The European Institute for the PCB Community

EIPC SPEeDNEWS

The Weekly On-Line Newsletter
Issue 2 – January 2023

NEWS FROM AUSTRIA

AT&S technology eases burden on healthcare system through individualised medicine

SteadySense, a start-up based in Styria, has developed a patch using AT&S sensor electronics for continuously monitoring body temperature. The "SteadyTemp" system consists of a high-tech adhesive patch, which is applied to the upper body and permanently and very accurately records body temperature for up to seven days, and a smartphone app to read out the data. SteadyTemp is already available in pharmacies and online shops, and is in the final phase of approval in the USA.

AT&S Leoben – Body temperature can be a valuable indication for doctors when diagnosing diseases. However, selective measurements may sometimes result in misleading information. The start-up SteadySense addresses this problem with SteadyTemp, a smart patch that allows medical professionals to track the development accurately over several days. As a result, infectious diseases such as influenza or corona can be identified early and the effect of antipyretic medication can be monitored in real time.

In a clinical setting, SteadyTemp allows easy and automated temperature readings so that repeated thermometer measurements are no longer necessary and the workload of the nursing staff is reduced. This brings valuable relief for hospitals and retirement homes, in particular during the cold season. Moreover, people prone to disease can use the patch at home in order to identify potential problems early. The temperature curves can be easily transmitted to the family doctor as a PDF file via the app.

Individual care

SteadyTemp is available for purchase in pharmacies and the SteadySense online shop. In Europe, the product has already been approved for clinical use; the approval process of the US regulatory authority FDA is currently ongoing. This marks a great success for medical technology made in Austria: The flexible sensor electronics at the heart of the smart patch is made by AT&S. “Now that the femSense ovulation tracker is already available in the US market, we are currently taking the final steps to also receive the FDA approval for our STEADYTEMP product. This will open up a huge market for which we need a flexible and reliable partner like AT&S to be able to respond quickly to fluctuations in demand,” says Peter Gasteiner, co-founder and COO of SteadySense.

Researchers of the Medical University of Graz, who supported the clinical approval process for SteadyTemp, consider the new development a big step toward individualised medicine for private and clinical settings. “Healthcare systems have increasingly come under pressure over the past years, not just due to the pandemic. AT&S is proud to offer a solution in cooperation with SteadyTemp which can ease the burden on hospitals and nursing staff through targeted monitoring of vulnerable patients,” says Gerald Reischl, VP Corporate Communications at AT&S.

AT&S@CES

AT&S presented advanced V2X modules and other innovations from January 5 to 8 at the CES trade fair in Las Vegas, where the company was represented with its own booth and a team of experts. “CES offers a great opportunity to network and identify current application trends in condensed form,” says Wolfram Zotter, Director Application Engineering of the Electronics Solutions Business Unit, who was on site for AT&S.

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ELECTRONICS INDUSTRY NEWS

CONFIDEE and European PCB Market - Dr. Hayao Nakahara's comments

January 04, 2023
Electronics Manufacturing Daily News January 3, 2023
Headlines

CONFIDEE: The cat's out of the bag – meet Europe's newest PCB company, Vidar Olsen - former Chief Procurement Officer of Elmatica - would lead the new secret PCB player as Chief Executive Officer

This is misleading. It's another PCB trading company joining much larger traders (some production included) such as ICAPE, NCAP and Fine Line (100% owned by Shenzhen Fast Print), all of which have revenue of about $200 million, not necessarily obtained all from the European PCB market.

AT&S is the only European PCB maker which spends millions (EUR 500) to build a new plant (R&D and small production of IC substrates). Unimicron Germany (formerly Ruwel) invested about $10 million to expand and then its parent, Unimicron Technology is wanting to spin it off. KCG mentioned that it is planning to expand its Austrian subsidiary Haeussermann.

According to Michael Gasch (DATA4PCB), about 50% of PCBs made in Europe are for industrial control applications and 15% for automotive (Germany has high automotive applications). PCBs made by PCB makers in U.K. and France are largely for defense/aerospace applications. Germany's defense application is small, less than 5%.
Italy's defense/aerospace application (15%) is the third in rank in Europe.
N. American defense/aerospace application is probably between 42 and 45% ($1.2-$1.3 billion).
H. Nakahara/N.T. Information Ltd

China is losing its place as the center of the world's supply chains. Here are 5 places supply chains are going instead.

China's COVID-19 policies are pushing companies to diversify supply chains away from the country. They had already begun moving out over geopolitical tensions and tariffs from the Trump era.

India, Vietnam, Thailand, Malaysia, and Bangladesh are stepping up to replace the world's factory.

China has been the factory of the world for the past four decades. The pandemic triggered a reckoning of this status.
China's rise as the world's factory spanned four decades and ushered in an era of globalization and integrated supply chains.
That facade started to crumble around 2018 after President Donald Trump launched a trade war against the East Asian giant. This, in turn, has prompted investors to reassess their geopolitical risks.
While some investors did move parts of their manufacturing facilities out of China at the time, it was the pandemic — and China's zero-COVID policy — that drove home the importance of not depending on one country for manufacturing needs.

"The geopolitical tensions, in themselves, may not have resulted into this level of realignment of supply chains, but COVID certainly provided that extra vision, extra fillip, the extra fuel to the fire," Ashutosh Sharma, a research director at the market-research firm Forrester, told Insider this month.

And the effects of the trade war linger. President Joe Biden hasn't put the kibosh on the elevated tariffs Trump imposed on China — in fact, in October, he imposed export controls on shipping equipment to Chinese-owned factories making advanced logic chips. This further burdened a strained relationship.
To navigate this complicated web of US-China trade tensions, multinationals are, now more than ever, looking to hedge their business risks.

Here are five countries where China's supply chains are moving to.

India is trying to unseat China in higher-end manufacturing, with the iPhone maker Apple and chipmakers eyeing its vast land and young population.

With its vast land and large, young population, India is a logical alternative to China as the world's factory.

India is set to surpass China in 2023 as the most populous country, the UN's Department of Economic and Social Affairs said in a July report.

Apple has already moved some of its iPhone production to the Indian states of Tamil Nadu and Karnataka and is exploring moving its iPad manufacturing to the South Asian nation. JPMorgan analysts expect Apple to move 5% of its iPhone 14 production to India by the end of 2022, they wrote in a September note. They said they believed 1 in 4 iPhones would be made in India by 2025.

"India has a large labor pool, a long history of manufacturing, and government support for boosting industry and exports," Julie Gerdeman, the CEO of Everstream, a platform for supply-chain risk management, told Insider. "Because of this, many are exploring whether Indian manufacturing is a viable alternative to China."

The move is easier said than done.

Indian Prime Minister Narendra Modi has been working on attracting foreign direct investments since he took office in 2014, sending FDI to a record $83.6 billion in the past fiscal year, according to government data.

But significant hurdles still exist — even though the Indian government is boosting its appeal for foreign investments, it's harder to do business in the country than in China, partly because of bureaucracy and multiple stakeholders that prolong decision-making.

Vietnam has been undergoing rapid economic reform since 1986, which has yielded significant returns.

As a communist country, Vietnam — like China — has been undergoing rapid economic reform since 1986.

The reforms have yielded results, propelling Vietnam from "one of the world's poorest nations to a middle-income economy in one generation," The World Bank said in a November post.

In 2021, Vietnam attracted over $31.15 billion in foreign-direct-investment pledges — up more than 9% from the prior year, according to the country's Ministry of Planning and Investment. About 60% of the investments went into the manufacturing-and-processing sector.

Vietnam's key strengths are in the manufacturing of apparel, footwear, and electronics and electrical appliances.
Apple has already moved some iPhone manufacturing to Vietnam and is planning to move some of its MacBook production to the Southeast Asian nation.
Other companies that have shifted some of their production lines out of China to Vietnam are Nike, Adidas, and Samsung.

Thailand's FDI rose threefold between 2020 and 2021.
As Southeast Asia's second-largest economy, Thailand has been moving up the value chain in manufacturing and is a production hub for car parts, vehicles, and electronics, with multinationals such as Sony and Sharp setting up shop there.
Sony said in 2019 it was closing its Beijing smartphone plant to cut costs and relocated some of the production to Thailand. Sharp said in the same year it was moving some of its printer production to Thailand because of the US-China trade war.
It's not just international firms. Even Chinese companies have relocated parts of their supply chains to Thailand. Companies producing solar panels, such as Shanghai's JinkoSolar, are moving their production to the island nation to take advantage of lower costs and avoid geopolitical tensions, the South China Morning Post reported in July.
"Setting up manufacturing plants abroad didn't come from [the pursuit of] opportunities, it is more of a strategy to deal with challenges to gain market access," Zhuang Yan, the president of Canadian Solar, said at an industry event in July, SCMP reported.
Foreign direct investments rose threefold to 455.3 billion Thai baht, or about $13.1 million, between 2020 to 2021, the Thailand Board of Investment announced in February.
Bangladesh is already a beneficiary of the supply-chain shift away from China. It now wants a bigger slice of the pie.

Even before the COVID-19 lockdowns crippled China's manufacturing sector, Bangladesh was a rising star in the garment-manufacturing sector.
Bangladesh's rise was primarily due to rising labor costs in China predating Trump's presidency.
The cost difference is large — the average monthly salary of a worker in Bangladesh is $120, or less than one-fifth of the $670 a factory worker takes home in the southern-China manufacturing hub of Guangzhou,

Mostafiz Uddin, the owner of the Bangladeshi apparel manufacturer Denim Expert, told Insider.

“Moreover, rising material costs are pushing apparel companies to look for alternative destinations like Bangladesh where production prices are comparatively low,” Uddin said.
Despite a high-profile building collapse that killed at least 1,132 people in April 2013 and dented Bangladesh’s work-safety reputation, its garment-manufacturing industry is a key pillar of its economy, accounting for nearly 85% of shipments, or over $42 billion of the country’s exports, in 2021. The country is also the world’s second-largest garments exporter, after China.

Bangladesh is now working to attract investments beyond the garment sector into others, including pharmaceuticals and agriculture processing.
Malaysia has for years been eyeing opportunities emerging from companies shifting away from China.

Malaysia has been eyeing opportunities from the manufacturing shift out of China for the past few years.
It has made some headway with the efforts, as it has attracted at least 32 projects that have relocated from China to Malaysia, the Malaysian Investment Development Authority said in July 2020. The authority didn’t provide details of the projects or of the companies that moved.
But even before the pandemic, tech investments into Malaysia had been rising because of lower labor costs and US-China trade tensions. Major deals over the past few years included a 1.5 billion Malaysian ringgit, or $339 million, investment by the US chip giant Micron over five years starting in 2018. Jabil, a US company that makes iPhone covers, has also expanded its operations in Malaysia.
“We knew quite a number that have expressed their intention to shift from China and we have engaged them. The only thing is timing,” Azman Mahmud, then the CEO of the Malaysian Investment Development Authority, told The Malaysian Reserve in 2020.
Malaysia’s FDI inflows hit a five-year high of $48.1 billion in 2021, with manufacturing of electronics and vehicles being the main contributor, according to official government information

Dec 26, 2022
Huileng Tan

Business Insider

Why the Electronics Supply Chain Remains in Flux

January 11, 2023 By Emily Newton

Electronics supply chain uncertainty is perhaps one of the few things the industry's professionals can count on in the coming months. Even after two years of shortages, delays and skyrocketing costs, pinpointing the cause of disruption is not that straightforward.

"Key economic indicators during December continue to paint a conflicting picture about [port delays'] impact on future import volumes and, combined with Covid, the Russia/Ukraine conflict and the West Coast labor situation, continue to point to further disruptions and challenging global supply chain performance in 2023," said the Descartes Systems Group this week.

People are preparing for economic challenges

Economic difficulties can lead to businesses delaying or cancelling plans. Electronics executives may hold off on product debuts and emphasize their most profitable or popular products through a downturn. Consumers may also hesitate to buy higher-end electronics they'd have no qualms about purchasing during more economically stable periods.

A December 2022 economic outlook report from IPC showed a mixed picture. It confirmed industrial production in the United States fell by 0.2 percent compared to November's numbers, representing the second consecutive month of decline. However, consumer goods production in the country rose by 1.8 percent over the past year. Europe showed similar trends of recent declines, but overall output rose by 4.4 percent over the past year.

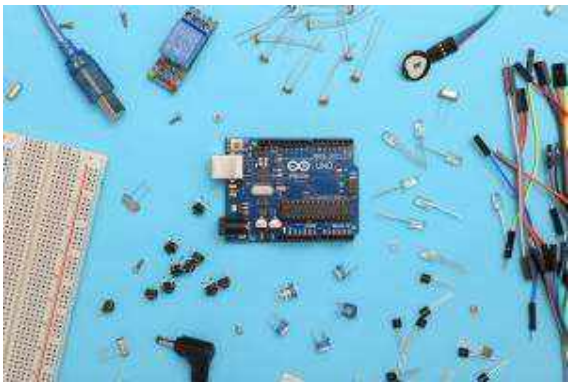
Photo: Sahand Babali

However, there are reports that indicate a surplus of certain categories of semiconductors after those components were in short supply for so long. Both chip makers and electronics goods brands have discussed high inventory levels resulting in slashed sales projections and job cuts.
Many people wonder if the economy will enter a deep recession and if it does, how long it will last. What impact will it have on their daily life and work? Questions like these understandably make individuals worry and delay plans for electronics purchases or new product rollouts. Electronics supply chain uncertainty is a natural consequence that will persist until the economic circumstances become more predictable.

China's Covid-19 crisis could stifle supply chains

China is a significant player in the world's electronics industry. However, the country is dealing with a Covid-19 surge that concerns health officials worldwide. The nation recently lifted its preventive measures to stop the virus from spreading and it didn't take long for case numbers to rise after that. Estimates from Chinese officials indicated 250 million people caught the virus within the first 20 days of December 2022. Even if China no longer has lockdowns, millions of people sick within a relatively short period could easily strain electronics supply chains.
Electronics retail executives believe supply chain slowdowns could happen due to Covid-19 and Chinese New Year breaks. Eric Braganza — president of Haier Appliances India — said China effectively shuts down from January 21 to the first week of February for national celebrations. Braganza added any supply chain disruptions happening in January would likely affect sales into March. That's problematic since spring is traditionally a robust consumer purchasing period.

It's also essential to remember products often require secondary supplies before they reach the market. Improvements to the production of a server rack-mount kit included engineering a compartmentalized

box and protective foam by working with supply chain partners. Many electronic products such as smartphones and video game consoles give people a premium unboxing experience. They require materials that may come from China.

The country exported more than $577 billion in goods to the United States in 2021. That shows why any virus-related challenges in China could quickly impact that country and others.

Supply chain pressure comes in various forms

A significant amount of electronic supply chain uncertainty comes from the fact that there's no single cause affected parties can target to get relief. A report from custom manufacturing company Hubs surveyed respondents to learn about their top supply chain challenges in 2022. Participants could select multiple choices.

The results showed 60.94 percent of respondents mentioned raw materials shortages. Covid-19 was another significant factor for 57.3 percent of those polled. Then, 52.34 percent of people said they had logistics and transportation problems and 38.67 percent lacked the necessary manufacturing capacity. Finally, 41.02 percent of respondents struggled with energy rate increases and shortages while managing their supply chain. The survey had other takeaways, but there's much to learn from those top five responses.

Photo: Jacques Dilles

The main thing is it's hard to predict which issues will be most prevalent for the affected companies. That means supply chain managers must be ready for multiple worst-case scenarios and plan for them as best as possible. Investing in supply chain digitization brings benefits including better visibility and increased automation potential. However, even the most advanced solutions can't solve every problem.

Insights published by Supplyframe's Commodity IQ in December 2022 reinforce how electronics manufacturers face numerous challenges. Supplyframe CEO and founder Steve Flagg explained that while it's becoming easier for manufacturers to source passive components, they

continue facing obstacles. Those include locating raw materials, increased geopolitical tensions, rising energy costs and more.

One finding from the report was a 22 percent decline in global sourcing activity in November 2022 compared with a year earlier. The most considerable decrease concerned programmable logic controllers, for which activity sank by 34.8 percent.

Electronic supply chain uncertainty persists

Instead of counting on a stable supply chain, businesses should do their best to remain agile and adjust to the challenges as they arise. Electronics manufacturers and supply chain professionals should consider investing in digitization, holding inventory of must-have components and redundancy of suppliers. These measures run counter to JIT and lean supply chain practices but they ensure at least some production is possible when the supply chain falters.

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NEWS FROM THE PCB INDUSTRY

Johannes Kepler University (JKU) Linz research team developed the mix to produce biodegradable printed circuit boards that can be used, in simple electronic devices

What do you get from mixing one kilogram of dry beech wood shavings, about 50g of organic full-grain spelt flour, 25g of fine plaster (CaSO4) dust as well as 500g of beech wood–based inoculum?

January 05, 2023
Evertiq

A research team from Austria developed the mix to produce biodegradable printed circuit boards that can be used, in simple electronic devices. The group from the Johannes Kepler University (JKU) Linz put the mix into a flat plastic box and stored it in a dark cupboard. Within weeks, a tissue made of fungal fibres, a so-called mycelium, grew in the box with a paper-like, soft, white to brownish skin.

The process is extremely simple and uses significantly less energy and water than circuit board production with conventional materials. In addition, there are no harmful chemicals used and the circuit boards are compostable.

Electronics production, and this is especially true for printed circuit boards, has always been challenging; it uses rare earth minerals (which come with their own set of problems) and chemicals hazardous to our health. Additionally to that, working conditions in electronics production facilities have been scrutinised for their exploitative nature. It is, mildly put, a controversial topic and we haven't looked at environmentally-damaging chemicals that allow for the separation of some of its component materials during recycling.

Mycelial skins, like conventional printed circuit boards, can be mounted with electronic components. There is no need for new equipment and significant investments are not required. This should – in theory – make the adoption into mainstream electronics production rather easy.

How does MycelioTronics work?

First, a wafer-thin layer of copper or gold is vapour-deposited onto the mycelium. A laser cutter is used to remove the metal wherever it is not needed. What remains are the conductor paths onto which electronic components can then be soldered.
According to the paper in Science Advances, the mycelium skin is both thin and flexible while maintaining strong structural integrity. It's been able to withstand around 2000 bending cycles; it shows only moderate resistance when folded; it insulates electrical currents; and can sustain temperatures that reach 250 degrees Celsius. Flame retardants that are ecologically and health-hazardous do not have to be added.

Real-life applications are – to date – limited in number, but the researchers successfully equipped a matchbox-sized prototype with a moisture sensor, a Bluetooth chip that can send the sensor signal to a laptop or smartphone, and a special kind of battery. However, it is currently impossible to produce multi-layer circuit boards for more complex and compact electronics. A refined formula and – with it – an even smoother mycelial skin could be a game changer: PCBs with several layers and mounted with much smaller components would be the result.
The cycle is closed with the unsoldering and recycling of the components and with the board itself being thrown into the compost. This is an advantage over so-called biopolymers, which are made from renewable raw materials such as starch or milk protein, but need an industrial composting plant and high temperatures. The metals used for the conductor paths will end up in the soil as micro-particles, but in such small quantities that they will cause no harm to the environment.

Karaganda Economic University of Kazpotrebsouz researchers use biodegradable polymers as binders for printed circuit boards (PCBs) is instrumental to advancing e-scrap recycling

A group of researchers from Kazakhstan reports using biodegradable polymers as binders for printed circuit boards (PCBs) is instrumental to advancing e-scrap recycling.

January 4, 2023
Kirstin Linnenkoper
Recycling International

'The use of biodegradable and easily recyclable polymers as binders for printed circuit board manufacturing opens new perspectives for both environmental protection and resource conservation and aims to maximise the recovery of valuable materials like gold and for reuse,' says project lead Arman Tirzhanov of Karaganda Economic University of Kazpotrebsouz.

He estimates that a tonne of used PCBs contains on average 130 kg of copper, 1.38 kg of silver, 0.35 kg of gold and 0.21 kg of palladium. Precious metals can account for more than 80% of the product's economic value.

After conducting tests on a series of PCBs created at the university's laboratory, tetrahydrofuran appeared to be the most efficient solvent for PCB disposal. The

chemical is not classified as a “hazardous” solvent, has no carcinogenic effect and is not prohibited for use in the pharmaceutical industry for the manufacture of medical devices.
Tirzhanov also points out that tetrahydrofuran can be easily distilled from polylactic acid (PLA) and reused. For sample recycling, the PLA-PCB was placed in a container of solvent tetrahydrofuran and placed in an ultrasonic bath. This method allowed complete separation of the binder, copper tracks with electronic components and filler (fibreglass) from each other, without using additional manual, mechanical and thermal processes.

‘The process of the electronic device recycling was completed completely in 30 minutes,’ Tirzhanov concludes. The PLA solution in tetrahydrofuran was evaporated to dryness, in a rotary evaporator in a vacuum at a water bath temperature of 40 °C, resulting in 98% of the chemical being recovered.

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The Weekly On-Line Newsletter

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NEWS FROM THE UK

Join us for the UK's top annual industrial technology show

Southern Manufacturing & Electronics 2023 unites under one roof a rich combination of engineering SMEs from across the UK, continental Europe and beyond. Hosting so many exhibitors operating at the forefront of technology and innovating across a multitude of sectors, the show is an ideal venue for addressing multiple sourcing issues quickly and efficiently, especially in times when supply chains are under pressure.

Celebrating 25 years as the UK's longest running annual industrial technology show, the event brings you thousands of ways to improve performance and productivity, helping industrial companies to maintain momentum and profitability throughout 2023.

Free Technical Seminars - giving you the tools you need to face tomorrow's challenges

With UK businesses now operating in an extremely challenging world, keeping abreast of the latest legislation and management strategies has never been more

important. Presented by leading speakers in their fields, the free programme offers a blend of technical and business topics covering a wide range of issues facing manufacturing businesses today.

Experience on YouTube
Take a look around what Southern Manufacturing & Electronics has to offer in our short video.
Meet over 150 of our exhibitors in the free Official Show Preview magazine.

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IFS2023 Annual Semiconductor Industry Update Webinar ... Registration Now Open
How long will the current industry downturn last? How broad and how deep will it be? How can I gain a strategic advantage over my peers? What fate now awaits the industry in 2023-24? Find out the answer to these and other key questions at Future Horizons' IFS2023 Annual Semiconductor Industry Update Webinar, Jan 17, 2023 - 3pm UK GMT
Why? Founded in 1989, Future Horizons' track record and industry experience makes this a must-attend event for key decision makers in the semiconductor, electronics and all related industries. We always present accurate and insightful analysis at these events backed up by sound data

What You Will Learn
This one-hour broadcast will focus on the chip industry outlook, including:
• How long and how deep will the market bust be
• What is the market outlook for 2023-24
• What are the exposures, vulnerabilities, opportunities, losers and gainers
• What will be the likely downturn repercussions
• How to build resilient strategies and business models

Who Should Attend?
• All companies, small and large, from startups to established market leaders
• Key decision-makers engaged in the design, manufacture, or supply of semiconductors
• Government organisations involved in trade and investment
• Those involved in investing or banking within the electronics industry
• Senior marketing executives planning future marketing strategy

Why Future Horizons?
We have been in the business of forecasting and analysing the semiconductor market for over 56 years and have been a trusted advisor to governments, investors and most of the top global semiconductor firms. Time and time again we have delivered sound advice and saved our clients time and money with our forensic and accurate analysis of the industry.
For a small investment of £150 plus £30 UK VAT you will gain accurate industry insight to make good strategic decisions in these uncertain times
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Ventec Launches Highest Thermal Conductive Metal Base Laminate for IGBT & Power Markets
Ventec International Group Co., Ltd. has launched its latest high thermal conductive metal base laminate VT-4BC designed for use in applications requiring excellent performance in thermal management including super bright lighting, power modules, controllers, motor drives and rectifiers.

With high electrical breakdown strength, VT-4BC is designed to provide unparalleled reliability and improved performance over competing materials. It exhibits a thermal conductivity of 10 W/mK, offering superior heat dissipation even under the most demanding conditions.

In addition to its exceptional thermal performance, VT-4BC also boasts excellent mechanical properties, dimensional stability, and superior dielectric properties. It is also resistant to impact, moisture, and chemicals, making it a reliable choice for the most demanding applications particularly for IGBT and power markets.
The material will make its US debut at IPC APEX Expo 2023 from 24-26 January in San Diego, where visitors to booth 419 can discover the superior performance of VT-4BC alongside the full range of PCB base materials.

Ventec's Global Head IMS Technology, Chris Hanson commented on the release of VT-4BC: "We are proud to introduce a product that provides unparalleled thermal performance and highest electrical breakdown strength. VT-4BC is designed for customers who value reliability and require improved performance over traditional materials. We look forward to showcasing it at IPC APEX Expo in January, where attendees can discover its superior capabilities firsthand."

Ventec International is a world leader in the production of polyimide & high-reliability epoxy laminates and prepregs and a specialist provider of thermal management and IMS solutions. Further information about Ventec's solutions and the company's wide variety of products is available at www.venteclaminates.com

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NEWS FROM THE USA

US debut of Ventec's new range of PCB laminates at IPC APEX Expo 2023

Ventec International Group Co., Ltd. (6672 TT) will be launching a range of new PCB laminate and prepregs at the IPC APEX Expo in San Diego, CA. Between January 24th and 26th, visitors to booth 419 will be invited to discover Ventec's latest tec-speed materials and a next-generation metal base laminate with exceptional thermal conductivity at their North American debut. Ventec's comprehensive range of high-reliability PCB laminate and prepreg solutions will also be highlighted to the US manufacturing industry at the annual expo.

Ventec's expanding range of PCB materials is designed to meet the technology needs of the PCB manufacturing industry. With laminates specifically developed for use in demanding conditions, Ventec's products provide reliability and high-performance, supported by Ventec's fully controlled and managed global supply chain to ensure dependable delivery even in an unpredictable worldwide landscape.

US-Launch of new laminates and prepregs

With its US debut at APEX, Ventec will be showcasing new additions to its tec-speed and tec-thermal ranges.

tec-speed 30.0 - VT-6735 - With a thermal conductivity of 1.15 W/mK, this laminate provides excellent thermal performance in applications operating at elevated temperatures. It also features a low dielectric constant (Dk) of 3.5, good insulation resistance and high dimensional stability for reliable operation over time.

tec-speed 20.0 - VTM-1000i - a new hydrocarbon laminate with excellent thermal reliability and incredibly high Dk (9.8) and low Df (0.0023). The material can be supplied bonded with or without a metal (aluminium or copper) base plate heat sink. tec-speed 20.0 VTM-1000i represents the top-tier option for use with satellite communications systems, GPS antennas, and other RF and microwave circuitry.

tec-speed 6.0 H-PK - VT-770/VT-770 (LK) - a halogen free and high thermal grade laminate/prepreg material that offers excellent performance in high temperature and harsh environmental applications. It offers an extended temperature range, making it reliable and resistant to thermal cycling. VT-770 (LK) features a low dielectric constant which helps minimize crosstalk in high-speed signals and is halogen free, making it an excellent choice for lead-free and environmentally friendly products.

tec-speed 6.0 - VT-462SH NF/LF - an ultra-low loss No Flow/Low Flow material designed to meet environmentally friendly requirements. It has good bonding and thermal performance in heat sink bonding and rigid-flex board applications, and it has a small flow range with consistent lamination.

VT-4BC - a high thermal conductive metal base laminate designed for use in applications requiring excellent performance in thermal management. With excellent mechanical properties, dimensional stability, and superior dielectric properties, the material is resistant to impact, moisture, and chemicals, making it a reliable choice for the most demanding applications.

Further highlights at the show:

autolam - developed for the automotive industry

Ventec's premier set of PCB base material solutions that are specifically curated for the diverse and unique requirements of automotive applications.

aerolam - working for aviation, aerospace, and defense applications

A dedicated portfolio developed by Ventec to cater for the complete spectrum of aviation, aerospace, and defense applications, aerolam offers high-quality solutions for these demanding industries.

Professional Development Sessions

Our Senior Director of Business Development, Paul Cooke will be presenting three Professional Development Sessions in the run up to the show on Sunday 22nd and Monday 23rd November. His subjects focus on "Process Flow and Associated Defects" and "PCB Design for High Reliability".

With products that cater for very exacting markets, including the defense and aerospace sector, and the automotive industry, Ventec's range includes options for multiple applications across a range of budgets.

"The US manufacturing industry is of prime importance to Ventec. We are expanding our specialist and dedicated team focused on delivering our world-class products with similarly world-class expertise and support," said Mark Goodwin, COO EMEA & America. "Our recent growth includes two exciting appointments in recent months, with both Chad Wood and Paul Cooke having joined our team as Director OEM Sales

and Business Development, and Senior Director of Business Development respectively. We look forward to welcoming visitors to our booth in San Diego to discuss all the latest developments in our laminates range."

Ventec International is a world leader in the production of polyimide & high-reliability epoxy laminates and prepregs and a specialist provider of thermal management and IMS solutions. Further information about Ventec's solutions and the company's wide variety of products is available at www.venteclaminates.com and/or by downloading the Ventec APP.

News from WECC members

WECC World Electronic Circuits Council

Issue 2 – January 2023

NEWS FROM THE IPC

The Countdown Is On. Register Today!

Discover the newest innovations and hear from the best minds in the electronics manufacturing industry. **IPC APEX EXPO 2023** is our industry's largest event in North America, featuring a world-class trade show, cutting-edge technical conference, professional development courses taught by industry experts, non-stop networking and more. Join us in San Diego, California, January 21-26 to:

- Experience the largest **show floor** in North America for the electronics manufacturing industry
- Advance your skills with the latest **professional development courses** and **technical conference presentations**
- Enjoy new **keynote luncheons** led by popular thought leaders
- Attend **IPC E-TEXTILES 2023** co-located at IPC APEX EXPO for the first

time

- Expand your network at the new Career Connections Networking event and during a multitude of other **networking opportunities**

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Advance Your Knowledge and Gain a Competitive Edge

IPC APEX EXPO 2023 prepares you for an ever-changing industry with courses and technical presentations that keep you current and positioned for efficiencies and growth.

Here's a sneak peak of what to expect from subject matter experts:

S-30 | Advanced Packaging and e-Mobility Infrastructure, Two-Part Special Session

Brian O'Leary, Global Head of e-Mobility & Infrastructure at Indium Corporation

For the first time, key stakeholders in the e-Mobility Industry are coming together—OEMs, supply chain, regulators, policy and technology experts—to discuss collaborative-based solutions to the many industry challenges.

PD27 | Introduction to Machine Data Analytics in the EMS Industry

Tim Burke, Ph.D., Co-Founder and CTO, Arch Systems

Mr. Burke teaches all engineers and others working on the shop floor how to analyze and leverage factory equipment data to solve factory problems and work more efficiently.

PD20 | Electronic Textile Evaluation, Methods for Product Engineers and Designers

Madison Maxey, Founder and CEO of LOOMIA

Designers and engineers will gain an understanding of how new electronic textiles compare with more traditional tools and the advantages of incorporating this new technology in their product manufacturing.

PD02 | Customer Contract & Legal Boot Camp for Engineering Professionals

Allen Anderson, Attorney, F&B Law Firm, P.C.

This course helps professionals without legal or contract administration backgrounds understand the most important attributes of customer contracts, why they are important and how to achieve the appropriate allocations of risk.

Watch Now

IPC APEX EXPO 2023 is Almost Here.
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Best Technical Papers at IPC APEX EXPO 2023 Selected

BANNOCKBURN, Ill., USA, January 12, 2023 — The best technical conference papers of IPC APEX EXPO 2023 have been selected. Voted on through a ballot process by members of the IPC APEX EXPO Technical Program Committee (TPC), the paper authors will be recognized during show opening remarks on Tuesday, January 24.

“All of the papers making up the 2023 IPC APEX EXPO Technical Conference

represent the highest quality technical content from authors around the world,” said Stan Rak, co-chair of the TPC. “The diversity of the presenting authors is also impressive: 18 countries are represented by presenting

authors. Fifteen authors are next generation -- five years or less in the industry -- and 27 presenting authors hold doctoral degrees. The commitment to quality is reflected in this year's selection of Best of Conference, NextGen, and Best Student Research papers. We extend our congratulations to all the award winners."

Taking top honours in the Best of Conference category, the winning papers are:

- “Risk Prediction of Electrochemical Migration on Electronic Control Units – A Practical Approach” by Lothar Henneken, Ph.D., Robert Bosch GmbH. This paper will be presented during Technical Conference Session S25: QRTI-Assembly Risk Prediction and Failure Analysis, on Wednesday, January 25.

- “Root Cause Analysis and Risk Assessment of Multilayer Ceramic Capacitor Flexural Crack Propagating Fault” by Eric Campbell, IBM Corporation. His co-authors are Jennifer Bennett, Jim Bielick, Mehdi Hamid, and Kevin O’Connell, IBM Corporation This paper will be presented during Technical Conference Session S13: QRTI -- Printed Board Reliability, on Wednesday, January 25.

- “High-Resolution Physical Analyses of Microvia-Target Pad Interfaces” by Dr. Martin Leung, Ph.D, The Aerospace Corporation. His co-authors are Scott Sitzman, Eric Frasco, Zachary Lingley, Ph.D., Gary Stupian, Ph.D., James Parke, and Shawn Ashley, The Aerospace Corporation. This paper will be presented during Technical Conference Session S11: HDI1 -- Microvia Analysis and Modeling, on Tuesday, January 24.

The NextGen best paper is awarded to:

- “Temperature Behaviour of FR4 Substrates when Processing during Laser Depaneling” by Patrick Stockbruegger, LPKF Laser & Electronics AG. His co-author is Stephan Schmidt, LPKF Laser & Electronics Inc. This paper will be presented during Technical Conference Session S09: A-LASER Assembly Laser Processing, on Tuesday, January 24.

Selected for the Student Research award, the best paper is:

- “Solvent Free Copper Extraction” by Derek Lovejoy, University of Massachusetts/GreenSource Fabrication LLC**.** This paper will be

presented during Technical Conference Session S08: BF-MAT-2 Printed Board Platings and Finishes 2, on Tuesday, January 24.

All technical conference papers were evaluated using a stringent peer review process examining their technical content, originality, test procedures and data used to deduce conclusions, quality of illustrations and the clarity and professionalism of writing as well as value to the industry.

To register for the IPC APEX EXPO technical conference or for more information on all the activities taking place, including professional development courses, exhibition, keynote presentations, networking activities and more, visit www.IPCAPEXEXPO.org

NEWS FROM THE TPCA

PCB material factory inventory digest - The market situation bottomed out in the first half of the year

January 11, 2023
TPCA

In 2022, the market situation reversed, especially the demand for many consumer electronics was sluggish, PCB upstream material manufacturers were not small, although the first quarter of the new year due to the traditional off-season and few working days, the expected market conditions are still weak, but the industry is optimistic, the inventory in the first half of 2023 will continue to degrade and bottom, coupled with new server platforms, automotive electronics and other products still bring support to the operation in 2023, and the follow-up operation can be expected to gradually recover.

The PCIe Gen 5 server platform Intel Eagle Stream and AMD Zen4 Genoa pull goods, and high-frequency and high-speed copper foil substrate suppliers Taiwan Optoelectronics and Lianmao are expected to benefit.

Tenhui is optimistic that the demand for military industry and aerospace is not weak, and the automotive supply chain will benefit from the unblocking of China, which will gradually improve. Flexible copper foil substrate manufacturers Taihong and Yadian expect consumer electronics to bottom out and slowly recover in the first half of 2023 after a long period of inventory decomposition. The tin products factory mentioned that the company's inventory adjustment to the bottom in

January, the worst situation has passed, and it is expected that in 2023, driven by new products, the strength is better than 2022.

According to the statistics of the Taiwan Circuit Board Association (TPCA), in November 2022, the revenue of listed PCB raw material manufacturers decreased by 1.6% month-on-month and 30.31% year-on-year, and the cumulative revenue in the first 11 months decreased by 9.86% annually. Although the overall decline is still showing, many of them showed monthly revenue growth in November, which smelled of bottoming out.

Jinju previously mentioned that the high growth brought about by the epidemic also began to be corrected in 2022 after the epidemic, but at the end of the third quarter, it has gradually seen the correction succeed, the demand for vehicles has rebounded, and the new server platform has also pulled a small amount of goods in the fourth quarter. Although there are still many variables in the market in 2023, it seems that 2022 is the trough, and as the industry gradually enters the best situation, driven by the start of shipments of new server platforms, it is expected that 2023 is better than 2022.

The reversal of market demand and the collapse of international metal prices have affected the profit of the rising trade due to the high price of inventory, but the company pointed out that including active inventory removal, bargain hunting, and the stabilization of international tin prices, it is expected that inventory prices will return to the market in January.
In addition, there will continue to be new products such as low-temperature tin and recycled tin in the future, and Sheng Trade Le will definitely be better in 2023 than in 2022. (News source: Business Times)

EIPC SPEeDNEWS

Issue 2 – January 2023

International Diary

2023

EIPC Winter Conference
Visit Bugey Nuclear Power Plant
9 & 10 February
Lyon, France

21st EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
April

EIPC @ SMTconnect
9-11 May
Nuremberg, Germany

EIPC Summer Conference
15 & 16 June

22nd EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
September

23rd EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
October

EIPC @ Productronica 2023
14-17 November
München, Germany

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