EIPC SPEeDNEWS

The Weekly On-Line Newsletter
Issue 5 - February 2022

NEWS FROM THE EIPC

Don't be shy!

Ever since it became impossible, nay unlawful, to hold traditional conferences, EIPC have been running a succession of successful webinars. Webinars are nothing new, but what you have to say might very well be - and there is every opportunity to share this with others. We welcome speakers, and anyone from anywhere can participate; you do not have to be an EIPC member, we are a friendly crew, and shall still listen most attentively!

Usually, the speaking slots are 15 minutes. The total duration of the webinars is 60 minutes including Q&A. The platform we use is ZOOM, and we arrange one webinar per month, on a Wednesday, around half way through the month.

If you would like to put yourself forward then please get in touch with Kirsten, who will be delighted to hear from you, indeed, we all will.

Industry Vacancies

May we draw your attention to the fact that on our website we have a section under NEWS that is headed Industry Vacancies. Given the present situation, you may find it beneficial to make use of this facility, and we would appreciate it if you could let us have a note of any job vacancies you may have in your company. Applicants with potential would appreciate it, too. Contact: eipc@eipc.org

The European Institute for the PCB Community

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NEWS FROM AUSTRIA

Q1-Q3 21/22 – AT&S continues strong growth course

- **Nine-month revenue increases by 30% to € 1,147 million (PY: € 884 million)**
- **Adjusted EBITDA at € 262 million, up 37% on the previous year**
- **Guidance for FY 21/22 increased again: revenue growth of 28–30%; adjusted EBITDA margin expected in the range of 21–23%**
- **Medium-term outlook for 2025/26 confirmed: revenue of approx. € 3.5 billion and EBITDA-margin of 27–32%**

Leoben – AT&S reports a very positive revenue development in the first three quarters of 2021/22.

"Once again, we were able to significantly increase our revenue and earnings in a challenging market environment, with quarterly records for both figures," says CEO Andreas Gerstenmayer. "Since the ramp-up of our new plant in Chongqing, China, is progressing faster than expected, we can increase our revenue guidance for the current financial year to 28 to 30%. This once again confirms our growth strategy and therefore also reinforces our revenue projection of approximately € 3.5 billion in the financial year 2025/26," Gerstenmayer comments on the further development.

Consolidated revenue increased by 30% to € 1,147 million in the first three quarters of 2021/22 (PY: € 884 million). Adjusted for currency effects, the increase in consolidated revenue even amounted to 32%. This growth was primarily driven by the additional capacity in Chongqing for ABF substrates. The broader application portfolio for mobile devices as well as module printed circuit boards also contributed to revenue growth. In the AIM business unit, all three segments supported the growth trend, with the Industrial segment recording the biggest increase. Despite the shortage of semiconductors, revenue in the Automotive segment also grew, though not as dynamically as would be possible without this limitation.

EBITDA rose by 30% from € 187 million to € 244 million. While the increase in revenue had a positive impact on earnings, the start-up costs in Chongqing and Kulim as well as higher material, transport and energy costs had a negative effect on earnings. In order to live up to its role as an innovation driver going forward, AT&S continued to increase its research and development expenses significantly. Currency fluctuations of the US dollar and the Chinese

renminbi had a negative impact of € 30 million on the earnings development; without these fluctuations, the growth rate would have been 47%.

Adjusted for the start-up costs, EBITDA amounted to € 262 million (PY: € 192 million), which is equivalent to an increase by 37%. Not including start-up costs and currency fluctuations, earnings would have increased by 53%.

The EBITDA margin amounted to 21.3% (EBITDA margin adjusted for start-up costs: 22.9%), falling short of the prior-year level of 21.1% (EBITDA margin adjusted for start-up costs: 21.7%). Depreciation and amortisation rose by € 40 million to € 161 million due to additions to assets and technology upgrades. Nevertheless, EBIT was up from € 66 million to € 83 million. The EBIT margin amounted to 7.2% (PY: 7.4%). Finance costs – net improved from € -20 million in the previous year to currently € -11 million, mainly due to a change in currency effects. Profit for the period rose from € 37 million to € 62 million, leading to an 81% increase in earnings per share from € 0.79 € to € 1.42.

The **financial position** was characterised by an increase in non-current assets at the end of the reporting period. Total assets rose to € 3,016 million, up 26% compared with March 31, 2021 as a result of additions to assets and technology upgrades. The significant increase in total assets led to a decline in the equity ratio by 2.0 percentage points despite a 19% increase in equity. The equity ratio amounted to 31.6% at December 31, 2021, thus exceeding 30% despite the large-scale investment programme.

Cash and cash equivalents increased to € 644 million (March 31, 2021: € 553 million). In addition, AT&S has financial assets and unused credit lines of € 336 million at its disposal to secure the financing of the future investment programme and short-term repayments.

Hybrid bond

In January AT&S very successfully completed the issue of a hybrid bond of € 350 million, its largest financial market transaction since the IPO. The holders of the 2017 hybrid bond were invited to exchange their bond for this new bond. 76% of the investors accepted this offer.

Outlook 2021/22

AT&S will concentrate on the start-up of the new production capacities at plant III in Chongqing, continue to push ahead the investment project in Kulim, Malaysia, and the expansion of the site in Leoben, Austria, and implement technology upgrades at other locations in the current year.

The expectations for AT&S's segments are currently as follows: the persisting strong demand for IC substrates also offers significant growth opportunities in the medium term. The 5G mobile communication standard will continue to drive growth in the area of Mobile Devices. A positive development is expected in the Automotive segment despite the semiconductor shortage. Driven by the roll-out of the 5G infrastructure, the Industrial segment will continue to see a positive development in the coming year. In the Medical segment, AT&S expects a positive development for the current financial year.

The company still plans to invest up to € 700 million in new capacities and technologies in the current financial year.

Due to the faster ramp-up and further efficiency enhancements at plant III in Chongqing as well generally strong demand in the fourth quarter, AT&S has raised the forecast for the development of revenue and now expects revenue growth of 28 to 30% (previously: 21 to 23%). The adjusted EBITDA margin is still expected to range between 21 and 23%, not including approximately € 25 to 35 million (previously: approximately € 50 million) for the start-up of the new production capacity in Chongqing and in Kulim. The outlook is based on the assumption that no unexpected effects such as supply shortages, material and energy price fluctuations occur.

Outlook **2025/26**

The progress of the production capacity expansion in Chongqing, China, and in Kulim, Malaysia, as well as the expansion of the site in Leoben, Austria, is still satisfactory despite the challenging global economic and health situation. Therefore, AT&S assumes that revenue of € 3.5 billion will be generated in the financial year 2025/26 and expects an EBITDA margin in the range from 27 to 32%.

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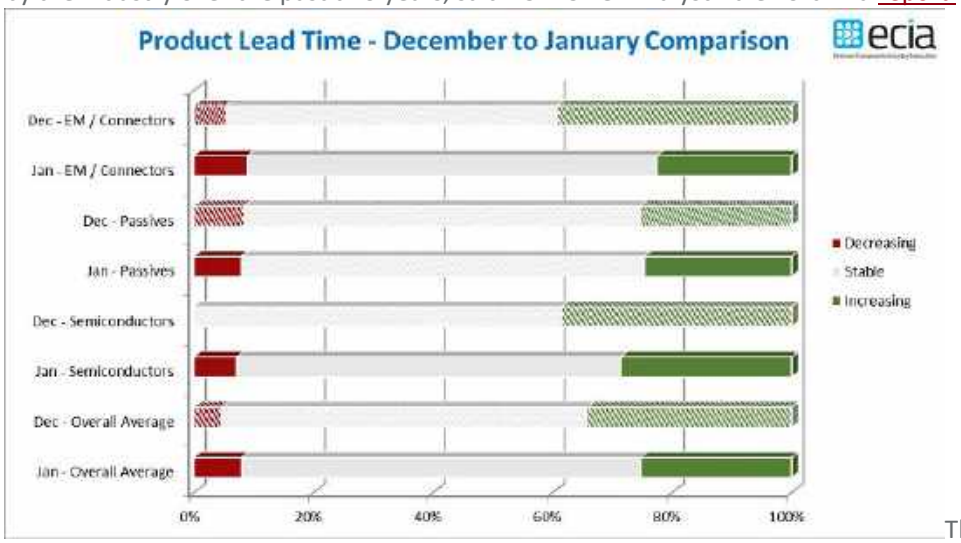
ELECTRONIC INDUSTRY NEWS

Component Sales: Welcome Signs of Seasonality

Although seasonality became almost meaningless during the Covid pandemic, component sales forecasts hint at a return to "normal" demand patterns, according to the ECIA.

Amidst an ongoing component shortage, overall component sales sentiment increased from December's level to reach 116.5 in January, the association reported. (100 is the baseline between growth and contraction in the Electronic Component Sales Trend (ECST) report.) All major component categories and subcategories achieved a sentiment index rating at 100 or higher with discrete semiconductors and electromechanical components leading the pack with index scores above 122.

In an encouraging sign of stability, the overall index outlook for February sales is just slightly lower at 113.1. In a typical year, February sales are softer than the January results. This return to a "normal" pattern would be a welcome result after the wide swings experienced by the industry over the past two years, said ECIA Chief Analyst Dale Ford in a report.



The end-market index follows closely with the component index with the overall average measured at 114.8 for January and dipping slightly to 109.9 in the February expectations. Only two end markets report an expectation of sales sentiment below 100 for January and February –

consumer electronics and mobile phones. Softness in these areas reflects a typical seasonal pattern for these markets.

- Automotive electronics leads with strong sales sentiment above 125 in both January and February.
- Industrial electronics scores above 120 in January and then dips slightly below in February.
- Avionics/military/space represents another bright spot as it measures roughly 118 in January and then jumps above 125 in February.
- Medical electronics also sees very positive sentiment around 117 in January and then topping 120 in February.

Market analyst TrendForce also notes seasonality regarding end-markets. "The market's supply situation is expected to be approximately the same as in 4Q21. However, some end products have entered their traditional off-season cycle and the slowdown in demand momentum is expected to alleviate the immediate pressure on OEMs and ODMs regarding supply chain stocking."

Among the three groups surveyed for the ECST, distributors report the greatest optimism in January and actually see improved expectations in February. Early earnings results show record component sales for calendar Q4 and distributors — big customers for component suppliers — are fulfilling orders. On the other hand, manufacturers report solid 100+ sentiment in January that then collapses below 85 in February – the only negative expectation among all three groups.

Manufacturer representatives reported stable expectations above 110 for both months.

The reason for the strong divergence in expectations for February between manufacturers and the other groups is not clear, said ECIA. Manufacturers may be concerned about economic and inflationary challenges that may slow end-market demand and soften long term bookings, said Ford.

Manufacturers are also facing raw materials shortages, shipment delays from Asia and a host of other supply chain disruptions. Suppliers may also be concerned about their ability to meet demand. Lead times are increasing and there is no relief on the horizon regarding component supplies, companies report.

The good news in all of this, ECIA said, is that even with seasonal softness, the broad end-market demand indicates growth in January and projects continued growth in February.

- Semiconductor sales sentiment continues to show the greatest optimism among the three major component categories with the index measuring at 122.2 in January and sustaining a strong level at 120.9 in the February expectations.
- Discrete components continue to achieve the strongest index levels among the component subcategories as they lead the group in January and remain strong with an index score above 120 looking toward February.
- Electro-mechanical components come in just behind discrete semiconductors in January but then drop below 115 in February expectations. In the next tier MCU/MPU and analog/linear ICs deliver stable, optimistic results with index scores between 113 and 118 and January and February.
- Capacitors are another bright spot with index measures above 110 in both months.
- Resistors, inductors, and memory ICs see the lowest scores but still all solidly above 100 looking toward February.

All three of ECIA's component indices project a drop between January and February with passive components coming in at the bottom end with a still respectable 107.6 in January and 105.9 for the February projection. However, the overall actual component sales

sentiment index has now registered above 100 for 18 straight months dating back to August 2020. “This represents a very encouraging start to the new year,” said Ford.

Author: Barbara Jorgensen
Barbara Jorgensen
Barb Jorgensen is editor-in-chief for supply chain publication EPSNews and has covered electronics manufacturing, procurement and business for more than 25 years. Barb spent most of her career with Electronic Business magazine and EBN; freelanced; and then founded online publication EPSNews with two industry veterans—Bolaji Ojo and Gina Roos. EPSNews was acquired by AspenCore in 2017.

Self-driving car companies zoom ahead, leaving U.S. regulators behind

By David Shepardson
, Hyunjoo Jin

Self-driving vehicle companies from Tesla Inc (TSLA.O) to General Motors Co's (GM.N) Cruise are racing to start making money with their technology, outrunning efforts by regulators and Congress to write rules of the road for robot-driven vehicles.
On Tuesday, Cruise said that SoftBank Group Corp (9984.T) will invest another $1.35 billion in anticipation of Cruise launching commercial robo-taxi operations. read more
Cruise needs one permit, from California's Public Utilities Commission, to start charging for rides around San Francisco in vehicles with no human driver.

Cruise, Tesla, Alphabet Inc's Waymo and Aurora Innovation Inc are among many companies aiming to deploy fully autonomous vehicle technology in the United States within the next two to three years, whether or not federal regulators give them a clear legal framework for doing so. Autonomous vehicle (AV) start-ups and automakers are under pressure to start generating revenue from billions of dollars of engineering investment over the past decade.

Proposed legislation to create a national framework of rules to govern autonomous vehicles remains stalled in Congress, despite the industry's lobbying. That has left autonomous vehicle companies free to deploy robo-taxis or self-driving trucks in some states, such as Arizona and Texas, but not in others. Waymo has provided thousands of rides in driverless robo-taxis in Phoenix, though the service remains limited.

"Providing guard rails is helpful, at the federal level," said Chris Urmson, chief executive of automated vehicle technology company Aurora Innovation. "Today we have different regulations across the 50 states."

Aurora is testing its Aurora Driver in Class 8 trucks, but so far cannot operate those trucks in California without human drivers. That cuts off a potentially rich market for autonomous truck companies hauling loads from Southern California to distribution hubs to the east.

"We look at the Port of Los Angeles ... and the supply-chain challenges we see. There's a real urgency for this technology" to address the shortage of truck drivers, Urmson said to an audience at the Washington Auto Show last month.

AV industry lobbyist Ariel Wolf told a U.S. House of Representatives panel on Tuesday that autonomous trucks "will not lead to mass layoffs." Instead, he said, autonomous trucks driving long-haul routes will allow human drivers to "spend more nights in their own beds instead of in the sleeper berth of a truck."

PROTECTING JOBS

Unions, however, urged Congress to be skeptical.

"We are at risk ... of losing hundreds of thousands of manufacturing and frontline transportation jobs if Congress fails to act decisively and the AV industry is left completely unregulated," Transport Workers Union president John Samuelsen told the House panel Tuesday.

Unions and trial lawyers also want autonomous vehicle companies to disclose more data about accidents and other aspects of their systems.

"All workers deserve to know that an autonomous vehicle or bot travelling next to them is safe enough to share the same road or worksite," said Teamsters official Doug Bloch.

In the absence of new laws tailored to automated vehicles, the National Highway Traffic Safety Administration, which oversees vehicle safety in the United States, has put forward voluntary guidelines and last year required companies to report accidents involving automated driving systems.

But the agency has not issued comprehensive standards for robot-driven cars or trucks. The U.S. Federal Aviation Administration has the power to review new technology before it is used in aircraft. But motor vehicle manufacturers are free to certify themselves.

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NEWS FROM THE UK

Tuesday 26 April 2022
Rutherford Appleton Laboratories, Harwell Campus, Oxon

PRELIMINARY AGENDA ANNOUNCED

MICROTECH 2022

NEXT GENERATION OF ELECTRONICS AND PEOPLE

iMAPS-UK is pleased to announce preliminary agenda for the MiicroTech 2022 Conference.

The following speakers are lined up to present at the Conference.

- **E-Planes to Replace High Speed Rail** - Paul Riley, Belsa Power Electronics
- **Hybrid Bonding** - Jonathan Abdilla, BESI
- **High Power Density Amplifier Die Attach** - Manoj Balakrsihnan, Filtronic PLC
- **Laser and Blade Dicing of SiC and Ultra-Thin Grinding** - Brian Raeburn, Disco Europe
- **Advanced Interconnection Technologies for IGBT Power Module Assembly** - Xiang Li, Dynex Semiconductor
- **Photoimageable Pastes for Fineline Conductor Deposition** - Kathrin Reinhardt, Fraunhofer IKTS
- **Addressing Skills Gaps in the UK Power Electronics, Machines and Drives Sector** - Mark Urbanowski, Driving the Electric Revolution, UK Research and Innovation
- **An initiative to develop learning skills in Microelectronic Manufacturing** - Andy Longford, PandA Europe
- **Bonding Large Area Detector Arrays** - Andreas Schneider, STFC
- **Nanocomposite Cu-Sn intermetallic joints for rapid electronics assembly** - Han Jiang, Loughborough University

There are opportunities for Sponsorship and Exhibiting at the MicroTech 2022 Conference.

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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.

Further Information on MicroTech 2022 - Click Here

Further Information on the PEP-IT-UP Workshop - Click Here

For Any other details or information Please contact:
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Tel: +44 0131 2029004
e-mail: Office@imaps.org.uk

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Our industry forecasts, methodology and analyses have consistently proved accurate, insightful, and reliable. This year's industry update will prove no exception. We do not just tell you what our prognoses are, we also tell you why, with supporting data and analysis. Priced at only UK£150 for individual use only. Site licence for corporate library or multi- use within your organisation, is also available at UK£695. Pre-payment by Bank transfer, PO number or via PayPal (please specify preference).

Sincerely

Malcolm Penn
Chairman & CEO

The European Institute for the PCB Community

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NEWS FROM THE USA

With a New Factory on the Way, Nano Dimension Pushes for Widespread 3D-printed PCBs

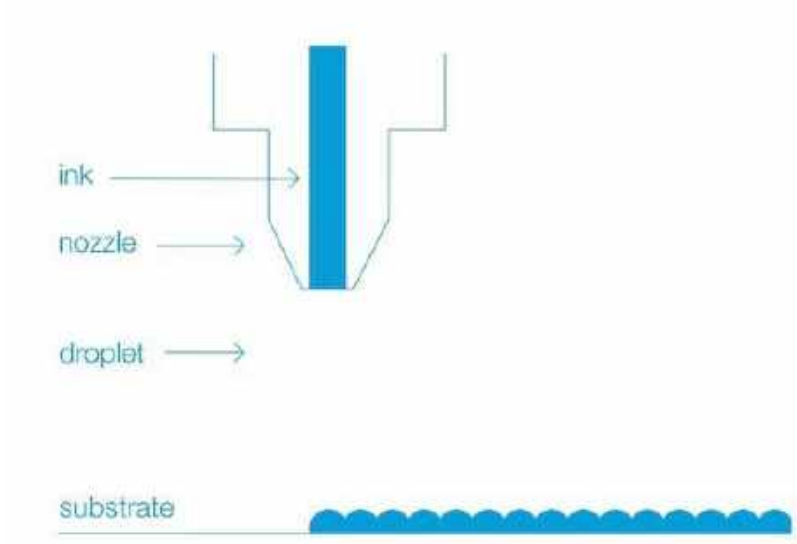
Multi-layer PCBs are known for saving size and weight. Now, 3D printing these boards may be an option for more designers on a large scale.
Nano Dimension, a developer of machines for additively manufactured electronics, recently announced a new partnership with TTM Technologies to open the first additively manufactured electronics (AME) facility. This facility aims to create layered, printed electronics on a larger scale.
Combining Nano Dimension's 3D printing technologies with TTM's expertise in start-to-finish design, development, and manufacturing, the collaboration will allow both companies to push for the widespread creation of 3D-printed PCBs.

What is the AME NanoLab?
Nano Dimension calls itself an industry leader in AME technology, from its Dragonfly IV fabrication device to its ink delivery systems. A few years ago, engineers at HENSOLDT created a 10-layer double-sided PCB with 3D printing using a dielectric polymer and conductive inks from Nano Dimension.

The Dragonfly IV printer.

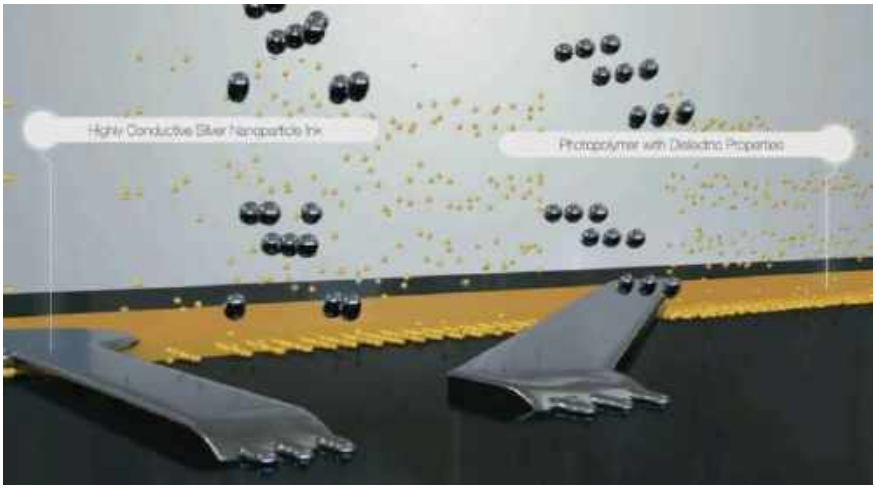
Now, the company has expanded to the point that it can open its first AME NanoLab at TTM's Advanced Manufacturing Center in Connecticut.
The AME NanoLab will allow engineers to use the complete AME workflow, from design to prototype, to accelerate the development cycle for new electronic products. While the Connecticut location will be the first AME NanoLab, Nano Dimension is planning a network of labs in which users can use professional printers, like the DragonFly IV 3D Printer, along with any associated software. At these sites, customers can also receive critical training and consulting on their applications.

Nano Dimension's Specialized AME Technology
Nano Dimension’s AME technology is used to print high-performance electronic devices (Hi-PEDs) layer by layer. Some of these devices have complex geometries that can’t be produced using traditional PCB manufacturing processes. The technology works by simultaneously injecting dielectric polymer ink and conductive silver. The set-up enables the printer to concurrently print with both advanced inks in a single print job.



Visual of simultaneous multi-material AM.

Polymers used in the systems typically melt at over 100°C, whereas silver melts at over 900°C. The system injects them into the build process together and allows them to work simultaneously. Nano Dimensions says it has made a core breakthrough in the manufacturing process by enabling these temperatures to work concurrently. The company has achieved this feat using algorithms that control the delicate process in real-time.



Nano Dimension uses both silver nanoparticle ink and photopolymer.

Nano Dimension's DragonFly printer leverages Lights-Out Digital Manufacturing (LDM) technology to deliver round-the-clock uninterrupted 3D printing. It includes software management algorithms, automatic self-cleaning capabilities, and real-time automatic material monitoring, according to the company.
The advanced systems are said to maximize runtime and optimize equipment. The result is that users can 3D-print functional electronic circuitry faster, creating both

one-off prototypes and low-volumes of printed electronics such as IoT communication devices, sensors, and antennas.

Nano Dimensions and TTM Team Up Once Again

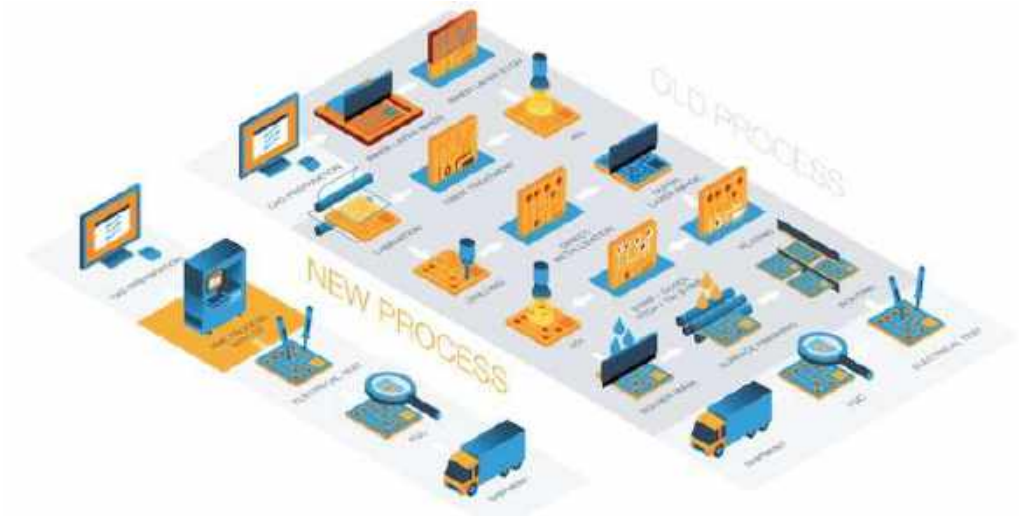
This isn't the first time TTM Technologies has collaborated with Nano Dimension. In fact, TTM already owns and operates three Nano Dimension DragonFly systems at its Advanced Manufacturing Center. The investment has allowed TTM's engineering teams to tap into the advanced 3D-printing technology.

The partnership at the AME NanoLab Network site may allow customers to more easily explore the 3D space for Hi-PEDs while also reducing the environmental impact of electronics manufacturing.

What are the Benefits of 3D-printing PCBs?

While 3D printing has evolved rapidly over the past years, the production process for complex electronics such as PCBs has remained largely unchanged. Nano Dimension and TTM Technologies saw a manufacturing need to produce a high mix of customized PCBs in a less time-consuming way.

Nano Dimension says its AME technology offers some distinct advantages over traditional manufacturing. It facilitates the printing of several types of PCBs in one print step and enables varied proof of concepts to be printed on the same batch. With 3D printing, designers can go beyond the standard trace geometries of PCB design tools while delivering precise impedance-controlled routing.



Flow chart of traditional PCB manufacturing process vs. an AME manufacturing process.

The AME system is described as comprehensive; rather than being constrained by traditional design rules in platforms like SolidWorks or Mentor Graphics, for example, Nano Dimension's AME integrates the software used for design. This system allows designers to print certain coils or even 50-layer capacitors using design rules.

In addition, as more capabilities are packed into a single board, high-layer count PCBs are becoming more common. By using the right additive manufacturing

systems, increasingly compact PCB sizes and advanced products can be produced more easily and at a lower cost.

An Industry Uptick in Additive Manufacturing
Because of pandemic-related slowdowns in the supply chain and trade wars, the electronics industry has increasingly found appeal in additively manufacturing PCBs, according to Nano Dimension CEO Yoav Stern.

The first AME NanoLab and those that follow as part of the network in the future will spearhead the ongoing development of new precision specifications. With so many varied use cases, customers are directly participating in refining the next generation of Nano Dimension's technology.

News from
WECC members

WECC
World Electronic Circuits Council

Issue 5 – February 2022

NEWS FROM THE IPC

Industry Reconnects as IPC APEX EXPO 2022 Reconvenes as In-person Event

From revolutionary innovations displayed on the show floor to expert insights conveyed in technical conference sessions, professional development courses and standards development committee meetings, IPC APEX EXPO 2022provided the education and networking connections that helped 3,647 visitors address today's business challenges and prepare for their factories of future.

In keeping with the event's theme, "Lead, Drive, Achieve Digital Transcendence," IPC APEX EXPO's technical conference featured 104 technical papers detailing original research and innovations from industry experts around the world and opportunities for learning abounded. For 2022, IPC's Technical Program Committee expanded the conference to four tracks of high-quality, peer-reviewed content from 18 countries, setting a very high bar for the papers delivered. Those four tracks focused on factory of the future implementation; PCB fab and materials; quality, reliability, test, and inspection; and assembly materials and environment.

Nearly 100 standards development committees made significant progress on new and revised documents including IPC-J-STD-001, IPC-A-610, IPC-7711/21, IPC/WHMA-A-620, IPC-2551, IPC-2591 and dozens more. "At the joint IPC J-STD-001 and IPC-A-610 task group meeting, more than 90 volunteers contributed their expertise to revising the standards," said Teresa Rowe, IPC senior director, assembly and standards technology. "At times, discussions were spirited, but great headway was made on the 'J' revisions."

Many attendees achieved their business objectives at the event. "Attending IPC APEX EXPO is the most efficient way to learn about new equipment and processes that can help make my job easier," said Randy Bremner, Northrop Grumman."All the experts are there; we were able to meet in person this year and I got all of my questions answered in one place. It's truly one-stop learning in classrooms and shopping on the show floor."

The APEX EXPO 2022 experience was equally positive for the 282 exhibitors who showcased their products and services on 108,300 square feet of show floor space. “Our team feels this was the best IPC APEX EXPO we have participated in,” said John Lee, Insulectro.“Yes, due to COVID, attendance was a little light, but we had top quality opportunities to meet with customers, prospects, and suppliers. We were all blown away with how effective and productiveAPEX EXPO was for us.”

Added Jason Spera, Aegis Software, “It was great being back at APEX EXPO live after a two-year break. Our experience at this year’s show was much better than anticipated. We came to the show enthusiastic but wondering frankly what would happen and how things would go, but IPC did a brilliant job handling this year’s event. The attendance at our booth was far inexcess of what we expected.”

Said John Mitchell, IPC president and CEO, “The January omicron surge provoked more than a few questions about what to expect at this year’s IPC APEX EXPO. As I traversed the San Diego convention center last week, the answer was clear, a lot of smiles. Yes, they were hidden behind masks but more than evident in the eyes of everyone with whom I interacted. Attendees were thrilled to back together in-person—sharing ideas as freely as elbow bumps. IPC is a community and IPC APEX EXPO is the place we build it. It was great to be back!”

In 2023, IPC APEX EXPO will return to the San Diego Convention Center, January 21-26. For more information, visit www.ipcapexexpo.org.

IPC Honours Apple, Inc. and MacDermid Alpha Electronic Solutions with Corporate Recognition Awards

IPC presented its highest corporate honors to two IPC member companies, Apple Inc., and MacDermid Alpha Electronic Solutions during the IPC Annual Meeting/Awards Ceremony at IPC APEX EXPO 2022. The Peter Sarmanian Corporate Recognition Award was presented to MacDermid Alpha Electronics Solutions, and the Stan Plzak Corporate Recognition Award was presented to Apple, Inc.

The Peter Samarian Corporate Recognition award, named for a former IPC Board Chairman, recognizes an IPC-member company in the printed board industry (PCB) that has supported IPC through participation in technical and management programs while providing leadership for the industry.

IPC members since 1962, MacDermid Alpha Electronics Solutions lends nearly two dozen employees to participate in IPC standards development committees ranging from printed board fabrication and electronics assembly to automotive electronics and press-fit technology. Numerous company employees have received awards for contributions to

standards development, and many staff members have presented at IPC workshops and conferences.

Named for former IPC Board Chairman and founding member of the IPC Electronics Manufacturing Services Industry Management Council, the IPC Stan Plzak Corporate Recognition Award honors an IPC-member company in the electronics assembly industry (EMS) that actively contributes to the industry while supporting IPC technical and/or management programs.

Apple staff members are active on multiple technical committees ranging from product design to materials declaration and green cleaners. They have been instrumental in helping IPC and the industry to develop a new standard, IPC-1402, *Standard for Green Cleaners Used in Electronics Manufacturing*, a standard that defines the criteria for what constitutes a green cleaner for electronics manufacturing and will specifically apply to cleaners used in the manufacture of electronic assemblies, components, and materials. Enthusiastic supporters of IPC training, 40 Apple engineers have participated in the Electronics Assembly for Engineers course.

"IPC benefits tremendously from Apple and MacDermid Alpha's leadership, knowledge and expertise," said John W. Mitchell, IPC president and CEO. "Their involvement in IPC has directly contributed to IPC's global growth in the electronics industry."

Three Long-time IPC Volunteers Receive Dieter Bergman IPC Fellowship Award

BANNOCKBURN, Ill., USA, February 4, 2022 — Three IPC volunteers who have fostered a collaborative spirit, made significant contributions to standards development, and have consistently demonstrated a commitment to global standardization efforts, were presented with Dieter Bergman IPC Fellowship awards at IPC APEX EXPO 2022. Bev Christian, Doug Pauls, and Jose Servin were chosen as award recipients because they embody the work ethic and spirit of the late Dieter Bergman, a pioneer and industry icon. They will bestow Dieter Bergman Memorial Scholarship awards on the university or college of their choice.

Bev Christian, Ph.D., a facilitator for the High-Density Packaging User Group and Adjunct Professor at the University of Waterloo, Canada, has participated in IPC APEX EXPO since its inception. A member of 27

committees, including co-chair of the 2021-2022 Technical Program Committee, Bev serves as chair of the 3-11G and 5-24B task groups. An author of more than fifty published papers, Christian chose the Chemistry Department of New Brunswick, Fredericton, New Brunswick, Canada, as the scholarship recipient.

Doug Pauls, a dedicated volunteer at IPC, was awarded the IPC Hall of Fame in 2017. A principal materials and process engineer at Collins Aerospace and former chair of several IPC committees, Pauls is known for his expertise in surface insulation resistance testing, cleaning and cleanliness assessment, conformal coatings, and how to investigate and qualify manufacturing processes. He recently led the team that redefined the cleanliness provisions of IPC J-STD-001, culminating in what is presently J-STD-001G, Amendment 1. Pauls' school of choice for the Dieter Bergman scholarship is the Materials and Science Engineering (MSE) department at Iowa State University in Ames, Iowa.

Jose Servin Olivares is a level three senior process engineer at Vitesco in Mexico who specializes in electronics assemblies in SMT, BE, and electronics component manufacturing. A member of the IPC-A-610 and J-STD-001 working groups and former chair of the IPC-A-610G and J-STD-001G Automotive Addendums, he worked closely with the committees to address criteria and acceptability requirements for printed board assemblies for the automotive industry not covered in IPC-A-610G and J-STD-001G. Servin Olivares chose a branch of the Morelos State University in Mexico as the recipient of the Dieter Bergman award – Yecapixtla School of Higher Studies of Morelos State University.

"The recipients of this year's Dieter Bergman Fellowship award have devoted years to IPC standards development, and we are fortunate to be the recipients of their considerable talent and expertise," said John W. Mitchell, IPC president and CEO. "We are glad to be able to honor their volunteerism and assist future engineers with this award."

EIPC SPEeDNEWS

Issue 05- February 2022

International Diary

2022

15th EIPC Technical Snapshot Webinar
Extended version Morning & Afternoon session
Registrations via www.eipc.org
23 February

16th EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
23 March

EIPC @ SMT Connect
10-12 May
Nuremberg, Germany

EIPC @ CPCA
18-20 May
Shanghai, China

EIPC Summer Conference
Visit Ericsson 5G centre
14 & 15 June
Örebro, Sweden

EIPC @ Electronica
15-18 November
Munich, Germany