



The European Institute for the PCB Community

EIPC SPEeDNEWS

The Weekly On-Line Newsletter from the European Institute of Printed Circuits.

Issue 1 – January 2018

NEWS FROM THE EIPC

Ventec's Thomas Michels elected to EIPC Board of Directors



Ventec International Group is pleased to announce that Thomas Michels (Managing Director, Ventec Europe) has been elected to the Board of Directors of the EIPC, effective immediately. Mr. Michel's appointment expands the Board to 15 members from around Europe who as a group continue to accurately reflect the role of the

Institute throughout the value chain of Europe's electronic packaging and interconnection industry.

"Thomas's extensive experience in the electronics manufacturing industry will add a valuable perspective to our Board of Directors," said Alun Morgan, Chairman of the EIPC. "We appreciate his willingness to serve as a director and look forward to benefitting from his contribution towards the future growth and direction of the EIPC."

"Over the past 10 years, Ventec has built a strong foothold in Europe with fully equipped service centers and almost 50 employees.

It is a great honor to be elected to the Board of Directors of the EIPC and a reflection of our continued commitment to the European market,” said Thomas Michels.

Thomas Michels is Managing Director at Ventec Europe and a shareholder of Ventec International Group. In his role as Managing Director, Thomas has overall responsibility for all European operations, supply chain and sales & marketing activities as well as leading the company’s global non-CCL/consumables business. His operational responsibilities also extend into India.

In 2003, Mr. Michels founded TMT Trading GmbH, a leading global distributor of flexible laminates (ThinFlex/Arisawa) and drill materials, which merged with Ventec International Group in 2016 to offer a one-stop-shopping solution for Ventec’s European and American customers.

Prior to these roles Mr. Michels worked for Cimatec and Du Pont.

He is an active member of the steering committee/board of ZVEI’s PCB und Electronic Systems division (German association for manufacturers which represents the interests of the high-tech industry) and a regular presenter and keynote speaker at important European industry events.

Further information about Ventec’s solutions and the company’s wide variety of products, is available at www.ventec laminates.com and/or by downloading the Ventec APP.

EIPC IN THE TOP TEN!

EIPC were quite naturally delighted to read that when I-Connect007 published their 10 Most Read Articles for 2017, EIPC events & people came in at 9 & 10. What better a way to start 2018!

9. Global Impact on European PCB Fabrication: EIPC Summer Conference 2017, Day 1

Electronics industry professionals from 13 countries, mainly from Europe and Scandinavia, others from the USA, but some from as far away as India and Japan, gathered in Meriden, the centre of England, for the EIPC Summer Conference.

10. Better Together: How HDP User Group Showcases the Industry's Best Side

HDPUG is a non-profit trade organization comprised of members from top companies in the electronics industry, from materials suppliers and manufacturers, to OEMs and end users. Key activities include collaborating on issues facing multiple industries and bringing people together on projects who might not have met otherwise. Barry Matties met HDPUG's European representative and project facilitator Alun Morgan at the recent EIPC Summer Conference to learn more about the group and current projects.

Thank you, I-Connect007 and your readers!



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ELECTRONICS INDUSTRY NEWS

The Big Tech Trends to Follow at CES 2018

By **BRIAN X. CHEN**_NEW YORK TIMES



CES, the giant tech trade show, provides a window into emerging tech trends.

Imagine this: When you leave the house, your air conditioner and lights turn off automatically. Then when a motion sensor detects a person in the house, like your house cleaner, it sends an alert to your phone. When you arrive home, a camera recognizes who you are and the door automatically unlocks.

Automated technologies like these will be at the forefront of [CES](#), one of the world's largest tech conventions, next week in Las Vegas. They underline one major trend: Increasingly, the innovations that are making their way into your personal technology aren't physical electronics or gadgets at all.

The real star is artificial intelligence, the culmination of software, algorithms and sensors working together to make your everyday appliances smarter and more

automated. It is A.I. that is telling the door to unlock when the camera recognizes you, or sending an alert to your phone when sensors detect a person.

“It’s less about the hardware, and more about what’s inside,” Carolina Milanesi, a technology analyst for Creative Strategies, said about the prominence of artificial intelligence and software innovations at CES. For consumers who are dazzled by flashy new devices, A.I. is never as exciting, she said — but it’s the magic that is making hardware evolve.

That artificial intelligence will take centre stage at CES also speaks to how the event has changed in the last few years. It has become less of a venue for tech companies to unveil splashy new products like smartphones or computers, and instead has turned into a showcase for nascent technologies.

an expect from next week’s show.

Alexa and Her Counterparts

[Alexa](#), Amazon’s intelligent assistant that listens to your voice commands to play music, order diapers and place a phone call, will be everywhere at CES



Amazon said last month that it sold tens of millions of Echo devices, which feature the Alexa assistant, over the holiday season. The technology will be everywhere at CES.

Smaller tech companies have teamed up with Amazon to bring voice-controlled smarts to their products. Devices like light bulbs, car stereo accessories, robovacuums, home security systems and even coffee makers will work with Alexa. In addition, thousands of companies have developed “Skills,” or third-party apps, that work with Alexa voice commands. Sonos, a premium audio brand, recently released a speaker with Alexa functionality built in.

What’s fueling interest in Alexa? Amazon’s success with Echo, the smart speakers enabled with the personal assistant. Amazon said last month that it sold tens of millions of Echo devices over the holiday season. Strategy Analytics, a research firm, [estimates](#) that 68 percent of voice-controlled speakers sold last year worked with Alexa.

Other tech giants want a piece of the pie, too. In 2016, Google introduced [Home](#), an artificially intelligent speaker to rival the Echo. The search giant will have a large presence at CES, where the company is also expected to highlight accessories that work with its Home speaker and Google Assistant.

Apple this year will release HomePod,, a speaker that relies on Siri, the Apple assistant, to control some smart home accessories. And Samsung Electronics, the South Korean manufacturer, is expected to unveil a major upgrade for Bixby, its virtual assistant, later this year. “If I had to make a bet, it’s the year of A.I. and conversational interfaces,” said J. P. Gownder, an analyst for Forrester Research.

Smart Cities

Nowadays, it’s easy to shop for high-quality internet-connected home accessories, like light bulbs, thermostats and security cameras. At CES, Samsung is even planning to introduce a smart refrigerator at the electronics show that can listen to voice commands to control other home accessories.

Now tech companies are looking to push internet connectivity beyond products in your home.

Consider parking spaces that can sense whether cars are occupying them, and can then alert people when spots free up. Or a garbage can that can notify a waste collection facility when the container is full, or street lamps planted throughout a city that could monitor air quality.

“You’ve seen the smart home,” Mr. Gownder said. “The smart city is elevating that to the next level.”

Deloitte, the consulting firm, has been making a [big push for smart cities](#). It envisions a future where a multitude of sensors work together to create a healthier, safer and more energy efficient town. Sensors in a river could detect pollution like leaks from chemical plants, and sensors that detect the sound of a gunshot could be used to alert the police, for example.

Next week, companies will demonstrate prototypes of devices embedded with some of these sensors with the hope that cities will soon begin adopting these technologies within their infrastructure.

Smarter Cars

Self-driving-car enthusiasts like Elon Musk, the chief executive of Tesla, dream of a future where driverless cars eliminate traffic accidents while letting people do work on their commutes. They can keep dreaming: Autonomous vehicles still have a long way to go before they become safe and properly regulated.



Tech and car companies will demonstrate new features for internet-equipped cars at CES.

“Your car doesn’t drive itself, at least not reliably for a long period of time,” said Ms. Milanesi of Creative Strategies. Still, at CES, carmakers like Ford, Hyundai, BMW and Audi are expected to show off the latest improvements to self-driving tech, like smarter parking assistance and less error-prone collision avoidance. These are baby steps toward truly driverless vehicles, but some features may appear in cars in the coming years.

Likely coming sooner is the so-called connected car. Tech and car companies will demonstrate new features for internet-equipped cars, like the ability to pay for parking and gas through a dashboard or cameras that enhance a driver’s side and rear vision. At the trade show, Gentex Corporation, a company that develops car technology, will [demonstrate](#) in-vehicle biometrics that scan a driver’s iris to verify his or her identity before turning on the car.

Next-Generation Wireless Technology

As a growing number of devices rely on artificial intelligence, they will require faster bandwidth speeds. At CES, wireless companies like AT&T and Verizon are expected to give progress reports on so-called [5G](#), the fifth-generation network technology.

With 5G, wireless carriers envision an era of incredibly fast speeds that let smartphone users download a movie in less than five seconds — roughly 100 times faster than the current network technology, 4G. Even more important, 5G is expected to greatly reduce latency to let devices communicate with each other with extremely fast response times.

(One caveat: the wireless industry is not expected to roll out 5G until 2020. Telecom equipment makers and tech companies are still fighting over which of their technologies should be standardized globally.)

So [why should you care](#)? All of the above — the smart city, the driverless car and smarter artificial intelligence — will need extremely fast response times for devices

to work reliably. The chief example is driverless cars, which will have to communicate with each other practically in real-time to avoid collisions. "It could be foundational to the next generation of advancements," said Greg Roberts, an executive at Accenture, a tech consulting firm. "You're going to see more talk around the potential of 5G to remove the barriers around bandwidth."

IFS2018 - Future Horizons' SC Industry Outlook & Forecast

At last year's IFS, we correctly forecast the 2017 capacity shortages and start of the so-called industry super-cycle, at a time when all other analysts were predicting low single-digit growth.

We were also the first to predict the market would exceed US\$400b and the first to predict 20% plus growth.

Entering 2018, we find ourselves again out on a limb with our belief the current recovery has nowhere near run out of steam whereas all others are predicting low 2018 growth. Yet barring a nuclear war or financial industry meltdown, continuing strong revenue growth is all but inevitable.

Find out the facts and start 2018 armed with the proven industry analysts' view at Future Horizons annual market outlook and forecast, Tue 16 Jan at the Holiday Inn Kensington Forum, London SW7 4DN, UK, 10:30am-4:00pm (Registration from 10:00am). See attachments for full details.

Now in its 29th year, Future Horizons' twice-yearly forecast events are a vital link to provide industry with high quality, cost effective, market research together with the analyses and reasons why. Whether a seasoned veteran or industry newcomer this event is invaluable to executives from the semiconductor, electronics and related industries. Delegates will receive copies of all the material presented in both binder and electronic format.

Can't Attend?

No need to miss out, buy the proceedings instead. The seminar can also be held in-house for your convenience, please [call](#) for further details.

Register Now

To reserve your place [call](#) (+44 1732 740440), e-mail (mail@futurehorizons.com), on-line (www.futurehorizons.com) or by post (44 Bethel Road, Sevenoaks, Kent TN13 3UE, England)

Malcolm Penn
Chairman & CEO



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NEWS FROM GERMANY

Atotech celebrates the sale of its 888th electrolytic copper plating line

Atotech, a leading global provider of chemicals, equipment and services for the specialty plating industry, announced the sale of its 888th electrolytic copper plater which goes to Evertek Electronic (Kunshan) Co. Ltd., China. Manufactured in Feucht, Germany, the plater is currently on its way to China where it will be installed at the end of 2017. The anniversary plater is a Uniplate® Cu 24 InPulse® 2 plating system. It operates on a UTS-s transportation system at a speed of 1.0 m/min to provide flash copper, BMV and through-hole filling for HDI mobile printed circuit boards which will be supplied to local Chinese smartphone OEMs.

Uniplate® is Atotech's leading horizontal mass production system for the pretreatment, metallization and electrolytic copper plating of demanding HDI PCB and IC substrates. A key advantage is the low chemistry and water consumption, as well as the reduced waste water results. Another highlight is the very high productivity and yield performance, which makes Atotech systems the production



Installed in Feucht, Germany, the 888th plater is ready for shipment

solution of choice. Uniplate® in the market is known as energy and cost efficient system that can be applied to a wide range of board types at high throughput rates. In particular, Uniplate® Cu24 InPulse® 2, which is being delivered to Evertek Electronic (Kunshan) Co. Ltd. is equipped with unique rectifiers for pulse plate operation, ensuring that the highest rates of productivity, as well as the best throwing power performance and uniformity are achieved.

With the anniversary plater Atotech celebrates its long-standing relationship with the Kingboard Chemical Holdings Ltd. and is very proud to deliver the first total production solution to Evertek Electronics Co. Ltd., a subsidiary of Kingboard Chemical Holdings Ltd. Over the past years, a total of 17 equipment lines – including 10 platers – were manufactured and delivered to the PCB companies of the Kingboard Group. “It is a great honor for us to deliver this anniversary plater to a company with whom we have such a good long-standing relationship. The figure “8” in Chinese stands for infinite luck and wealth, something we wish for our customers. So plater number 888th symbolizes very special fortune,” states Chen Chen, System Manager Electronics Equipment at Atotech Asia Pacific Ltd.

Mr. Wang Shengwen, General Manager of Evertek Electronic Co. Ltd., added “Atotech’s Uniplate® Cu24 InPulse®2 for BMV filling will contribute to our any-layer production process, help us improve our plating capability, and further strengthen our market position in the industry. We value this fruitful cooperation with Atotech, and look forward to an even deeper partnership in the future.”

The sale of the 888th plater represents yet another highlight of Atotech’s success story, which looks back on nearly 30 years of innovation, continual research and development, in addition to a well-established global sales and service network. The company prides itself on a successful history in equipment sales – and not only of electrolytic plating systems. To date, more than 1,600 Uniplate® and 230 Horizon® systems have been sold and installed, a success made possible by close partnerships and enduring positive relationships with customers.

The origins of the Uniplate® system can be traced back to 1988, when Atotech sold its first plater, a Uniplate® Cu3, in Germany. In 1991, sales were also made in Europe and Asia, and the 100th plater, a Uniplate® Cu18, was sold to Samsung in 1997. In 2006, only nine years later, Atotech sold its 400th plater – a Uniplate® Cu24 IP2 for BMV filling and panel plating – to Ibiden in China. The 500th plater was sold in 2008 to CCTC in Shantou, China; and three years later, the 600th plater was sold to AT&S in Shanghai, China. By the end of 2013, another 150 platers were sold, and the 750th plater, a Uniplate® Cu18 IP2 for superfilling, was delivered to Zhen Ding Technology Holding Limited (ZDT), part of the Foxconn Group. Since then, Atotech has sold an additional 133 platers and is proudly celebrating the sale of the 888th plater to Evertek Electronic Co. Ltd.!

Evertek Electronic Co. Ltd. is a subsidiary of Kingboard Chemical Holdings Limited, one of the world’s major laminate producers and a leading printed circuit board manufacturer and chemical products supplier in China. Kingboard Chemical Holdings Ltd. is considered to be one of the leading Tech 100 companies (Bloomberg Businessweek, 2010). Evertek Electronic Co. Ltd. applies its technology to both single-layer and any-layer HDI boards, targeting products and services in the high-end segment such as mobile phones, tablet PCs, and network devices.



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NEWS FROM THE NETHERLANDS

DECT has been the de-facto standard for residential and business cordless phone communications worldwide since its creation. Operators have globally implemented DECT in their networks. Now, with the astonishing growth and impact of IoT (Internet of Things), ULE technology has been developed as an extension of DECT, hence Voice of IoT.

This offers operators the possibility to transform millions of existing DECT installations in homes and businesses into secure, cost-efficient and versatile Internet of Things gateways for the implementation of smart automation, security and climate control scenarios in residential, healthcare and enterprise environments.



This conference addresses recent business and technology developments in both DECT and ULE globally, and will give more insight in the possibilities for operators, service providers, soft- and hardware manufacturers how they can benefit from both.

Many IoT Applications often involve wearable devices and/or small embedded systems with no touchscreens. In these situations voice control is of paramount importance. [ULE](#) is the only IoT standard in which voice is embedded, since ULE is based on DECT (Digital Enhanced Cordless Telecommunications) which is the de-facto standard for residential and business cordless phone communications worldwide.

Voice of IoT, DECT and ULE Industry Summit
February 7/8, 2018
Amsterdam, The Netherlands

Day 1, Feb 07

Voice of IoT program – The following speakers have confirmed to speak at the conference:

08:45 09:25	Registration and Welcome	
09:25 09:30	Welcome by Ruth Wilson, Deputy-Chair of the Board, DECT Forum , More information	
09:30 10:00	Dirk A. Böttger, Vice President Product Management Fixed Line Devices, Deutsche Telekom , on "DECT Safeguards Voice Control in a Connected Future", More information	
10:00 10:30	Andreas Mueller, Senior Expert and Project Manager, Robert Bosch GmbH , Germany, on "Wireless Communications for the Factories of the Future", More information	
10:30 11:00	Erik Overbeeke, European Partner Alliance, Parks Associates , on "Unifying the Smart Home to Drive Consumer Adoption", More information ; Read the interview	
11:00 11:30	Coffee Break and networking / visit to the Expo	
11:30 12:00	Ruud Hendriks, Co-founder Startupbootcamp, Innoleaps & The Talent Institute , on "Lessons from Startupbootcamp and Innoleaps", More information ; Read the interview	
12:00 12:30	David Viret-Lange, CEO, SoftAtHome , France	
12:30 13:00	Magnus Melander, Founder, Swedish M2M Service Enablers , Sweden, on 'Industrial IoT applications'	
13:00 14:30	Lunch and networking / visit to the Expo	
	Speaker to be announced, DSP Group	Philip DesAutels, Technologist, Howden Joinery , UK, on "Finally, smart kitchen is becoming part of the smart home", More information ; Read the interview
14:30 15:30	Daniel Hartnett, Business Development Director, DECT Forum , on "openD: opening DECT to new vertical industries"	Avi Barel, Director Business Development, ULE Alliance
15:30 16:00	Lunch and networking / visit to the Expo	
	Arend van der Weijden, Vice President "Wireless Audio and Voice" BU, Dialog Semiconductor , on "DECT evolution creating a revolution", More information	Speaker to be announced
16:00 17:00	Speaker to be announced	Steinar Arnason, Vice president, Audio Pro AB , on

17:00 18:30

Networking event / visit to the Expo

Day 2, Feb 08 – Special Members Day

The DECT Forum and the ULE Alliance would like to invite their members to F2F Working Group meetings on February 8th, 2018 (day 2 of the Voice of IoT industry summit) in Amsterdam, B. Amsterdam

- DECT Forum/ULE Alliance: A Joint meeting of the Marketing working groups from both organizations. This meeting profited from a high turnout last year and represented real value for those attending as many common topics were addressed by a wide cross-section of the industry.
- DECT Forum: Regulatory WG and the IMT2020 WG together with ETSI TC DECT. With progress towards DECT as a 5G technology, this is an opportunity to align on the IMT2020 candidature and the positioning of DECT and ULE therein.
- DECT Forum: CAT-iq WG. With CAT-iq 2.1 certification imminent, 2018 promises to be an important year for CAT-iq. This F2F working group meeting will help to outline the Application Test Suite in the context of the certification process.
- DECT Forum: openD WG. As openD becomes more tangible, we invite the openD WG and other interested members to get the latest updates and get involved in its creation.
- ULE Alliance: Joint Business/Technical WG. Get to know the personalities and the topics defining the agenda first hand.

General Assemblies:

- General Assembly DECT Forum: 10am – 12pm
- General Assembly ULE Alliance: 1pm – 3pm

Attendance at this day is free of charge to DECT Forum and ULE Alliance Members. The schedule of the meetings will be communicated! If you are interested to attend one or more of these meetings, please contact your WG Chair or the [Secretariat](#)

Registration details online:

<https://tikcit.com/register/5a047b0c4d417d0940607d09>



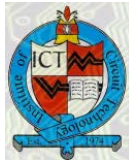
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NEWS FROM THE UK



Institute of Circuit Technology

2018 Spring Seminar and AGM

Best Western Plus Manor Hotel, Meriden

Tuesday 13th March 2018 at 17.30

Programme TBA

CALL FOR PAPERS

**THE 2018 ICT ANNUAL SYPOSIUM WILL BE HELD ON THE 5TH JUNE 2018 AT THE NATIONAL
MOTOR MUSEUM IN BEAULIEU**

Free to Members and Guests

THE THEME WILL BE CONTROLS FOR DIGITAL IMAGING AND WE ARE LOOKING FOR
PAPERS

SUPPORTED BY POLAR INSTRUMENTS



DATES FOR YOUR DIARIES - 2018

SPRING SEMINAR and AGM

13th March at the Best Western Hotel, Meriden

ANNUAL SYMPOSIUM

5th June at the Beaulieu Motor Museum

ANNUAL FOUNDATION COURSE

9th - 12th APRIL, with the first day at Merlin pcb, Deeside and then at Chester University.

Enquiries to:-

bill.wilkie@instct.org



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NEWS FROM THE USA

Ventec highlights advanced Ultra-Low Dk PCB Materials at DesignCon 2018

Ventec International, a world leader in the production of polyimide & high reliability epoxy laminates and prepregs, will showcase its extensive range of tec-speed® materials for high-speed low-loss applications including the latest tec-speed® 10 ultra-low dk material at DesignCon 2018 show in Santa Clara, CA, USA from 30th January to 1st February on booth #118. A further highlight will be a next generation best-in-class, thermally conductive (8 X FR4) high Tg thin-core and prepreg material (VT-5A2) ideal for hybrid multilayer low-loss constructions.

Ventec will be exhibiting at DesignCon 2018, the premier conference for chip, board, and systems design engineers, on booth #118 highlighting it's tec-speed® range of PCB materials for high-speed low-loss applications. By using an ultra-low Dk material with Dk values between 2.3 and 2.8 lower losses, lower system power requirements and with it the delicate balance of performance and cost can be achieved. Higher layer counts on backplanes, daughter cards and hand-held's are made possible in a smaller footprint by having smaller layer to layer separation without sacrificing trace width.

"Maintaining wider traces produces lower resistance in the signal path" said Martin Cotton, Director - OEM Technology Marketing. "Combining ultra-low Dk with a low Df of 0.003 to 0.004, produces an alternative to ever smaller traces and higher power requirements."

Ventec's highest performance thermally conductive laminate material so far will also make its DesignCon-debut. VT-5A2 offers a polymer matrix that is fully compatible with Ventec laminates, epoxy or polyimide based materials including tec-speed®, making it the ideal choice for the manufacture of hybrid multilayer low-loss constructions.

Ventec's Martin Cotton (Director - OEM Technology Marketing) and Peter Koolen (Global Account Manager OEM Technology Marketing) will be on hand to offer technical advice.

Further information about Ventec's solutions and the company's wide variety of products, is available at www.ventecclaminates.com and/or by downloading the Ventec APP.



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NEWS FROM THE IPC

IPC-1401 Listed Amongst Top 10 Chinese Corporate Social Responsibility Standards by CHINA WTO Tribute Magazine

IPC-1401, *Supply Chain Social Responsibility Management System Guidance* was listed as a top-10 standard in 2017, for Chinese Corporate Social Responsibility (CSR). CHINA WTO TRIBUTE magazine published the Chinese CSR 2017 listing, which focuses on influential events in the Chinese economy and worldwide corporate coverage.

IPC-1401 was released at IPC APEX EXPO 2017 in the Chinese language as well as an English translated version. More than 160 volunteers from 80 enterprises and 10 trade organizations devoted their time, effort and expertise to deliver the standard.

IPC-1401 was originated by Chinese IPC members, to meet a specific need for second and third tier suppliers to meet the increasingly strict and complicated EU CSR standards. Small to medium suppliers as well as large PRC OEMs, like Huawei, needed to be able to demonstrate compliance to EU CSR standards. With IPC-1401, and its related training, even small companies can now meet these requirements.

IPC-1401 helps companies achieve intended outcomes of a supply chain social responsibility management system, creating value for the company, its customers, its suppliers and other stakeholders. Users of this standard can expect the following outcomes: enhancement of working conditions, environmental performance and ethics level of the supply chain; fulfillment of compliance obligations and reduced risks and costs of the supply chain; and achievement of social responsibility objectives, including improvement of customer satisfaction and competitive advantages of the enterprise and its supply chain.

The CHINA WTO TRIBUTE was sponsored by the Ministry of Commerce of China, which publishes the top internal and overseas events each year which influence the economic field.

To build on the progress made in CSR, IPC has developed a Corporate Social Responsibility seminar that will be held in Beijing, in May 2018, to bring the new international requirements, best practices and trends in CSR to Chinese companies. For more details on this or other events, visit: <http://www.ipc.org.cn/IPCCalendar.asp>.

North American PCB Industry Growth Continues to Strengthen

IPC Releases PCB Industry Results for November 2017

IPC have announced the November 2017 findings from its North American Printed Circuit Board (PCB) Statistical Program. Positive year-over-year shipment and order growth continued in November. The book-to-bill ratio remained high in November at 1.09.

Total North American PCB shipments in November 2017 were up 4.0 percent compared to the same month last year. This year to date, shipments are 2.3 percent below the same period last year. Compared to the preceding month, November shipments increased 0.4 percent.

PCB bookings in November increased 15.8 percent year-on-year, raising year-to-date order growth to 5.7 percent above the same period last year. Bookings in November were down 3.8 percent compared to the previous month.

“The North American PCB industry’s recovery continued in November and is becoming more robust, with positive year-on-year sales growth for the third consecutive month and strengthening growth rates,” said Sharon Starr, IPC’s director of market research. “The outlook is also positive, based on strong order growth in recent months, and on PCB book-to-bill ratios above parity (1.0) for 10 consecutive months. Although the book-to-bill ratio has been retreating from a 12-year high in August, due to growth in sales, it remains strong, indicating a likelihood of continued sales growth in the coming months,” she added.

Detailed Data Available

The next edition of IPC’s *North American PCB Market Report*, containing detailed November data from IPC’s PCB Statistical Program, will be available the week of January 8, 2018. The monthly report presents detailed findings on rigid PCB and flexible circuit sales and orders, including separate rigid and flex book-to-bill ratios, growth trends by company size tiers, demand for prototypes, and other timely data. This report is available free to current participants in IPC’s PCB Statistical Program and by subscription to others. More information about this report can be found at www.ipc.org/market-research-reports.

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 at the end of each month. Statistics for the current month are normally available in the last week of the following month.



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INTERNATIONAL DIARY

2018

EIPC Winter Conference Lyon

Bonus Programme: Alstom, Transport Information Solutions

Lyon, France
February 1 & 2

IPC/APEX Expo

San Diego, USA
27 February-1 March

CPCA Exhibition

Shanghai, China
20-22 March

KPCA Exhibition

Kintex, South Korea
24-26 April

50 Yrs Anniversary EIPC Summer Conference Germany

Bonn, Germany
May 31 & 1 June

SMT Hybrid Packaging

Nürnberg, Germany
5-7 June

JPCA Exhibition

Tokyo, Japan
6-8 June

FED Conference

Bamberg, Germany
27 & 28 September

TPCA Exhibition

Taipei, Taiwan
October

EIPC @ Electronica 2018

Messe Munchen, Germany
13-16 November

HKPCA Exhibition

Shenzhen, China
December