



The European Institute for the PCB Community

EIPC SPEeDNEWS

The Weekly On-Line Newsletter

Issue 8 – March 2023

NEWS FROM THE EIPC

Announcement

EIPC Summer Conference Munich, Germany
June 15 & 16, 2023

“Reading makes a full man; conference a ready man; and writing an exact man”.
Essays Francis Bacon, 1625

One thing is for sure, an EIPC Conference covers all of those three requirements, so delegates invariably leave us having read, conferred and written to completion. Not to say dined as well!

Taking place in Munich on 15th & 16th June 2023, the highlight will be a visit to the World of BMW and their Museum at Olympia park, just outside the city on the 15th. But over those two days we plan to cover much other territory, as may be seen from our ‘wish list’ of topics that we would like to see covered. There is scope for everyone, so would you please be kind enough to allow us to share your knowledge and send us a summary as soon as you may.

Please may we have your abstract submission no later than March 31st.

You can download the Call for Papers and abstract submission form on www.eipc.org

Registration for the conference is now open: www.eipc.org



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Call for papers

EIPC Summer Conference Munich, Germany

June 15 & 16, 2023



Bonus Programme: Visit to BMW World on Thursday June 15

Presentations on the following topics can be included in the conference programme:

Keynote / Trends

- Business Outlook: Global Electronics Industry
- Automotive customer requirements for PCB supply chain
- Automotive, E-mobility, Energy, IoT, Medical Industrial Electronics, Aerospace, Avionics-G5
- Supply chain risk management

Roadmapping for 2023 and beyond

- Roadmap by market segments
- Technology Guidance through market needs
- Adapting processes, materials, chemistry, equipment to future technology needs
- Strategic Partnership and Planning for success through Networking

Environmental responsibility

- Sustainability development --Circular economy solutions through the whole supply chain- carbon footprint
- Green manufacturing

New Technologies: Success through Evolution- or Disruptive Technologies?:

- Process technology development SAP and full Additive Process
- Photonics: optical solutions in component and board level
- Laminate based Semiconductor Packaging
- Embedded technology: Passives, actives, Power modules
- Nanotechnology and Printed electronics: 3D Electronics (conductive pattern/dielectric layers)
- Material Technology: Laminate technologies - Coating technologies
- Ni free surface finishes
- New technology: Innovations and Invention

Equipment and process evolution to meet Technology Challenges and Smart manufacturing

- Equipment and process capabilities improving PCB conductor features management and process tolerances
- Etching and plating technology for improved conductor control and copper thickness tolerances
- Industry 4.0, Automation and AI in PCB manufacturing
- Imaging and Printing Technology
- Laser, Mechanical drilling

- ML-Pressing for high frequency product, improving variation

- Thermal PCB solutions, Metal Core PCBs

Materials, Reliability and Traceability requirements by Application

- Material solution for Automotive industry
- Responsibility and Standards for Product Reliability and Safety
- In-house process control and conformation Testing
- Material and finished product Safety and Testing
- Advanced supply chain and Third party Testing

Measurement methodology

- Copper: thickness and roughness -How to measure and verify copper roughness against new requirements
- Standardization and methodology
- Measurement automation - In production controls
- High frequency measurement and automation
- Tools for Testing and ensuring product safety and reliability



Please visit
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NEWS FROM GERMANY

SMTconnect 2023 brings the electronic production industry forward

True to its motto "Driving manufacturing forward", the SMTconnect taking place from 9 – 11 May in Nuremberg, Germany, will offer the European electronic production community a forum for inspiration and exchange as a basis for the further development of key technologies for the future.

Two months before the exhibition will open its doors, numerous well-known key players in the industry, including ASYS, Ersma, Essentec, FUJI, JUKI, Panasonic, SMT Wertheim and Viscom, have confirmed their participation as exhibitors. They will present products and solutions from all areas of electronics manufacturing at the Nuremberg exhibition grounds, and exchange ideas on current industry issues such as increased energy costs, component and raw material shortages and obsolescence management, as well as the current re-shoring trend to Europe with peers and practitioners.

Highlights of the event once again include IPC's hand soldering competition for young professionals as well as the Future Packaging production line presented by Fraunhofer IZM, this year on the topic of "Trust the Line" - Competitiveness through Trust, Sustainable Tool and Supply Chain.

The topic of supply chains will also be addressed at the "EMS Park" special showcase area. Offering impulse and best practice presentations (e.g. from Uhlmann & Zacher on the topic of EMS selection, specification creation and collaboration), this will highlight the benefits of close collaboration between EMS providers and OEMs for both sides and provide a platform for personal exchange that builds trust to delegate development issues and optimize the supply chain. Among other EMS companies, Assel, Elhurt and Coronex are participating, presentation topics include "The power of trust and dedication – Elhurt EMS way of navigating through components

shortage reality" (Elhurt) as well as a number of relevant German-language contributions.

Furthermore, the "PCB meets Components" joint booth enjoys a high level of participation, with WürthElektronik among the exhibiting companies.

With contributions on current topics such as "Operating AI use cases integrated into electronics manufacturing lines" (Dr. Sebastian Mehl, Siemens AG) on May 10 and the topics "Promoting young talent" and "Women in mechanical engineering - change in the company" on May 11, the trade fair forum promises an exciting program. This year, in addition to the ZVEI and Fraunhofer IZM, the VDMA and the German Association for Electronics Design & Manufacturing, FED e.V., are also participating, each with several program items.

Further information on the exhibition, topics and exhibiting companies is available at smtconnect.com. Interested parties are encouraged to purchase their tickets in advance via the event website.



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NEWS FROM ISRAEL

Eltek Ltd. Reports Full year and Fourth Quarter 2022 Financial Results

Eltek Ltd. has announced its financial results for the full year and fourth quarter ended December 31, 2022.

Full Year and Fourth Quarter 2022 Highlights

Revenues were \$39.6 million (Q4 - \$10.5 million)

Operating profit was \$3.0 million (Q4 - \$0.8 million)

Profit before tax was \$3.9 million (Q4 - \$0.9 million)

Net profit was \$3.2 million or \$0.55 per fully diluted share (Q4 - \$0.8 million or \$0.14 per fully diluted share)

Net cash provided by operating activities amounted to \$3.8 million (Q4 - \$1.3 million)

“We are pleased to announce strong growth in revenues and earnings for the year 2022. This was due to increased demand for our high-quality printed circuit boards. The growth in revenues is a testament to the hard work and dedication of our team, as well as the loyalty of our customers. We are excited to continue building upon this momentum in the coming year,” said Eli Yaffe, CEO of Eltek.

“The global PCB market is expected to continue to grow in the coming years, with the military, aerospace and defence sectors being the key drivers. As a leading provider of PCBs to these industries, Eltek is well-positioned to capitalize on this trend and continues to deliver strong results for our shareholders. We ended 2022 with a 70% growth in backlog.

During Q4 we received final approval from the Israel Innovation Authority (“IIA”) for a 40%, royalty bearing participation in an approximately \$800,000 one-year development program, which started in January 2023. This program is part of our investments in CapEx and research and development to bring new, high-quality products to the market and further drive growth in the future,” continued Mr. Yaffe.

“We have a strong balance sheet and a talented team, and we will continue to invest in our operations, products and people to sustain our long-term success,” concluded Mr. Yaffe.

2022 Full Year GAAP Financial Results

Revenues for 2022 were \$39.7 million compared to \$33.8 million in 2021.

Gross profit for 2022 was \$8.3 million (21% of revenues) compared to \$6.9 million (20% of revenues) in 2021.

Operating profit for 2022 was \$3.0 million compared to operating profit of \$1.9 million in 2021.

Financial income for 2022 was \$0.9 million compared to financial expense of \$0.5 million in 2021. Financial income, which was primarily generated in the second quarter of 2022, resulted from the erosion of the NIS against the US dollar.

Profit before income tax for 2022 was \$3.9 million compared to \$1.5 million in 2021.

Net profit for 2022 was \$3.2 million or \$0.55 per fully diluted share compared to net profit of \$5.0 million or \$0.86 per fully diluted share in 2021. Net profit in 2021 includes a one-time tax benefit of \$3.5 million.

2022 Full Year Non-GAAP Financial Results

EBITDA for 2022 was a \$4.5 million (11% of revenues) compared to EBITDA of \$3.8 million (11% of revenues) in 2021.

Fourth Quarter 2022 GAAP Financial Results

Revenues for the fourth quarter of 2022 were \$10.5 million compared to \$9.5 million in the fourth quarter of 2021.

Gross profit for the fourth quarter of 2022 was \$2.2 million (21% of revenues) compared to \$2.0 (21% of revenues) in the fourth quarter of 2021.

Operating profit for the fourth quarter of 2022 was \$0.8 million compared to operating profit of \$0.6 million in the fourth quarter of 2021.

Profit before income tax for the fourth quarter of 2022 was \$0.9 million compared to \$0.2 million in the fourth quarter of 2021.

Net profit for the fourth quarter of 2022 was \$0.8 million or \$0.14 per fully diluted share compared to net profit of \$3.8 million or \$0.65 per fully diluted share in the Fourth quarter of 2021. Net income in the fourth quarter of 2021 includes a one-time tax benefit of \$3.6 million.

Fourth Quarter 2022 Non-GAAP Financial Results

EBITDA for the fourth quarter of 2022 was a \$1.2 million (12% of revenues) compared to EBITDA of \$1.1 million (11% of revenues) in the fourth quarter of 2021.

About Eltek

Eltek - “Innovation Across the Board”, is a global manufacturer and supplier of technologically advanced solutions in the field of printed circuit boards (PCBs), and is an Israeli leading company in this industry. PCBs are the core circuitry of most electronic devices. Eltek specializes in the manufacture and supply of complex and high quality PCBs, HDI, multilayered and flex-rigid boards for the high-end market. Eltek is ITAR compliant and has AS-9100 and NADCAP Electronics certifications. Its customers include leading companies in the defence, aerospace and medical industries in Israel, the United States, Europe and Asia.

Eltek was founded in 1970. The Company’s headquarters, R&D, production and marketing centre are located in Israel. Eltek also operates through its subsidiary in North America and by agents and distributors in Europe, India, South Africa and South America.

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SOURCE Eltek Ltd.



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ELECTRONICS INDUSTRY NEWS

Hexagon and Altium partner to improve the sustainability of the electronics industry with cloud-based digital reality solutions

Hexagon's Manufacturing Intelligence division and Altium have entered a strategic partnership which will help the design and manufacturing of electronics be more environmentally sustainable. The partnership combines Hexagon's expertise in utilizing data from design and engineering, manufacturing and metrology with Altium's strengths in PCB design and electronics supply chain intelligence to help companies understand the impact of product development decisions on the sustainability of electronics and smart products.

Nearly every industry today faces increased pressure to reduce its carbon footprint and energy consumption, improve the recyclability of products, and conform to many additional regulatory requirements. Achieving such shifts in the electronics industry is immensely challenging given the complexity of global supply chains and operations, as well as the products themselves. Almost no solutions exist to manage sustainability performance across this ecosystem. Hexagon and Altium's partnership recognizes the significant impact that the electronics industry has on the environment and aims to make positive change by introducing new tools and solutions which support the industry in becoming more sustainable.

The partnership will integrate Hexagon's Nexus platform and the Altium 365 platform to address four key areas:

Manufacturing sustainability – helping manufacturers identify and implement more sustainable manufacturing processes and technologies that reduce waste and minimize environmental impact through continuous improvement.
Design for sustainability – empowering engineers with data-driven workflows that use advanced simulation-led design, virtual prototyping and quality inspection techniques to create sustainable products using the right material, design and manufacturing processes.

Fostering innovation – working with the market to develop new solutions that meet evolving market needs and address current and future challenges; for example, through Hexagon’s Sixth Sense start-up ecosystem and support programme.

Enterprise solutions – providing solutions that offer the electronics industry the compelling business differentiators and intelligence companies need to embrace greater innovation for sustainability.

The partnership is wide ranging, with developments planned throughout 2023 and beyond, with initial solutions focusing on reducing eWaste (electronic waste) through carbon dioxide impact tracking and recyclability improvements made available through Hexagon’s Nexus digital reality platform and the Altium 365 platform electronics product design platform that unites PCB design, MCAD, data management, and teamwork.

“IPC congratulates Altium and Hexagon on their partnership enhancing sustainability,” said John Mitchell, President & CEO of industry standards group IPC, “Altium’s expertise in PCB design and supply chain, combined with Hexagon’s metrology and analytics capabilities, strengthens the company’s position as a leading authority for the electronics industry on environmental sustainability and a valued partner in IPC initiatives, including our soon-to-be announced Sustainability Leadership Council”.

“Sustainability is a key talking point on the executive agendas of nearly every company in our industry,” says Ted Pawela, Chief Ecosystem Officer at Altium. “Our partnership with Hexagon will enable real progress in tracking and reporting – and most importantly - improvement on the key sustainability metrics that our customers need to address. We look forward to ongoing collaboration with IPC and Hexagon to help create a more sustainable future for our industry.”

“Sustainability is a top priority for Hexagon”, says Parth Joshi, Chief Product and Technology Officer of Hexagon’s Manufacturing Intelligence division. “We are excited to work with Altium and to be leveraging their electronics

expertise and software to provide richer solutions to our customers. Together, we have a vision to change the way sustainability is viewed, implemented, and adopted in the electronics industry. We are committed to developing and implementing sustainable manufacturing processes and open digital technologies that will help our customers to address inefficiencies, reduce their carbon footprint, and adopt a circular economy.”

Global press office: media.mi@hexagon.com

About Altium

Altium, LLC (ASX: ALU) is a global software company headquartered in San Diego, California, accelerating the pace of innovation through electronics. For over 30 years, Altium has been delivering software that maximizes the productivity of PCB designers and electrical engineers. From individual inventors to multinational corporations, more PCB designers and engineers choose Altium software to design and realize electronics-based products.

About IPC

The industry standards group IPC is a global trade association for the printed circuit board (PCB) and electronics assembly industries. Founded in 1957, IPC is headquartered in Bannockburn, Illinois. The organization is dedicated to promoting the growth and competitiveness of the electronics industry by developing and distributing technical standards, training programs, and other resources for electronics manufacturers and suppliers. IPC is known for its expertise in electronics manufacturing and its commitment to helping companies in the industry improve quality, reliability, and performance.

About Hexagon

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future. Hexagon’s Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagon.com/mi.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,000 employees in 50 countries and net sales of approximately 5.2bn Euro.

SOURCE Hexagon



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PCB INDUSTRY NEWS

North American PCB Market: Time to “Finish the Job” on PCB Funding - Dr. Hayao Nakahara

Electronics Manufacturing Daily News March 3, 2023

I understand the importance of this funding. In my opinion, PCBs must be reliable and must be delivered on time. However, above all, the final demand is pricing.

By the way, Mr. Schild mentions that there were 2,200 PCB makers in the U.S. at one time. When someone mentions this kind of number, everyone copies. I have a list of PCB makers in N. America circa 1975-1980. We never had more than 1,400 makers in N. America. Currently as of 2022 August, we had 160 makers in the U.S. and 20 in Canada operating about 235-236 PCB manufacturing factories.

In 2022, the total world output of PCB is estimated at about \$97 billion including some amount of assembled boards by PCB makers. The total output by N. American PCB makers (The U.S. and Canadian) is estimated to be about \$5 billion + including overseas production (mainly in China by TTM Technologies, Sanmina and Amphenol). If these numbers are correct, the N. American share was about 5.2%. The “domestic (N. American)” production was about \$3 billion or 3% of the total.

I remember that by the end of 1990's, 70-75% of PCBs produced in N. America were sold to EMS makers. Many EMS makers started as “in-house assembly” factories. When driven by cost and price, they had no choice but to move to low cost countries, mainly China. In early 2000s, the reliability of China made PCBs was often questionable. But, as time went by, China (not only Chinese nationals but also Taiwanese, U.S. and Japanese makers operating in China) was delivering low cost and reliable PCBs to H-P, Cisco, Lenovo, Dell, Apple, etc., etc. In 2000, the U.S. PCB output including overseas production, was about \$12.5 billion or about 32% of the world followed by Japanese, which also had about \$12 billion. By early 2000, the output of these two countries kept decreasing. Japan held a decent amount because it invested in new plants early on in S. East Asian countries where they could achieve low cost.

I interviewed several Chinese PCB makers which have been doing business with the U.S. companies. They said that only a fractional portion of the PCBs they sell to the U.S. customers land in the U.S. The majority of their products end up at factories making products for the U.S. companies operating in China and S. East Asia. And a considerable quantity of PCBs are exported to Mexico for the U.S. companies.

Now, a number of PCB makers from China, Taiwan, Japan and S. Korea, even U.S. (TTM) and European (AT&S) are building new large scale plants in Malaysia (TTM, AT&S, GBM, SIMMTECH), Thailand (WUS, JOVE, AOSHIKAN, CEE, KINWONG, etc. from China, CMK and

Kyoden from Japan, KCE from Thailand and existing makers such as E&E, Chin Poon, APCB and APEX are expanding), Vietnam (TRIPOD by buying FICT, KYOSHA, MEIKO, TLB and many more rumored from Taiwan). The total investment pledged so far when carried out amounts to \$4.5 billion, more than the \$3 billion we are talking about and these investments are being carried out now not in discussion. The S. East Asian PCB output today is about \$8 billion annually. When these investments start to contribute to S. East Asian PCB output in four to five years, it may reach \$13-14 billion, which is 4 times larger than the current output in N. America.

I hope the Congress understands this well to accelerate "PCB ACT".

H. Nakahara/N.T Information Ltd

World TOP PCB Makers in 2000 (unit: US\$ Million)

Ranking	Maker	Country	\$Million	Remarks
1	Sanmina	USA	1,550	Sanmina closed 3 shops, but buying SCI
2	Viasystems	USA	1,250	Closed Richmond & P.R. Sold Swedish plant
3	CMK	Japan	1112	Built two plants in China and one more in China
4	Ibiden	Japan	1083	Substrate plant in Philippine and HDI plant in Beijing
5	Hitachi Group	Japan	973	Tackling fiberoptic backplane
6	Nippon Mektron	Japan	905	German JV is now a subsidiary. Closed US shops
7	Compeq	Taiwan	802	A major supplier of Intel substrates, A plant in China
8	Multek	USA	780	Closed Austin plant. Building 2 new plants in China
9	Fujitsu	Japan	624	Vietnam plant expanding microvia capability
10	Tyco PCB	USA	600	Closed 3 shops in the US and bought Microser of Spain
11	Shinko Denki	Japan	550	A major supplier of Intel substrates
12	Daeduck Group	S.Korea	480	A plant in the Philippines
13	DDi	USA	450	Aggressive acquisition. Sales office in Japan
14	IBM	USA	450	Spending \$300M in Shanghai for substrate manufact.
15	Matsushita MACO	Japan	445	ALIVH doing well. Subsidiaries in Taiwan & Thailand
16	Nanya PCB	Taiwan	440	Built first plant in Kunshan, China
17	Photocircuits	USA	400	Philippine plant still waiting

18	WWEI	Taiwan	400	Merging with Uni Micron and Bestmult, both of TW
19	Samsung E-M	S.Korea	400	Planning a plant in China
20	Wus	Taiwan	390	Closed Singapore plants (ex-Motorola plants)
21	MGC Group (JCI)	Japan	382	Plants in Japan, Taiwan and China
22	Honeywell ACI	USA	360	3 plants closed and reorganized
23	LG Electronics	S.Korea	340	Plant in Brazil planned ?
24	Elec & Eltek	Hong Kong	320	Building a new backpanel plant in China
25	Korea Circuit	S.Korea	310	Bought a small flex,flex-rigid maker in California
26	Sony	Japan	305	Sony Neagari & Sony Chemical combined
27	Toppan Printing	Japan	295	A new plant in Poway, CA
28	AT&S	Austria	295	Building a new microvia plant in Shanghai
29	NEC	Japan	291	Busy with microvia activities
30	Fujikura Corp	Japan	268	4 plants in Thailand and two new ones in China planned
31	Gold Circuit	Taiwan	256	New plant in Suzhou, China
32	Daisho Denshi	Japan	255	Collaborating with Microline (HK) in Huizhou, China
33	MMM-3M	USA	250	This is a wild guess
34	Unicap	Taiwan	229	Its high-end BGA substrate business doing well
35	Mitsui Mining	Japan	227	number one flex substrate business
36	Aspocomp	Finland	220	A JV in China & bought majority share of PCB Center
37	Shindo Denshi	Japan	218	Flexible TAB and substrate maker
38	Ruwel Group	Germany	218	Doing relatively well with automotive electronics
39	Teradyne	USA	210	Bought Herco Technology in San Diego
40	OPC	Hong Kong	210	Building a packpanel plant in Dongguang

41	Sumitomo Denko	Japan	209	Plant in the Philippines & China
42	Unitech	Taiwan	205	Doing poorly this year. Plant in Shanghai
43	TTM	USA	203	Doing well considering the current situation
44	Merix	USA	195	Going ahead with new plant
45	Chin Poon	Taiwan	194	JV with Aspocomg in Suzhou, China
46	Yamamoto Mfg	Japan	182	Devastated because of Cisco
47	Airex, Inc	Japan	181	Philippine plant being closed ?
48	Meiko	Japan	168	A gigantic plant in panyu, China
49	Nitto Denko	Japan	165	New plants in China
50	Innovex	USA	164	2 plants in China. Closed old ADFlex Solution plant
51	Petasys	S.Korea	160	Cisco is a problem
52	Topsearch	Hong Kong	160	Building high-layer count MLB plant next to existing
53	Wong Circuits	Hong Kong	158	Building a new plant also in Huizhou near to existing
54	Alcatel Group	France	156	On the block
55	Litton	USA	150	Transformed to high density plant
56	Shinko Mfg	Japan	147	B2it licensee, subsidiary of Sumitomo Mining
57	Gul Technologies	Singapore	145	China plant in Suzhou strengthened
58	Vogt/Fuba	Germany	143	Doing well with automotive electronics
59	Kyoden	Japan	139	Bought Toei Denshi and is collaborating with Flextronics
60	NTK	Japan	136	All Intel substrates, collaborating with Nanya PCB
61	Casio Microelec.	Japan	135	Flex substrates
62	Elna	Japan	129	A plant in Penang, Malaysia
63	Itabashi Seiki	Japan	125	A Plant in the Philippines
64	Shirai Denshi	Japan	123	A subsidiary in Shenzhen doing drilling service

65	Yashin	Taiwan	118	Bought MLB technology from Matsushita Denshi Buhin
66	CT Circuit	Japan	118	Not known to this author
67	STP	Germany	118	Cisco nearly killed it, but doing well with Thinkpad
68	Sanwa Denki	Japan	117	Three shops, not growth in the past several years
69	Eastern	Japan	114	High-end BGA king
70	Fujikiko	Japan	114	Crawled out of Chapter 11 and is doing OK
71	Hokuriku Denko	Japan	114	A plant in Malaysia and a plant in Canada (Rexan)
72	Japan Victor (JVC)	Japan	114	JV with Unicap in Kunshan for cell phone boards
73	Kyoei Sangyo	Japan	111	Also a maker of hole counter and open-short tester
74	Eurocir	Spain	110	Partly owned by MacDermid
75	SSK Limited	Japan	109	All microvia boards for cell phones and base stations
76	PWC	Taiwan	108	Finally up from nap and investing heavily
77	KCE	Thailand	101	A brand new MLB plant in Ayuthaya
78	M-Flex	USA	100	Plant in China and Singapore
79	Nippon Elec	Japan	100	Don't know what is happening (owned by NS Chemical)
80	Matsushita Denko	Japan	98	A plant (SSB) in Suzhou, China
81	Tripod	Taiwan	95	Memory module specialist
82	Yeti	Taiwan	94	Not known to this author
83	Lares-Cozzi	Italy	94	Doing relatively well
84	Vertex	Taiwan	93	A flex plant in Suzhou
85	Kyocera	Japan	90	All microvia substrates. Ceramic giant. Own Megatool
86	Sumitomo Bakelite	Japan	90	New plant near Ho Chin Mung City approved
87	Aica Kogyo	Japan	90	Memory module specialist
88	Clover Electronics	Japan	89	The largest B2it board producer, recently expanded
89	Parlex	USA	85	A plant in Shanghai

90	NCI Electronics	Japan	84	Not known to this author
91	Schweizer Elect AG	Germany	84	Constructing a new HDI plant next to existing plant
92	Sheldahl	USA	83	Bought by Int'l Flex Technology
93	Bestmult	Taiwan	82	Merging with WWEI
94	Sakai Denshi	Japan	82	Subcontracter to Sharp
95	Circuit Systems	USA	80	Bankrupted. Equipment auctioned off.
96	Nihon Auto Giken	Japan	79	Using automated dip coating for inner layer imaging
97	Freundenberg-Mektec	Germany	79	Now a subsidiary of Nippon Mektron
98	Boardtek	Taiwan	77	Bought ALIVH technology from Matsushita
99	Kyosha	Japan	77	A plant (SSB) in Mexico & China.
100	Circuit-Wise	USA	75	Under Chapter 11
101	Santa Light Metal	Japan	75	Not known to this author
102	Microser	Spain	75	Sold to Tyco PCB in May, 2001
103	Simmtech	S.Korea	75	Collaborating with CMK
104	Biloda	Taiwan	75	In Guangdong Province. Parent, First Int'l motherboard
105	The Bureau	USA	74	Shrank to 100 employees
106	PPT	Taiwan	74	Phenoex Precision Technology. BGA specialist
107	Cire-Group	France	73	Consisting of several small shops
108	Würth Electronics	Germany	72	Orobotech's LDI system DP-100 promoter
109	Pentex-Schweizer	Singapore	72	A plant in Wuxi, China
110	Pucka	Taiwan	71	Membrane switch and flex board maker
111	PPE	Germany	70	Management changes, microvia pioneer
112	Cosmo Tech	S.Korea	70	30% owned by a Japanese trading firm
113	Unic	Taiwan	69	Not known to this author
114	CCTC	China	68	The largest China owned maker in

				China
115	Tanazawa Hakko	Japan	67	SSB maker for niche market
116	PPC	Swiss	66	Well known high-end backpanel maker
117	Tanaka Prec. Metal	Japan	65	Not known to this author
118	Maruwa Corp	Japan	65	Flex maker, also a plant in Malaysia
119	Canon Components	Japan	64	Shrinking from peak time output of \$160M
120	Shea May	Taiwan	63	Not known to this author
121	AIK Group	Germany	61	Consisting of former Philips PCB
122	Malaysia Circuit	Malaysia	60	Originally a Mitsubishi Gas Chemical
123	Oki Printed Circuit	Japan	59	One of the few captive shops in Japan
124	Toei Denshi	Japan	59	Bought by Kyoden. A plant in Thailand
125	Chant World	Taiwan	58	Lost money for many years, but finally back
126	Hunix, Inc	S.Korea	58	Former saehan Electronics. A SSB plant in Mexico
127	Poly Circuits	USA	57	Not known to this author
128	Career	Taiwan	57	Not known to this author
129	Estec	Hong Kong	57	Little known to outside world
130	Yang An	Taiwan	56	Not known to this author
131	Hirayama Engraving	Japan	56	Supplier to NEC
132	Max Edge	Taiwan	55	Built as a BGA substrate maker but now MLB maker
133	YKC	Japan	55	Two plants in Shanghai
134	Coretec, Inc	Canada	54	Mini DDi
135	S. Bay Circuits	USA	53	Not known to this author
136	Yu Foo	Taiwan	51	Not known to this author
137	Pycon S. Clara	USA	50	Not known to this author
138	Mitsubishi Denki	Japan	50	On the block ?
139	Printronic Group	China	50	Tianjin, Shanghai & Dongguang
140	SFL	Taiwan	49	Not known to this

		an		author
141	Tean Elec	Taiwan	49	Not known to this author
142	Prestwick	UK	49	Second largest in UK after Viasystems
143	Kyoei Denshi	Japan	48	Not known to this author
144	Marugo Giken	Japan	48	Lots of subcontracts
145	Adiboard	Brazil	48	CC-4 and SSB board maker, expanding into MLB
146	Winonics	USA	48	Two plants in Canada
147	Ambiteck	USA	47	High-tech board maker
148	Qualitek	Taiwan	47	A plant in Malaysia
149	Taiyo Kogyo	Japan	47	Also making open-short testing equipment
150	Int'l Flex Technologies	USA	45	Former IBM. Bought Sheldahl
151	Aiko Kiki	Japan	45	Not known to this author
152	Carolina Circuits	Canada	45	C-MAC company
153	Shennan Circuits	China	45	Second largest China owned maker in China
154	Dalian Pacific ML	China	45	Second largest China owned maker in China
155	Cosmo Electronics	Japan	44	A subsidiary of textile maker, Toyobo
156	Inboard	Germany	44	Siemens company, 49.9% owned by Sanmina
157	Amitron	USA	42	Not known to this author
158	Elektropack	USA	42	Not known to this author
159	Towa Print	Japan	41	Not known to this author
160	Elbasa	Spain	41	Telecommunication specialist in Barcelona
161	First Hi-Tec	Taiwan	40	Not known to this author
162	Omni Circuits	USA	40	Not much change
163	Rotra	Germany	39	Former Grundig Werke 20
164	Cadac	Taiwan	38	Not known to this author
165	Victory	Taiwan	37	Not known to this author
166	Ryowa	Japan	36	BGA specialist
167	Tochigi	Japan	36	Not known to this

	Denshi	n		author
168	Westak	USA	35	Steady as it sails
169	Circuitec h	Taiwan	35	Not known to this author
170	Printec	Japan	35	Mistui Chemical subsidiary
171	Eight Kogyo	Japan	35	Not known to this author
172	Okuno Mfg	Japan	35	Flxible board maker
173	Ryoko Denshi	Japan	34	Mitsubishi Rayon Subsidiary
174	SAT/Sage m	France	34	What is going to happen ?
175	PCB Center	Thailand	34	51% is now owned by Aspocomp of Finland
176	Hsinta	Taiwan	33	Not known to this author
177	Uniplus	Taiwan	33	Not known to this author
178	Senba Denki Mat'l	Japan	33	Not known to this author
179	Cofidur Group	France	33	Like Cire-group, consisting of several plants
180	Printed Circuit Corp	USA	32	May you rest peacefully, Peter
181	Gia Tzoong	Taiwan	32	Not known to this author
182	Butterfly	Taiwan	32	Not known to this author
183	Satosan	Japan	32	Sold its share to CNK of China plant
184	Shikibo Denshi	Japan	32	Not known to this author
185	Chemitali c	Denmark	32	Hig-end MLB
186	K & S	USA	30	IC probe card and backpanel boards
187	OK Print	Japan	30	Not known to this author
188	Woojian Electronics	S.Korea	30	Not known to this author
189	Zuhai Multilayer	China	30	Not known to this author
190	McCurdy Circuits	USA	29	Closed
191	Advanced Circuit Tech	USA	29	Not known to this author
192	NBC Corp	Japan	29	Not known to this author
193	Photoche mie	Swiss	29	Former Fela
194	Viktron	USA	29	Shrank
195	Mosaic Circuits	USA	28	Not known to this author

196	hmp Heidenheim	Germany	27	Geschäftfuer, Mr. Meis, is 203cm tall
197	Optiprint	Swiss	27	Not known to this author
198	Sau Kwang	S.Korea	27	Not known to this author
199	America Board	USA	27	In Bingahmton near IBM Endicott
200	Hallmark Circuits	USA	27	Picking up McCurdy's business
	Top 200 Total		31,594	

(N.T. Information Ltd, 2001)

Number of Entries	Japan	72
	USA	38
	Taiwan	36
	Germany	11
	HGK/China	10
	S. Korea	10
	France	4
	Spain	3
	Swiss	3
	Canada	2
	Singapore	2
	Thailand	2
	Austria	1
	Finland	1
	Italy	1
	UK	1
	Denmark	1
	Malaysia	1
	Brazil	1
	Total	200

World Top PCB Makers in 2021 with Revenue ≥ \$100 million (unit: \$US million)

R a n k	Maker Name	Nationality	Local Name	YoY chng	2020	2021	Brief Comments
1	Zhen Ding Technology	TW/China	臻鼎科技	18.1%	4,749	5,609	60+% from FPC & FPCA, Into IC PKG Sub
2	Unimicron	TW/China	欣興電子	19.0%	3,178	3,783	IC PKG Sub: \$2,080m, HDI: \$945m
3	DSBJ	China	東山精密	9.2%	2,932	3,201	Mflex+ Multek, 80% FPC & FPCA
4	Nippon Mektron	Japan	日本メクトロン	13.9%	2,585	2,944	100% FPC & FPCA, Number one Auto PCB
5	Compeq	TW/China	華通電腦	4.2%	2,189	2,281	75% made in China, China plants expanding
6	Tripod	TW/China	健鼎科技	18.4%	2,010	2,279	96% made in China, China plants expanding
7	TTM Technology	U.S.A.	TTM Technologies	6.8%	2,110	2,249	New plant under construct in Penang, Malaysia
8	Shennan Circuits	China	深南電路	20.2%	1,812	2,178	\$1.5b investment on IC PKG substrate
9	Ibiden	Japan	イビデン	42.7%	1,524	2,174	IC PKG Sub: \$1,900m ???
10	HannStar Board	TW/China	瀚宇博德	24.7%	1,654	2,062	Includes GBM, which contains ELNA
11	AT&S	Austria	AT&S	33.8%	1,416	1,895	\$2.2b IC PKG Sub in Malaysia \$0.5b in Austr,
12	Nanya PCB	TW/China	南亞電路	35.6%	1,393	1,890	IC PKG Sub: \$1,225m, 65% of total revenue
13	Kingboard PCB	China	建滔集團	31.4%	1,390	1,828	Consiting of E&E, Techwise, Glory Faith, etc.
14	SEMCO	S. Korea	삼성전기	7.6%	1,551	1,669	IC PKG Sub: \$1,412m, \$1b in Vietnam
15	Shinko Electric Ind	Japan	新光電氣工業	49.5%	1,040	1,554	100% IC PGK Sub and expanding
1	Kinwong	China	景旺電子	35.	1,	1,	Into high-end HDI and

6				0%	10	48	high layer count MLB
					1,	1,	
1	Young Poong Group	S. Korea	영풍그룹	18.7%	253	487	YPE, Interflex & Korea Circuit (\$840m FPC)
1	Meiko	Japan	メイコー	26.8%	092	388	\$672m autpmotive, Into IC PKG Sub in Japan
1	LG Innotek	S. Korea	LG이노텍	26.2%	095	382	100% IC PKG Sub
2	WUS Group (TW+CN)	TW/China	楠梓電子(滬士電子)	1.1%	337	352	Taiwan Wus plus China Wus,
2	Kinsus	TW/China	景碩科技	31.6%	980	291	90% IC PKG Sub, new plant in Taiwan
2	Flexium Technology	TW/China	台群科技	19.0%	082	287	100% FPC & FPCA, 63% made in China
2	Simmtech	S. Korea	심텍	11.8%	057	200	New IC PKG Sub plant in Penang, Malaysia
2	Victory Giant	China	勝宏科技	32.7%	875	161	Rapid growth in HDI, IC PKG Sub to Nantong
2	AKM Meadville	China	安捷利美維	32.7%	846	123	AKM & AKM Meadville combined
2	Taiwan Techvest (TPT)	TW/China	志超科技	20.4%	827	995	PC motherboards
2	Gold Circuit (GCE)	TW/China	金像電子	13.8%	846	956	High layer count MLB
2	Suntak	China	崇達科技	37.3%	682	937	Into IC PKG Substrate
2	BH Flex	S. Korea	베에이치 플렉스	43.8%	635	913	100% FPC & FPCA, plants in Vietnam
3	Daeduck Electronics	S. Korea	대덕전자	8.1%	815	881	65% IC PKG Sub, more toward PKG Sub
3	Nitto Denko	Japan	日東電工	71.0%	514	879	\$100% FPC and expanding
3	Fujikura	Japan	フジクラ	-	1,	1,	
				21.0%	051	828	\$100% FPC almost all in Thai & Vietnam
3	Shenzhen Fast Print	China	深圳興森快捷電路	24.9%	630	787	IC PKG Sub is increasing with new investment
3	CMK	Japan	日本シーエムケー	16.5%	641	747	80% automtoive PCB
3	ASK PCB	China	奧士康	52.	45	69	New plant is contributing

5				4%	5	3	
3				38.	50	69	\$2.6b IC PKG Sub
6	Kyocera	Japan	京セラ	0%	0	0	including ceramic Sub
3				19.	55	65	
7	Chin Poon	TW/China	敬鵬工業	0%	4	9	80% automotive PCB
3				16.	55	64	MetroCirc, LCP based
8	Mutara Manufacturing	Japan	村田製作所	4%	0	0	FPC
3				48.	39	58	
9	Olympic	China	世運電路	2%	6	7	Automotive increasing
4				-			
0	Shengyi Electronics	China	生益電子	0.4%	57	57	Huawei order nose dived
4				24.	45	57	
1	Dynamic Electronics	TW/China	定穎電子	9%	6	0	More than 50% from automotive PCB
4				0.4%	56	56	
2	Sumitomo Elect Ind,	Japan	住友電氣工業	%	2	4	Dormnat
4				20.	45	56	
3	Wuzhu	China	五株科技	3%	6	0	HDI & FPC
4				26.	43	55	
4	Bomin Electronics	China	博敏電子	4%	5	0	Into IC PKG Substrate
4				25.	42	53	
5	APEX International	TW/China	泰鼎電路	1%	8	5	Planrt only in Thailand, investing more
4				-			
6	Career Technoogy	TW/China	嘉聯益科技	8.5%	58	53	100% FPC and FPCA
4				37.	36	50	
7	Sun & Lynn	China	深聯電路	8%	9	8	www.slpcb.com
4				-			
8	Founder PCB	China	方正印刷電路	0.3%	50	50	What is going on at Founder?
4				21.	41	49	
9	Hongxin Electronics	China	弘信電子	1%	2	9	100% FPC & FPCA
5				-			
0	Unitech	TW/China	耀華電子	6.2%	52	48	RFC did not do well
5				31.	37	48	
1	KCE	Thailand	KCE Electronics	0%	0	3	70%+ is from automotive, new plant
5				21.	39	47	
2	Gul Technology	Singapore	Gul Technology	6%	3	8	HDI & automotive PCB
5				25.	36	46	
3	China Eagle (CEE)	China	中京電子	9%	6	0	Into IC PKG Substrate
5				12.	40	45	
4	Ellington	China	依頓電子	5%	4	4	Automotive increasing, new plant
5				16.	38	45	
5	CCTC	China	汕頭超聲印製板	3%	7	0	Conservative. Automotive PCB & HDI
5				15.	36	42	
6	Guangdong Junya	China	廣東駿亞電子	8%	8	6	Bought Sumitomo Denko in Shenzhen
5				4.7	40	42	
5	SI Flex	S. Korea	에스아이				100% FPC & FPCA,

7			플렉스	%	6	5	plants only in Vietnam
5	Kyoden	Japan	キョウデ	25.	33	41	25% automotive
8			ン	8%	3	9	
5	Isu-Petasys	S. Korea	이수페타	-	45	41	High layer count MLB
9			시스	8.8%	3	3	
6	Lincstech	Japan	リンクス	23.	32	40	Foremer PCB Div of Showa Denko
0			テック	8%	3	0	
6	ASE	TW/Chi	日月光	34.	28	38	100% IC PKG Sub, Kaoshiung & Shanghai
1				7%	2	0	
6	Red Board	China	紅板	17.	31	37	Ji'An plant expanding
2				0%	9	3	
6	GD Keixiang Kingshine	China	広東科翔	40.	25	35	www.gdkxpcb.com
3			電子	6%	0	2	
6	Guangdong XD Group	China	広東興達	3.8	31	33	www.xdgroup.com
4			鴻業電子	%	8	0	
6	STEMCO	S. Korea	스탬코	10.	30	33	COF, JV between Samsaung & Toray of Japan
5				0%	0	0	
6	Sanmina Corporation	U.S.A.	Sanmina	10.	30	33	Plants in the U.S., China & Singapore
6			Corporati	0%	0	0	
6	APCB	TW/Chi	競国実業	9.3	30	32	Taiwan, China & Thailand
7				%	1	9	
6	Delton Technology	China	広州広合	28.	25	32	www.delton.com.cn
8			科技	2%	8	4	
6	FICT	Japan	エフアイ	25.	24	30	Purchased by a Japanee Fund, Expanding
9			シーティ	8%	4	7	
7	Transtech	China	江蘇伝芭	8.5	27	30	???
0				%	6	0	
7	Shenzhen Sunshine	China	深圳明陽	48.	20	29	Two plants in China & subsidiary in Germany
1			電路	6%	2	0	
7	MFS	Singapo	MFS	16.	24	28	Two plants in China and one in Malaysia
2		re	Singapore	6%	1	1	
7	Shirai Denshi	Japan	シライ電	31.	20	27	Three plants in Japan and on in Zhuhai
3			子	7%	5	0	
7	DAP	S. Korea	디에이피	0.8	26	26	HDI specialist
4				%	5	7	
7	Leader-Tech	China	深圳上達	41.	18	26	FPC & FPCA, COF
5			電子	7%	7	6	
7	Palwonn	TW/Chi	競華電子	17.	22	26	Plant in Shenzhen & Suzhou, no plant in TWN
6				9%	3	3	
7	Onpress	China	安柏電路	33.	19	25	Heavily into automtoive PCB
7				9%	2	7	
7	Daisho Dennshi	Japan	大昌電子	11.	23	25	IC PKG Sub & high density PCB
8				7%	0	7	
7	Kunshan Huanxing Grp	China	昆山華新	11.	22	25	www.kshuanxin.com.cn
9				0%	9	4	

			電子集團				
80	ACCESS	China	珠海越亜半導體	73.5%	143	249	100% IC PKG Sub, New plant in Zhuhai
81	Taihong Circuit Industry	TW/China	台豐印刷電路工業	17.1%	205	240	China plant was sold
82	Ichia Technology	TW/China	毅嘉科技	17.7%	199	234	100% FPC & FPCA
83	SZ Jove Enterprize	China	深圳中富電路	33.1%	169	225	www.jovepcb.com
84	Würth Elektronik	Germany	Würth Elektronik	21.0%	178	215	Three plants in Germany and Chinese partners
85	Camelot PCB	China	金淥電路科技	67.6%	124	207	www.camelotpcb.com
86	Forewin FPC	China	福萊盈電子	42.7%	143	204	www.forewin-flex.com
87	Shenzen Minzhenhong	China	深圳明正宏電子	33.3%	150	200	www.mzhpcb.cn
88	Somacis	Italy	Somacis	11.1%	180	200	Italy, China, San Diego and U.K.(?)
89	Guangzhou GCI	China	廣州杰睿科技	20.4%	164	197	www.chinagci.com
90	Kyosha	Japan	京写	23.3%	159	196	Japan, China, Indonesia and now in Vietnam
91	Ji'An Munkan Technology	China	吉安滿坤科技	0.3%	192	186	www.mankun.com
92	Jiangxi ZLE	China	江西中絡電子	7.5%	169	182	www.zlepcb.com
93	Toppan Printing	Japan	凸版印刷	28.6%	140	180	100% IC PKG Substrate
94	Summit Interconnect	U.S.A.	Summit Interconnect	24.1%	145	180	Bought Royal Circuit in 2022
95	Oki Printed Circuit	Japan	沖PCB	8.5%	165	179	OKI Printed Circuit & Circuit Tech merged
96	Dongguang Hongyuen	China	東莞康源電子	33.7%	133	178	www.hongyuen.com, expanding
97	Liang Dar	TW/China	良達科技	6.1%	165	175	Two plants in Taiwan and one in China
98	Haesung DS	S. Korea	해성디에스	35.2%	125	169	www.haesungds.co.kr, Leadframe & PKG Sub
99	Brain Power	TW/China	欣強科技	7.7%	156	168	Plant only in China
100	Changzhou Auhong	China	常州澳弘電子	21.4%	138	167	www.czauhong.com
100	Jiangsu Suhang	China	江蘇蘇杭電子集團	18.4%	140	166	www.suhang.com.cn

1							
1 0 2	Glorysky	China	惠州市特創電子	40.9%	11 8	16 6	www.glorysky.de
1 0 3	Shihui Fushi	China	四会富仕電子科技	61.4%	10 2	16 4	www.fujiprint.com, Collaboration with CMK
1 0 4	Xusheng Electronics	China	江西旭昇電子	13.1%	14 5	16 3	www.xushengpcb.com
1 0 5	Hyunwoo	S. Korea	현우	29.0%	13 5	16 2	???
1 0 6	Jiangsu Difeida	China	江蘇迪飛達電子	27.5%	12 4	15 9	www.dfd338.com/cn
1 0 7	Sichuan Intronics	China	四川英創電子	11.0%	11 1	15 7	www.iqpcb.com
1 0 8	TLB	S. Korea	티엘비는	- 3.1%	16 2	15 7	New plant in Vietnam
1 0 9	Amphenol PCB	U.S.A.	Amphenol PCB	6.9%	14 5	15 5	Plants in the U.S., U.K. and China
1 1 0	KSG	Germany	KSG	27.0%	12 2	15 5	Plants in Germany and Austria
1 1 1	Longyu PCB	China	龍宇電子	51.3%	10 2	15 4	www.longyupcb.com
1 1 2	Jiangxi Union Gain	China	江西聯益電子科技	23.2%	12 4	15 4	www.uniongaincn.com
1 1 3	CHPT	TW/China	中華精測科技	0.8%	15 2	15 3	Maker of Probe cards & burn-in boards
1 1 4	Kunshan Wanzhen	China	昆山万正電路板	- 4.5%	15 5	14 8	www.wzpcb.com
1 1 5	Schweizer Electronics	Germany	Schweizer Electronics	25.0%	11 7	14 6	80% automotive, plants in Germany & China
1 1 6	SZ Xinyu Tengye	China	深圳新宇騰跌電子	- 0.5%	14 5	14 4	www.zefpc.com
1 1 7	Theme Int'l Holdings	China	榮暉國際集團	51.6%	95	14 4	???
1 1 1	Trustech	China	全成信電子	25.0%	11 2	14 0	www.trusttechpcb.com

8							
119	New Flex	S. Korea	뉴플렉스	6.1 %	131	139	FPC & FPCA, Plants in S. Korea & Vietnam
120	SDG Precision	China	三德冠精密	- 0.2 %	140	137	www.sdgpprecision.com
121	Plotech	TW/China	柏承科技	15.3 %	118	136	HDI
122	Welgao	China	江西威尔高電子	46.3 %	92	134	www.welgaopcb.com
123	Yamamoto MFG	Japan	山本製作所	24.8 %	105	131	High layer count MLB
124	Jia Li Chuang (Zhuhai)	China	先進電子(珠海)	80.0 %	72	130	www.jlc.link
125	Zejiang Leuchteck	China	浙江羅奇泰克科技	96.0 %	65	128	www.leuchteck.com.cn
126	Fuchnagfa	China	信豐福昌發	25.5 %	102	128	www.fcpcb.com
127	Aikokiki	Japan	愛工機器	10.7 %	112	124	Bought one of Kyocera's plant, PKG Core exp.
128	First Hi-Tech	TW/China	高技企業	35.2 %	90	122	www.fht.com.tw
129	HT Circuit	China	永捷電子	22.2 %	96	117	HT Electronic Tech (Tianjin)
130	Benlida PCB	China	江門奔力達電路	8.1 %	107	116	www.benlida.com
131	Concord Electronics	China	江蘇協和電子	9.2 %	96	115	www.xiehepcb.com
132	Shenzhen QD Circuit	China	深圳強達電路	39.8 %	79	111	www.qdcircuits.com
133	SZ Jing Cheng Da	China	深圳精誠達電路科技	15.8 %	95	110	www.jcdpcb.com
134	Tianjin Pulin	China	天津普林	52.9 %	72	109	HDI
135	Kingbrother	China	深圳金百	20.0 %	91	110	www.kingbrother.com

3			澤電子	2%		9	
5							
1			銅陵安博	46.		10	
3	Tonglin Anbo Circuit	China	電路板	7%	74	8	www.onhole.com.cn
6			湖北龍騰	52.		10	
1	Longteng Electronics	China	電子	0%	70	7	www.ltepcb.com
3				-		10	
7	ACCL	TW/China	博智電子	0.4%	105	105	www.accl.com.tw
1				28.		10	
3	Gangzhou Beyond PCB	China	贛州超跌	3%	83	4	www.en.pcb-beyond.com
9				15.		10	
1	Kingshen	China	贛州金順科技	0%	91	4	www.jskingshenpcb.com
4				34.		10	
1	Kunshan Huaxing	China	昆山華新電子	3%	77	3	www.kshuaxin.com.cn
4				14.		10	
2	APCT	U.S.A.	APCT	4%	90	3	Consisting of four units
1				6.3		10	
4	Dingcheng Electronics	China	深圳鼎成億鑫電子	%	96	2	???
3				5.2		10	
1	Sanwa Electronics Circuit	Japan	三和電子サーキット	%	96	1	Wide variety of PCB up to high layer MLB
4				7.4		10	
1	Shinko Manufacturing	Japan	伸光製作所	%	94	1	Subsidiary of Sumitomo Mining
4				12.		10	
6	Shin Asahi Denshi	Japan	新旭電子	2%	90	1	SSB and HDI
	NTI-100 Total			19.8%	73,546	88,145	Growth areas: IC PKG Substrate & auto PCB



The European Institute for the PCB Community

EIPC SPEeDNEWS

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NEWS FROM TAIPEI

Ventec expects its shipments of high-performance thermal substrate materials for automotive, military and aerospace applications to regain momentum in the first half of 2023

Taiwan-based Ventec Electronics, dedicated to specialty copper-clad laminates (CCL) and thermal materials, expects its shipments of high-performance thermal substrate materials for automotive, military and aerospace applications to regain momentum in the first half of 2023.

Ventec has said its niche-type CCLs and thermal materials have been well recognized by major military and aerospace clients worldwide, and strong order momentum from the clients will bolster its overall revenue performance for 2023. Industry sources said the company's products have cleared validations by NASA, Boeing and Airbus, among others.

The company has newly developed a high-end CCL product that boasts ultra-high thermal conductivity and can withstand high temperatures, and has started to incorporate its products into new applications such as power semiconductors, automotive engine turbo-charging, high power motors, energy storage inverter modules and high frequency metal substrates for low orbit satellites.

As EVs are entering the mass production cycle, Ventec expects its CCL products for heat-dissipating aluminium substrates used in EV applications and LED headlights will become a major growth product line in 2023.

The company noted it will continue developing speciality CCLs and materials, such as tec-speed high frequency materials, low loss materials and IC packaging materials, aiming to boost gross margins instead of pushing up sales volumes.

Ventec's February revenue rose 6% sequentially and slipped 24.63% annually to NT\$380 million (US\$12.40 million), and its sales for the first two months of the year dipped 32.14% on year to NT\$745 million.



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NEWS FROM THE IPC

New IPC Sustainability for Electronics Leadership Council to Address Industry Sustainability Challenges

In recognition of the need to identify, understand, and address sustainability challenges faced by the electronics manufacturing industry, IPC announces the Sustainability for Electronics Leadership Council.

Tasked with identifying the most pressing sustainability topics for the industry and building a strategic plan to address these topics, the Leadership Council will be active in an industry-wide materiality assessment to enable the creation of the plan.

Representatives from the following companies were named to the Leadership Council:

- AT&S
- Altium
- BAE Systems
- Flex
- Intel
- Jabil
- NGC
- Siemens
- TTM Technologies
- Zollner

Comprising industry sustainability experts with cross-industry representation from printed circuit board design and manufacturing

companies, electronics manufacturing services, and original equipment manufacturers from a variety of product sectors, the Leadership Council plans to meet every two weeks to develop strategy and roadmap recommendations to address the industry's sustainability challenges.

IPC's Lead Sustainability Strategist Dr. Kelly Scanlon said, "We hear from the industry that there needs to be a balance between current and evolving regulatory requirements with practical and realistic solutions – for example, specific education, advocacy, and standards – that harmonize the industry's ability to achieve their sustainability goals."

John W. Mitchell, IPC president and CEO, and current Chair of the Leadership Council stated, "We look forward to working with the subject matter experts on the Leadership Council. They represent the industry at large, their companies, their value chain segments, and their customers and suppliers. Their expertise in sustainability and electronics manufacturing empowers them to not just think about sustainability for electronics but to take actions that make a real difference."

The Sustainability for Electronics Leadership Council intends to present recommendations for a sustainability strategic plan by August 2023.

For more information on IPC's Sustainability for Electronics Initiative, contact Dr. Scanlon at KellyScanlon@ipc.org.



The European Institute for the PCB Community

EIPC SPEeDNEWS

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International Diary

2023

21st EIPC Technical Snapshot Webinar

Registrations via www.eipc.org

April

EIPC @ SMTconnect

9-11 May

Nuremberg, Germany

EIPC Summer Conference

Visit BMW World

15 & 16 June

Munich, Germany

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