have been forced to idle production, at least temporarily.

You've probably been hearing about the chip shortage in the news for some time now. You may also be at least somewhat aware that it means certain car parts are hard to come by these days, and it's impacting companies and individuals across the globe.

While there's a good chance you're aware of the chip shortage, it's less likely you have a comprehensive understanding of semiconductor chips in general. You don't really need to understand these chips to have a grasp of the situation, but it's a start. Beyond the chips, there's plenty to unpack when it comes to the reason for the chip shortage, how automakers are managing it and, most importantly, how it will impact you.

What Is a Semiconductor Chip?

In the simplest of terms, it's a computer chip or an integrated circuit. The semiconductor itself is typically made out of silicon, which conducts electricity, and it's used to develop the chips. The chip is essentially an electric circuit with various components, including transistors, wiring and a silicon wafer.

Whether or not this makes sense doesn't matter as much as the fact that semiconductor chips have become increasingly complex. Over the years, chipmakers have worked to

produce chips that are smaller and more powerful, lowering costs and improving profits and performance. However, the improvements also make them more difficult and time-consuming to manufacture.

Why Do Cars Need Chips?

Like a vast majority of today's products, cars depend on chips more than ever before. Cars are becoming like computers on wheels, and everything from their infotainment technology to their advanced driver-assist systems require chips. Automakers even integrate chips to improve fuel economy, and hybrid and electric cars typically need more chips than traditional vehicles.

That said, many traditional gas-powered cars use "legacy" chips, which are older chips that are larger and lower-tech. Legacy chips are harder to come by right now than the newer, more advanced chips, which we'll explain in greater detail later in the article.

What Is the Chip Shortage?

The chip shortage is not complicated. Basically, the growing demand for computer chips has outstripped the supply. As automakers and electronics companies continue to need a larger number of chips, semiconductor manufacturers simply can't grow their businesses quickly enough to keep up. As chip producers grow and increase output, the broader focus is on the latest technology, so legacy chips become even scarcer.



golibtolibov / Getty Images

What Caused the Chip Shortage?

While the chip shortage can be attributed to multiple factors, the COVID-19 pandemic is the primary cause. At the beginning of the pandemic, automakers shut down factories and

temporarily paused vehicles production. Meanwhile, lockdowns and virtual work and school caused a surge in demand for other electronics.

More people were buying TVs, computers, smartphones, video game consoles and appliances, which meant a need for more chips. Chipmakers started supplying additional chips to meet the demand, and they shifted production to focus more on the newer chips, which are more profitable.

Once automakers reopened factories and started ramping up production, chip manufacturers couldn't supply them with enough chips, because they were all spoken for by electronics companies. Moreover, the chip manufacturers weren't producing as many of the legacy chips, and most cars weren't yet designed to implement the more advanced chips.

To make matters worse, the rest of the electronics industry was willing to pay more for the chips, and they invested in contracts for large numbers of the newer chips. It really didn't make a lot of sense for chip makers to revert back to making less profitable legacy chips for automakers, which would have hindered their ability to satisfy the contracts with companies in the electronics industry.

The chip shortage was also impacted by the fact that newer products require more chips than older products. When demand for electronics skyrocketed early in the pandemic, many companies released new and updated products. Tech-heavy Bitcoin and other forms of cryptocurrency exacerbated the situation, as did political policies that impacted trade with China.

Why Can't Semiconductor Companies Ramp Up Chip Production?

As we previously noted, chips are complex and time-consuming to produce. Chipmakers across the globe are currently working at maximum capacity. The only way to ramp up chip production would be to build more factories and hire more employees.

Chip factories, known as "fabs," require extremely specific environments, so you can't just easily convert any old factory into a fab. In addition, a new chip factory costs billions of dollars and takes years to build. A few years from now, once the new fabs are finally up and running, companies will have to hope there are enough highly trained employees to work at them and quickly ramp up output.

What Are Automakers Doing to Help?

Automakers are going to great lengths to try to manage the chip shortage. They don't want to lose money, and they certainly can't afford to lose loyal customers to rivals.

Most brands have prioritized using the chips that are available in their most popular and profitable vehicles. In the meantime, they've temporarily stopped production of less popular models, and even gone so far as to shut down some factories until more chips become available.

More recently, companies like Tesla and Ford have been removing certain chips from their vehicles, though the vehicles can still be delivered to customers. Some of these chips, or the parts that rely on them, will be installed at a dealer or service centre once they're back in stock. In other cases, certain chips and related vehicle features were eliminated entirely.

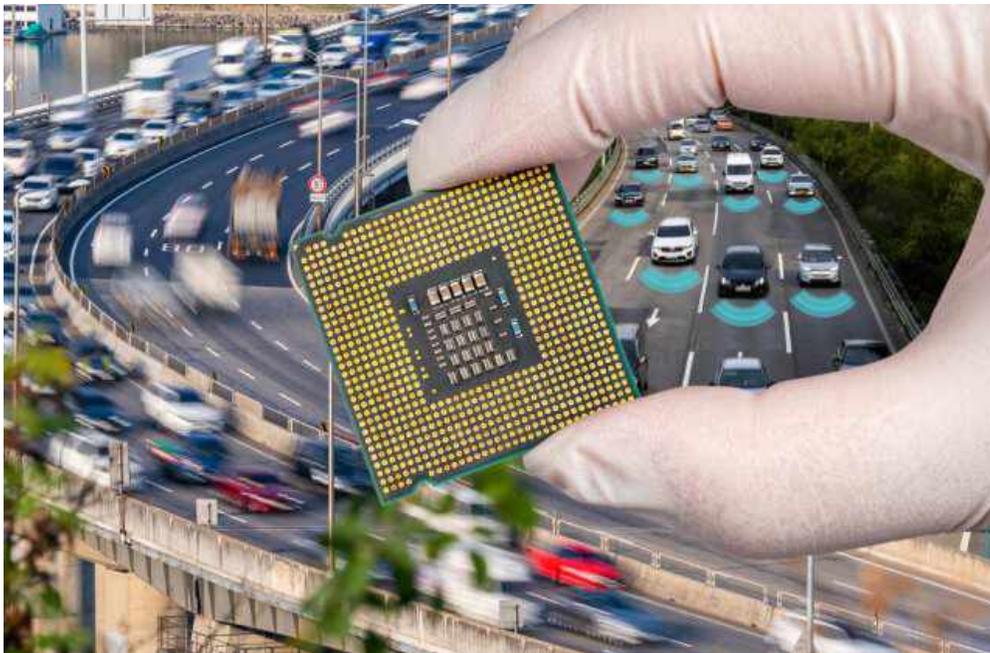
If a missing chip or related part is something that's completely necessary – or there's a potential safety issue related to its removal – automakers are parking the cars in lots until the chips arrive, and then shipping the cars to dealers. As automaker lots are over capacity, some brands are shipping the cars to dealers with missing parts. Those cars will sit on dealer lots until the parts arrive, the dealers install them and the cars can be sold to customers.

In more drastic measures, a handful of automakers have made notable changes to vehicles so they can do away with many of the scarce legacy chips and move forward using the newer chips that are much more plentiful. However, this is a difficult process to undertake in the middle of a vehicle's production. For this reason, it's typically reserved for the newest models or those that are being completely redesigned.

When Will the Chip Shortage End?

The situation is certainly improving, but it could be years before it's back to normal. The good news is that most experts agree the chip shortage isn't likely to get any worse. We've already rounded a corner, and there's light at the end of the tunnel, though there's still likely a long road ahead.

The chip shortage is expected to ease up throughout 2022, but it may not be until the second half of 2023 before it's ready for the history books. However, there's no way to know for sure exactly how it will play out. COVID-19 is still impacting many areas, and new variants are hard to predict. The Russian invasion of Ukraine has also complicated commerce across the globe. Some experts are warning that it could be 2024 before we're completely out of the woods.



Jae Young Ju / Getty Images

What Does This All Mean for You?

Needless to say, now is not the time to be in the market for a car, new or used. Many new cars are completely unavailable, or at least have long wait times before shoppers can take delivery. Since many consumers have had to settle for a second-hand model, used cars are selling at a premium.

At this point, car shoppers should do everything in their power to wait before buying a vehicle. If you have a car you're aiming to replace, attempt to fix it instead. If there's any way you can share a car at home or borrow a car from a friend or a family member, take advantage. If you've had your heart set on a specific brand, model or colour, be flexible. Consider leasing whatever's available as a temporary solution.

For shoppers who have no other choice but to buy a new car as soon as possible, consider a brand's newest products. Brand-new and fully redesigned cars are getting chip priority from automakers. However, models that are in high demand are few and far between, so you may have to choose a vehicle that's less popular or appealing.

It's also important to understand that car prices are rising, incentives are at record lows and some dealers are selling high-demand vehicles at prices way above MSRP. While price gouging is frowned upon, it's increasingly common, and this is especially true amid the chip shortage and serious inflation. Be sure to use our [U.S. News Best Price Program](#) to find the dealer in your area that's offering the lowest pre-negotiated prices.

You may have to call around and search far and wide to find a car that will work for you at a price you can afford. This could mean travelling to a faraway city or even another state to take delivery. It's smart to search for new and used cars online, ahead of time. Our [new cars for sale](#) and [used cars for sale](#) are an ideal place to start.

There's a good chance the vehicle you settle on may not have the features you want, or that you'll have to deal with taking delivery of a car with missing parts or features. This means another inconvenience down the road when it comes time to visit the dealer to have the parts installed or the features activated.

Despite the dire situation, as long as you understand it and you're willing to do your homework and make some sacrifices, a new car is certainly within reach.

SUPPLY CHAIN BALANCE IS AN ELUSIVE GOAL

By Barbara Jorgensen

EETIMES



The latest semiconductor supply crisis is brewing in the manufacturing equipment industry. ASML, the sole producer of critical EUV lithography machines used in fabs, recently announced it can't get enough lenses from its supplier, Zeiss, to fulfil its needs.

The chip industry expects to build 20+ fabs over the next several years to remedy the global semiconductor shortage. Now those factories may face headwinds due to a lack of manufacturing equipment.

Not to rain on anybody's parade, but this might not be a bad thing. For the electronics supply chain, the only thing worse than a shortage is a semiconductor glut.

New fabs advance semiconductor manufacturing and design — they don't just churn out more chips. But as bad as this shortage is, it's worth looking back at the inventory surplus of 2000-2001. It literally changed the way the supply chain conducts business.

The dot.com boom of the late 1990s fuelled demand for internet-enabled everything. Component orders weren't really scrutinized so OEMs and EMS providers with big expectations placed orders across multiple distributors and suppliers. When the internet bubble burst there was a \$13 billion excess of chips alone.

Customers pushed their excess back on distributors and EMS partners that had to write off millions of dollars' worth of inventory. There was rancour among supply partners; component prices plummeted and the gray market thrived. Processes such as JIT, BTO, lean and monitoring buying patterns were gradually put into place.

Ironically, these practices contributed to the current shortage. But just having more chips isn't a solution.

My EETimes colleague Stefani Munoz recently spoke with Tiras Research founder and principal analyst Jim McGregor about the impending fab free for all.

Capacity is only part of the story

"There is definitely a possibility of an oversupply," McGregor said. "Even if demand kept up — assuming there's no economic fallout, no industry correction — we could still be heading there." Intel's currently trying to build four brand new state-of-the-art fabs; TSMC and Samsung also are adding capacity, he noted. "If you add up all of the capacity that could potentially be coming online, we could definitely overshoot it, and it wouldn't be the first time."



Capacity isn't the only problem. Poor

forecasting set the stage for the latest chip crunch. The global supply chain has been upended by Covid and hasn't yet rebounded. Semiconductor materials are in short supply. Contamination recently halted Western Digital's NAND flash output. Around the globe, airports and seaports have been opened and closed; logistics costs are skyrocketing and geopolitics are affecting the flow of goods.

Russia's invasion of Ukraine threatens the global supply of neon which is used in chip manufacturing.

The goal is not just catching up with demand, said McGregor, it is balancing manufacturing. Asia-Pacific is still the hub of electronics production.

"Part of this [buildup] is also rebalancing because geopolitics has gone nuts in the last couple years, and we don't know what's going to happen. Even if we overshoot demand, it's still going to be important to that we have more manufacturing capacity in other regions, especially Europe and North America," he said.

The shortage hasn't been all bad for chip companies. They've been able to raise prices. Revenue continues to rise. There's little downside to insatiable demand — when that drops, it's time to worry.

But for all the talk of agility, ramping production is notoriously slow and factories are a costly, long-term investment. ASML chief executive Peter Wennink notes Zeiss faces the same hurdles. "Once a factory is ready, they need to order the manufacturing equipment; they need to hire people. And then...it takes more than 12 months to make the lens," he told the *Financial Times*.

McGregor is anticipating a correction. "Our economy has been humming along for a long period of time and the pandemic was a blip in terms of any adjustments to demand. If anything, it increased, especially in terms of technology. There is going to be a correction coming, the question is when and how much."

To McGregor's earlier point, fab capacity is also about balance. The number of new fabs may be less important than where those factories are built.

The supply chain exists, in part, to manage supply/demand imbalance. New — and welcome — practices are emerging. Digitization will better connect and inform partners. Distributors are providing supply chain solutions rather than just parts. Engineers consider component sourcing as they develop designs. Contracts focus less on price-reduction goals and more on customer commitment. Sustainability is a common goal.

This time, a chip shortage is the catalyst for evolution.



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NEWS FROM ELECTRONICA

The printed electronics industry drives innovation in many industries

- Internationality at more than 50 percent
- 156 exhibitors from 23 countries
- Smart Living and Mobility as focus topics

In the medical industry or the automotive industry, printed and organic electronics have reached mass products. This is evident at LOPEC, which was held from March 22 to 24, 2022 in the ICM – International Congress Centre München. A total of 156 exhibitors from 23 countries and around 2,000 visitors from more than 35 countries visited Munich for this international exhibition and conference for flexible, organic and printed electronics. The proportion of international participants was over 50 percent.

Reinhard Pfeiffer, Deputy CEO of Messe München, is extremely happy and emphasizes that, “this result impressively shows how strong the printed electronics sector is, and also how important it is for it to have a platform and meeting point, to exchange information and experiences in person. The eagerness of participants and exhibitors to speak with one another directly again was crystal clear and contributed enormously to the event’s success.”

In-person dialog is essential

Alain Schumacher, Chief Technology Officer at IEE, shares the above view in every sense: “LOPEC is THE event for printed electronics worldwide. I am personally very happy that after being physically absent for so long, we finally have the chance to attend in person and exchange with our partners, customers and visitors. LOPEC traditionally brings with it a wide-ranging portfolio of products and solutions. I am so happy to be here this year, among

exhibitors from all over the world, research and technology organizations and everyone involved with the printed electronics industry.” Kathrin Fuss, Global Market and Customer Activation Manager at Henkel, agrees 100%: “Direct contact and interaction with our partners and customers at LOPEC is extremely important for us. We’re over the moon that this is happening live again at this year’s event.”

Printed electronics: “A lot’s been going on”

“Flexible and printed electronics is now a mass product,” says Klaus Hecker, Managing Director of the industry association and LOPEC co-host, OE-A (Organic and Printed Electronics Association), adding: “Walking through the exhibition it was clear that a lot has been happening in the printed electronics industry in the last three years. Flexible displays in cell phones, 3D touch surfaces in cars or household appliances have conquered these markets. The positive vibes you could feel at LOPEC are also reflected in our current business climate survey—more than 76 percent of respondents plan to increase their investments in production for 2022.”

Innovations in mobility and smart living

A lot is also going on with the Mobility and Smart Living focus topics, as Wolfgang Mildner, LOPEC General Chair, confirms: “Research and development in printed flexible electronics made huge progress in the last three years. The progress in the mobility and smart living focus topics in particular was visible in new applications and products—printed electronics enables more and more products and business.”

LOPEC highlights

More than 200 presentations from a total of 23 countries were held at the conference. LOPEC is once again the world’s leading communication platform for technology, solutions, knowledge and research in the printed electronics industry. In the various conference formats, companies such as Heidelberger Druck, Merck, Philips, PolyIC, General Electric Research, KAUST, Sun Chemical or Holst and the University of Stuttgart, among others, presented application examples and trends in the printed electronics industry.

Industry giants visit Munich

Numerous key players also took part as exhibitors, such as Coatema, DuPont Teijin Films, Eastman Kodak, ELANTAS, Operations, Hamamatsu Photonics, Henkel, Heraeus, Kroenert, NovaCentrix, Panasonic, Siemens, Varta Microbattery and others. Alongside Germany, the top exhibitor countries were France, the United States, the Netherlands and Italy.

Manfred Salat, LOPEC Project Manager, puts it in a nutshell: “We’re so happy that after two long years LOPEC is up and running again and offering the industry such a top-notch event. The mood among the participants and the feedback really were simply superb.”



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NEWS FROM THE IPC

Global Supply Chains Feeling Impacts of Russia-Ukraine War

New data from IPC show that the electronics manufacturing supply chain is already feeling the impact of the Russia-Ukraine War.

IPC's April [Monthly Economic Update](#) and [Global Sentiment Survey](#) found that four-fifths of manufacturers expect the war to have a negative impact on commodity prices and transportation costs, while seven in ten anticipate a negative impact on the stock of raw materials.

Among other conclusions, the IPC survey results show:

- The Material Costs Index rose to its highest level, with almost the entire panel reporting rising material costs.
- Manufacturers expect the automotive, consumer, and industrial electronics markets to be most negatively impacted by conflict, while the defense market may be positively impacted.
- Overall demand remains strong. The New Orders Index declined slightly in the last month but remains well in expansionary territory. The Backlog Index also fell slightly.
- Inventories Available to Customers (IAC Index) slipped into contractionary territory this month, suggesting inventory levels are low.
- Inventories Available to You from Your Suppliers (IAFS Index) improved marginally but remains in contractionary territory, suggesting most respondents are experiencing this.

The economic impact will be felt most severely in Europe, with the GDP forecast adjusted downward by nearly one percentage point. The GDP forecast for the United States has been lowered by two-tenths of a percentage point, to an expectation of 3.5 percent growth in 2022.

The Russia-Ukraine conflict is impacting the economy in several ways, including rising energy and commodity prices, with many hitting new all-time highs; and a decline in confidence, which results in reduced spending by consumers and investment by businesses. Bidirectional sanctions are also slowing economic growth.

“Energy and commodity prices are up significantly for three primary reasons: perceived potential shortages, increased stockpiling, and speculative buying amidst the uncertainty,” said Shawn DuBravac, IPC chief economist. “Both the European and U.S. economies are, at least for now, on solid footing and are well-positioned to weather the negative shock of the war, but growth will be hindered.”

IPC surveyed hundreds of companies from around the world, including a wide range of company sizes representing the full electronics manufacturing value chain.

View the full reports:

[April 2022 Economic Outlook](#)

[Current Sentiment of the Global Electronics Manufacturing Supply Chain](#)

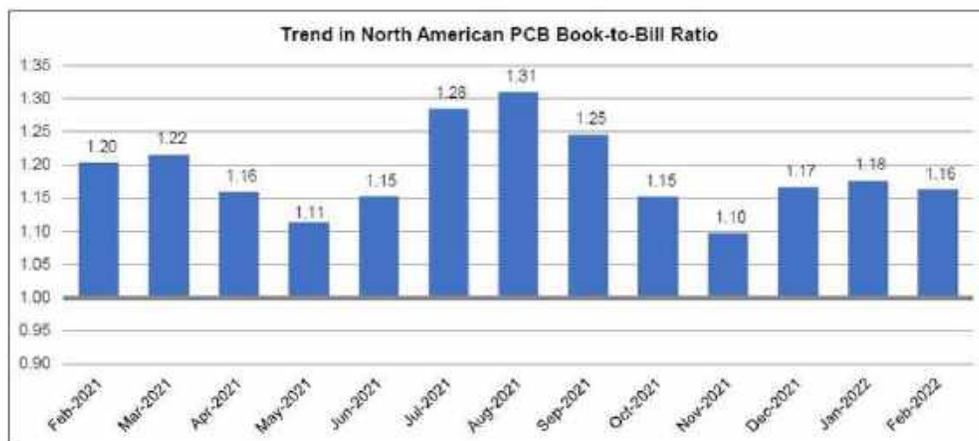
North American PCB Industry Sales Up 12.8% y/y in February as bookings were down 12.6% y/y - IPC

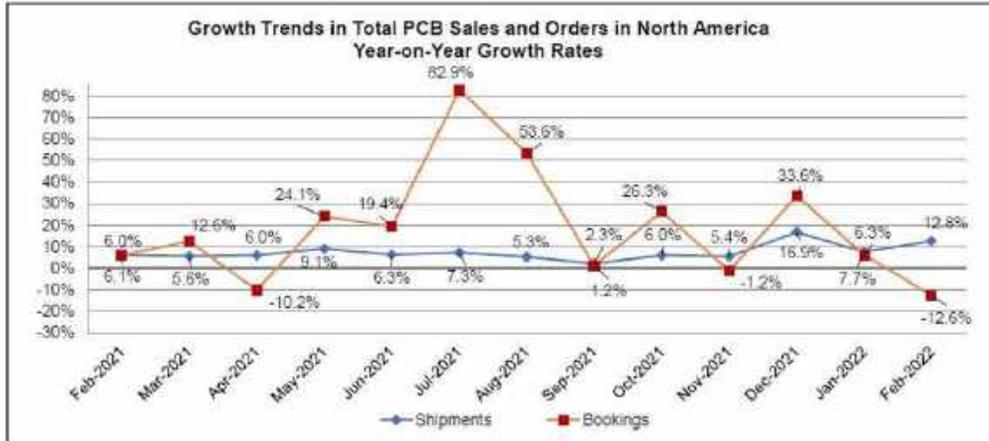
IPC have announced the February 2022 findings from its North American Printed Circuit Board (PCB) Statistical Program. The book-to-bill ratio stands at 1.16.

Total North American PCB shipments in February 2022 were up 12.8 percent compared to the same month last year. Compared to the preceding month, February shipments rose 8.9 percent.

PCB year-to-date bookings in February were down 12.6 percent compared to last year. Bookings in February fell 5.9 percent from the previous month.

“Russia’s invasion of Ukraine exacerbates already strained electronics supply chains,” said Shawn DuBravac, IPC’s chief economist. “February showed strong PCB shipment growth, a hopeful sign that supply chain dynamics will steadily improve.”





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.

IPC Issues Call for Participation for IPC APEX EXPO 2023

BANNOCKBURN, Ill., USA, March 28, 2022 — IPC is now accepting abstracts for technical paper presentations, technical posters, and professional development courses for IPC APEX EXPO 2023. The technical conference will be held January 21-26, 2023, and professional development courses will take place January 24-26, 2023, at the San Diego Convention Center in San Diego.

The industry's premier conference and exhibition for the electronics industry, IPC APEX EXPO provides presenters and their companies with a notable and cost-effective opportunity to promote their expertise and gain visibility with key engineers, managers, and executives from all segments of the industry worldwide.

To recognize exceptional achievement, the IPC Technical Program Committee (TPC) will select top qualifying papers and one top poster for awards. Awards include "Best of Conference," "NextGen Best Paper," "Best Student Research Paper," and "Best Technical Poster."

"We are eager to see the exciting new work from our colleagues in the global electronics manufacturing industry," said Julia Gumminger, manager, IPC professional development and events. "The technical conference and professional development courses are two forums at IPC APEX EXPO where we can advance in a new era of electronics manufacturing by sharing knowledge from experts in all areas of the industry, including design, materials, assembly, processes, equipment, and Factory of the Future."

For technical conference paper presentations and posters, IPC seeks abstracts that describe significant results from research experiments, highlight new techniques or materials, and/or discuss cutting-edge trends and challenges facing the electronics manufacturing industry. Conference speakers are entitled to a free

one-day conference pass for the day of their presentations. Papers will be published in a proceedings document, and both paper and poster presentations will be delivered in person at IPC APEX EXPO 2023 in San Diego.

Technical Conference (Papers & Posters) Timeline

- Abstracts Due — June 20
- Submission Approval/Papers Invited — July 25
- Papers/Posters Due — September 19
- Conference Acceptance — October 24
- Presentations Due — November 21

For professional development courses, IPC seeks abstracts for three-hour sessions of live instruction covering all aspects of electronics manufacturing. Courses can be offered as one 3-hour session or two 3-hour sessions (offered as Part 1 & Part 2 for a total of 6 hours). Honoraria and travel expense stipends are offered to professional development instructors.

Professional Development Timeline

- Abstracts Due — June 20
- Course Approval/New Course Plans Invited — July 25
- Course Plans Due (new courses only) — September 19
- New Course Acceptance — October 24
- Presentations Due — November 21

To submit an abstract, visit www.ipcapexexpo.org/CFP. For more information on IPC APEX EXPO 2023, visit www.ipcapexexpo.org.



The European Institute for the PCB Community

EIPC SPEeDNEWS

Issue 10-April 2022

International Diary

2022

17th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

20 April

EIPC @ HKPCA

7-9 April

Shenzhen

EIPC @ SMT Connect

10-12 May

Nuremberg, Germany

18th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

May

EIPC @ CPCA

18-20 May

Shanghai, China

EIPC Summer Conference

Visit Ericsson Product Development Test Centre

14 & 15 June

Örebro, Sweden

19th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

September

KPCA Korea

21-23 September

Korea

EIPC @ FED Conference

29-30 September

Bamberg, Germany

20th EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

October

TPCA Taiwan

26-28 October

Taiwan

EIPC @ Electronica

15-18 November

Munich, Germany