The European Institute for the PCB Community

EIPC SPEeDNEWS

The Weekly On-Line Newsletter

December 2021

NEWS FROM THE EIPC

As responsible people queue patiently for their booster vaccinations, politicians queue to make their protest against the loss of liberty and human rights. People tend to take the view that you have to be alive to enjoy them.

In a world that has seen much upheaval it has been rewarding to witness the endeavour to maintain normality and stability in the industry that we serve, and in the earnest hope that this will be continued in 2022, we wish all our readers a very happy Christmas, and an enjoyable time of peace and recovery.

New EIPC Board of Directors 2022-2023

At our Annual General Meeting held in Munich in Week 46 2021, the following were elected as members of the Board for 2022-23.

Name	Company	Director
Stig Källman,	Ericsson, Sweden	Since 2019
Martyn Gaudion,	Polar Instruments, UK	Since 2013
Emma Hudson,	EHTC, UK	Since 2015
Mikko Montonen,	Aspocomp, Finland	Since 2014
Alun Morgan,	Ventec, USA	Since 2011
Oldrich Simek,	Pragoboard, Czech Republic	Since 2010
Paul Waldner,	MIE, Germany	Since 1998
Hubert Zimmermann,	Dyconex, Switzerland	Since 2010
John Fix,	Taiyo America Inc, USA	Since 2015
Dr. Michele Stampanoni,	Cicor, Switzerland	Since 2013
Johan Pellicaan,	MacDermid Enthone, Holland	Since 2018
Jean-Claude Roth,	CCI Eurolam, France	Since 2010
Jon Custer,	Custer Consulting Group, USA	New 2022

Our President, 2 Vice-Presidents + Treasurer are to be elected by the new EIPC Board of Directors during first Board meeting scheduled for February 2022.

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NEWS FROM CHINA

AT&S celebrates its 20th anniversary in China

The technology company headquartered in Leoben has had a production site in Shanghai for 20 years. The location in Chongqing has also been producing for ten years.

"AT&S's involvement in China since 2001 shows that we made courageous decisions 20 years ago," says Dr. Hannes Androsch, Chairman of the AT&S Supervisory Board. "Our foreign investments continue to contribute not only to safeguarding our jobs in Austria but also to expanding our Austrian locations, which is also shown with the investment in our R&D centre in Leoben." However, the expansion to China did not come at exactly the right time for AT&S by chance. "Our investments in China were important steps for our company. We felt the great economic and innovative potential of Asia early on," adds Willi Dörflinger, honorary member of the supervisory board. "With the plant in Shanghai, we first brought HDI and then substrate technology to China."

Gate to the World

The successful expansion has made an important contribution to the development of AT&S into a market leader with a worldwide network of customers, suppliers, and employees. "We would like to sincerely thank our customers, our suppliers, and, above all, our employees for the success of AT&S in recent years, especially in Shanghai and Chongqing," said the two company founders and core shareholders Hannes Androsch and Willi Dörflinger.

"AT&S has been industrializing cutting-edge technologies in China for its core business areas of mobile devices and IC substrates for 20 years. Asia, especially China, will continue to make a significant contribution to achieving the sales target of 3.5 billion euros in the 2025/26 financial year, "says AT&S CEO Andreas Gerstenmayer. In China, where AT&S already has more than 8,000 employees, they produce complex electronic components that lay the foundation for modern data processing in smartphones and computers.

The celebrations for the two anniversaries were held last week in a hybrid version, physically and virtually, so that the whole AT&S family can also participate in pandemic times. "The AT&S locations in Shanghai and Chongqing have created pioneering achievements in our industry," said Chen-Jiang Phua, CEO of the Mobile & Substrates business unit, in his address to the employees, to whom he expressed special thanks: "Through their commitment and passion we are always able to find innovative solutions and take further growth steps."

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NEWS FROM MALAYSIA

AT&S goes renewable energy in Malaysia

AT&S signs Memorandum of Understanding (MoU) with NUR Power for the supply of renewable energy for its manufacturing facility in the Kulim Hi-Technology Park.

Malaysia, Kedah, 16. December 2021 – AT&S has entered into a Memorandum of Understanding (MoU) with NUR Power, the dedicated Independent Power Utility for Kulim Hi-Tech Park (KHTP), to procure supply of renewable energy (RE) for its upcoming Malaysian plant in KHTP, Kedah, Malaysia. AT&S has in June, 2021 announced its investment of RM8.5 billion to set up its new high-end IC Substrates manufacturing facility in KHTP. Construction of the facility is currently ongoing and is expected to be operational by 2024.

Under the MOU Framework signed between the two companies, NUR Power will be providing solar energy for AT&S Kulim plant of 25MW in 2023 and up to 75MW by 2026 through a Power Purchase Agreement (PPA) for a period of at least 21 years. The committed solar energy is traceable and it will account for 30% of the annual energy consumption for the plant in the beginning with a potential of higher RE contribution in the future. In view of the fast track development of AT&S Kulim plant, both parties will work closely to ensure successful solar RE connection and capacity within the projected timeline.

The Chief Executive Officer of AT&S, Andreas Gerstenmayer, applauds the move, as "AT&S subscribes to the principles of Environment, Social and Corporate Governance (ESG). Therefore, it is a very important step for us to acquire solar energy to run our Malaysian plant at Kulim Hi-Tech Park. We aim to achieve CO_2 neutrality for the production in KHTP and aspire to achieve a caring and green company status. We see this step necessary as we commit to reduce our ecological footprint and to steward a greener environment for future generations."

NUR Power's Managing Director, Ikwan Hafiz Jamaludin seizes the opportunity to express his affirmation and says, "NUR Power lauds AT&S' ESG commitment and is proud to be part of their RE CO_2 neutrality effort. Our commitment to invest in solar energy forms part of NUR Power's RE initiatives for our valued customers. As ESG will be driving future investment requirements for foreign and domestic investors alike, we will be focusing on efforts to increase RE supply whilst continuing to ensure high power quality and reliability in KHTP".

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ELECTRONICS INDUSTRY NEWS

How Can Companies Combat the Electronic Components Shortage?

The ongoing electronic components shortage continues to disrupt businesses across the economy. Combined with other current supply chain crises — like growing port congestion and a shortage of truck drivers — the shortage has made electronics device manufacturing much more of a challenge.
For businesses navigating the shortage, these strategies may be the most effective to implement until the market is able to provide more normal levels of supply.

The current state of the electronic components shortage
A number of major component types face shortages right now.

Most important is the shortage of semiconductors, caused by a combination of lingering Covid-related manufacturing disruptions in East Asia, limited availability of critical semiconductor materials, and growing demand for electronic devices.

Demand for semiconductors grew by more than 30% between August 2020 and August 2021, despite slower-than-usual economic growth.
The expansion of the IoT market, the development of technology like the IoT semiconductor, and the rollout of 5G likely helped drive this surge in demand.
Other essential components and raw materials are also in short supply — making manufacturing challenging even when businesses can source the semiconductors or semiconductor-dependent parts they need.

The availability of key passive and power supply components like multilayer ceramic capacitors (MLCCs), diodes, transistors, and resistors has also been impacted by the pandemic and current supply chain challenges. Like semiconductors, these components may be difficult to source.
When will the shortage end?
Experts aren't entirely sure how long any of these component shortages will last. However, many have predicted that manufacturers will see some relief in 2022.

Yole Développement Economist Guillaume Assogba, for example, told Windows Central that he expected the end of the shortage by late 2022. Assogba predicts that consumer tech manufacturers will recover first due to stronger ties between that industry and the electronics component industry.
Sectors that did not work as hard to maintain connections to electronics components manufacturers during the pandemic — like the automotive industry — may not recover until some time in early 2023.

In any case, businesses should expect shortages of both electronics and components to last well into 2022.

What businesses can do right now to adapt
Businesses are adopting innovative strategies to navigate the current shortages.

Some of these strategies cut across industries and sector niches. All businesses, for example, can benefit from developing stronger relationships with component suppliers.

Building partnerships with suppliers
These relationships and regular communication may mean that suppliers will provide the latest update on market conditions, advanced notice on part availability, and potentially advice on navigating future shortages.

Businesses that maintain their relationships with suppliers will likely have the easiest time recovering as the shortage ends. Many chip suppliers are also offering preferred customer programs and similar initiatives that provide customers with priority if they commit to long-term business relationships.

If a business can afford to lock into a six-month or longer contract, it may be able to secure a supply of essential components well into the future.

Building resilience into the business's supply chain can also help the company prepare for future crises. Diversifying suppliers, expanding storage capabilities for essential components, and investing in risk management can all help a brand protect itself against potential future supply chain shocks.
In any case, businesses should avoid grey-market suppliers and unofficial suppliers when trying to manage current shortages or diversify their supplier base. The quality and reliability of these suppliers and resellers may be lower than more legitimate suppliers — negatives that can outweigh the benefits of working with grey-market suppliers, even when they can provide chips when other manufacturers cannot.

Changes to manufacturing processes and product design
Businesses may also need more immediate solutions to manufacturing and supply chain issues. Temporary chip replacement, for example, could be necessary for companies that are unable to source their desired chips.

Replacing current chips with chips that have more or less memory than the current solution is one possible option. Budget adjustments may be necessary for larger chips, while smaller chips may only be workable with new firmware that requires less memory.

Designing around shortages may be the only short-term solution to certain product availability issues, especially for industries that may not see relief until early 2023.

Preparing new designs for future shortages can also help the business prepare for future crises. Open-ended designs that can be easily reconfigured based on component availability may help keep production flexible, enabling the business to move quickly in the event that shortages make a preferred chip or component impossible to source.

Planning can help businesses navigate the electronic components shortage

Experts predict that the electronic components shortage may last well into 2022 — and potentially beyond for industries that have not maintained strong relationships with suppliers.

Until then, components like semiconductors, transistors, and resistors, along with essential raw materials, may remain in short supply.

The right planning can help businesses navigate the crisis and prepare for future supply chain shocks. Stronger partnerships with suppliers, a diversified supply base, and flexible designs may all make this shortage more manageable.

Courtesy of EPS.

Detecting Counterfeit ICs

Dec. 15, 2021

"Fake" chips present a huge issue for manufacturing companies trying to source ICs from non-traditional channels. One tool helps simplify the detection process.

Alan Lowne

This article is part of TechXchange: Chip Shortages and Counterfeits

What you'll learn:

- Why counterfeit integrated circuits are a problem.
- Types of, and methods behind, counterfeits.
- How you can protect yourself from counterfeit parts.

With the current worldwide chip shortage, manufacturers are desperately scrambling to keep their production lines going for electronics goods and automobiles. One solution many companies are turning to is the so-called "gray market"—non-authorized suppliers of obsolete and excess component stocks. While this can be a quick fix, it presents a problem that's challenging to detect and eliminate: counterfeit ICs.

For instance, a Massachusetts man was sentenced a few years ago to 37 months in prison for importing thousands of counterfeit integrated circuits from China and Hong Kong, which were resold to U.S. Navy contractors and installed in nuclear submarines. He also sold components to hundreds of other independent distributors and brokers in the U.S. and Europe, and the fake ICs reached even more government contractors and commercial manufacturers.

The counterfeit ICs were marked as originating from over 30 different IC suppliers. This case, with an unknown number of similar ones, shows that the presence of counterfeit components in the supply chain is a very significant and growing issue.

ICs aren't hard to fake, unlike banknotes. Making "lookalike" parts that resemble real ones takes very little skill. It simply requires finding cheap parts in the same format of package and merely painting new marks on them. This problem has arisen due to the high value of some electronics products, and this issue makes the whole manufacturing chain from assembly house to end-user vulnerable. The number of companies that have been fooled by batches of fake devices is incalculable.

Counterfeiting semiconductors has been a rapidly increasing trend, impacting a wide variety of electronics systems used by a wide gamut of involved parties—consumers, businesses, and military customers. The detection of counterfeit components has become an increasingly important priority for electronics manufacturers and component suppliers worldwide.

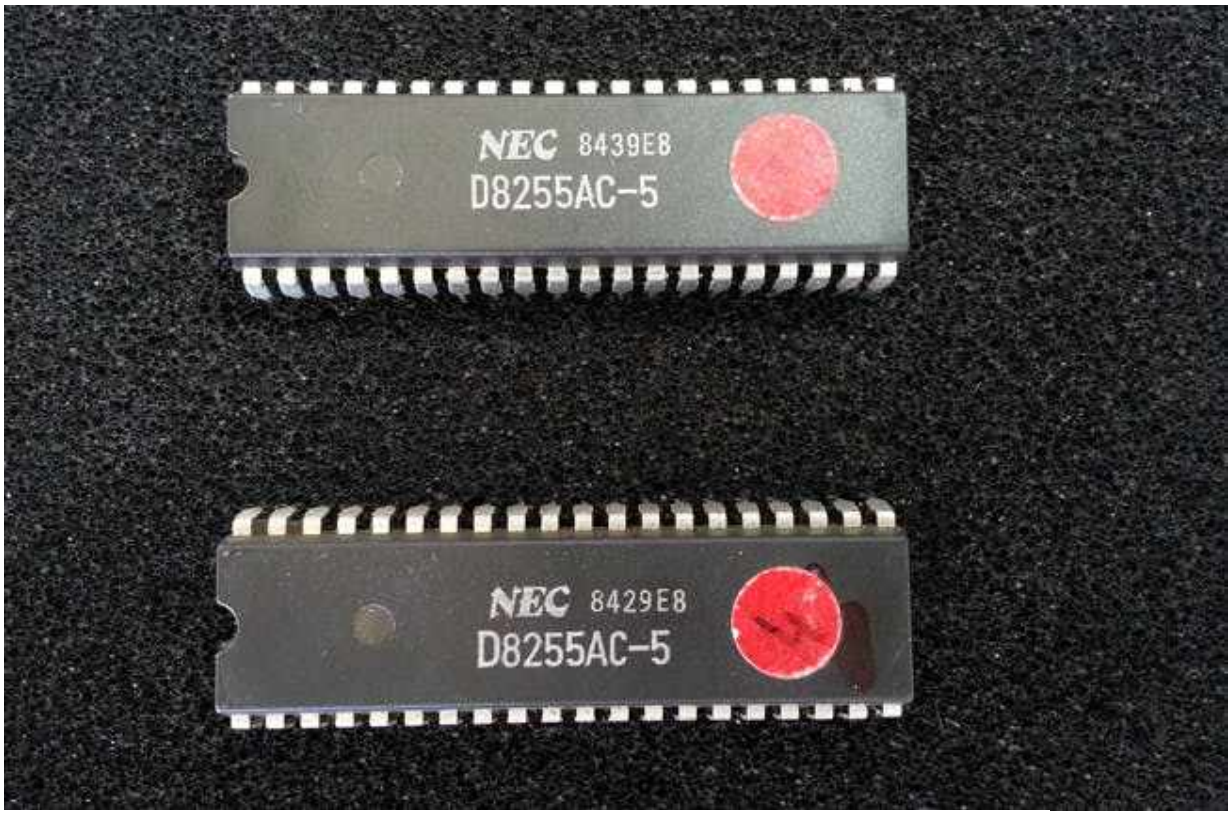
The Semiconductor Industry Association has estimated that counterfeit electronic parts have cost manufacturers more than $7.5 billion. Not only are companies suffering losses, delays and inconvenience, their reputations are being sullied because of the presence of counterfeit ICs in the market.

What Are Counterfeit Components?

Counterfeiters use several methods to produce their fake goods:

- Empty packages marked to resemble actual ICs.
- Cheap ICs re-marked to resemble more expensive ICs.
- ICs with similar but poorer specs re-marked to resemble better spec, more expensive ICs.
- ICs salvaged from circuit boards.

The most prevalent counterfeiting technique is selling re-badged products. It's a simple matter to remove the existing mark from a chip package and put on a new logo and part number, or a different brand or a different speed—and then sell the semiconductor to an unsuspecting buyer who has no way of making sure that the product is "real." Sometimes the chip is merely an empty package with no die inside *(Fig. 1)*.



1. Chip package markings can be made to look almost identical to the uncritical observer. Can you tell which is the genuine IC?

It's true that the finished system would fail before it left the factory. Nonetheless, it still requires expensive investigation and rework, with no replacement part available to replace the bad one, causing the dreaded "Line Down!" But the failure of fake borderline ICs may not occur until the system is in the field, and field repairs can cost 10X as much to fix as those caught before they leave the factory.

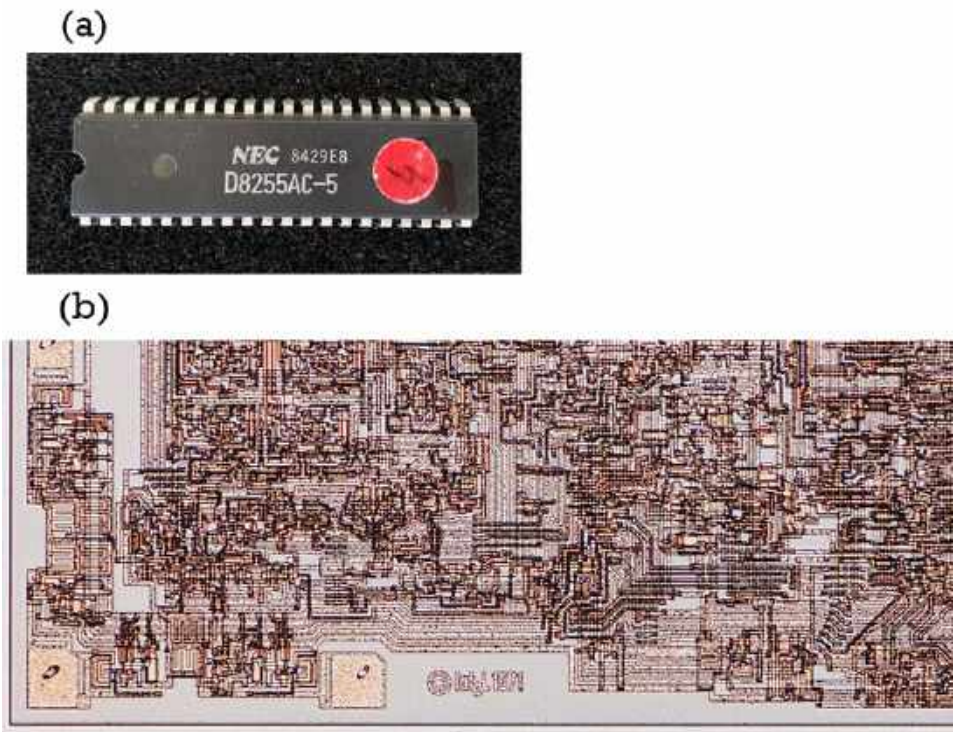
Counterfeiting also can occur with chips gleaned from discarded scrap boards. They can be re-marked with a different manufacturer's logo, inserted into the supply

chain, and sold to innocent buyers, who naturally assume that the products are genuine.

Usually, it's impossible to identify counterfeit components until they're fitted on a PCB, when the first tests are made on the final product. Failure requires the costly identification of the bad components and then lifting them from all boards in the production line. Complete batches of finished products may need to be recalled to the factory, directly hurting a company's bottom line.

Technical measures to solve this problem have previously included visual inspection of devices for marking errors, which needs a trained eye for all possible variations in marking. Electronically testing or x-raying every incoming batch is another technique.

Another destructive method is to use a complex decapsulation method to visually inspect the IC die with a microscope, immediately losing revenue due to the component's destruction *(Fig. 2)*. Not only is this expensive and time-consuming, but it requires complex training, skilled operators, and expensive equipment.



2. *The outside package marking (a) in this case doesn't match the die inside when the top cover is destructively removed (b).*

Screening

Some distributors have advertised their screening services for verifying components, with a turnaround time of "as little as two days." That's unacceptable in many cases. These companies offer techniques such as x-ray, x-ray fluorescence analysis (XRF), decapsulation, heated solvent testing, visual inspection, and solderability testing,

resulting in detailed reports—when all that was required was a determination of "is it a good part?" In reality, this approach is only viable for military or large-volume production runs.

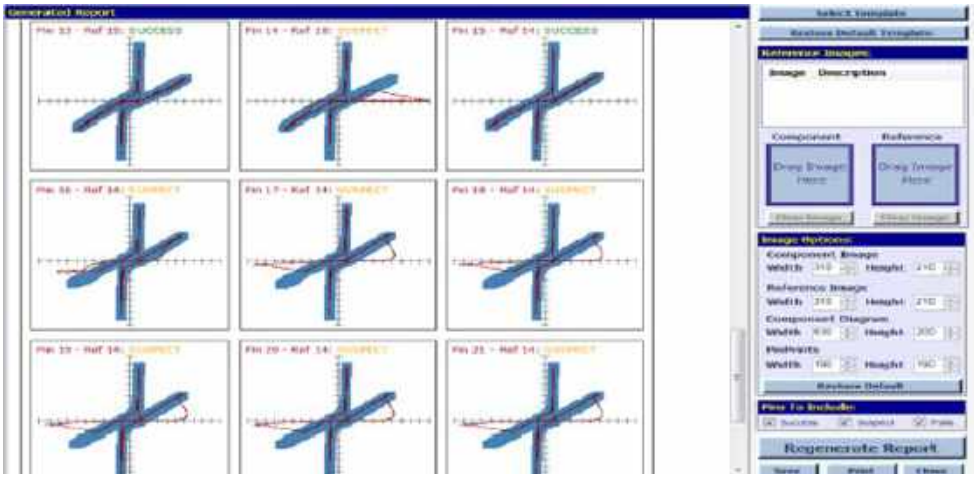
One method is to perform a functional test on a sample of the ICs; an example is logic I/O conforming to a truth table. This will detect gross problems, such as an incorrect logical function, or no function at all. However, they will miss the subtle "out of tolerance" issues—tell-tale signs that a component is counterfeit. With older-technology IC families, different speed variants are often available. Conventional testing equipment with this level of speed test capability is extremely expensive.

Addressing the Issue

A tool that can verify the identity of received ICs quickly and economically, using a statistically significant procedure, needs to be suitable for all devices and packages, should be easy to operate, and must give fast "good/suspect/fail" results. An example of such a solution is the ABI Sentry Counterfeit IC Detector, a PC-driven product that can check the validity of parts in seconds.

Simple to use, the tool enables any receiving department to operate the equipment. The analysis takes place in the background, and the operator only sees a simple "Good Device," "Blank Device," or "Fail Device" message, with the option to produce a detailed report to send to the supplier.

The ABI Sentry is a benchtop device that uses an advanced form of V-I testing on any IC chip to determine its electrical characteristics or "signature" *(Fig. 3)*. V-I testing applies a voltage waveform between two IC pins and measures how the current drawn changes as the applied voltage varies. This response is directly related to the device characteristic, its internal structure, and manufacturing processes.



3. V-I testing applies a voltage waveform between two IC pins and measures how the current drawn changes as the applied voltage varies.

Running every possible pin-to-pin combination on the IC under investigation, the device provides a great deal of insight into the IC, more than simple systems that are restricted to testing between pins and ground. The Sentry's Matrix V-I Test can reveal differences between devices with different functionality but similar technology. A re-labeled fake chip with a similar I/O pinout would be detected by this test.

Establishing the Signature

The V-I characteristics captured by Sentry are called PinPrints, which represent the unique signature for a device. Sentry is employed first to test a known-good device and obtain its "gold standard" signature. The subsequent signatures of incoming, unknown chips are compared with the known-good version to check for discrepancies.

Small variations are likely to indicate that the chips are from different manufacturers, or possibly different batches from the same manufacturer. Larger differences, however, suggest that the chips are faulty or counterfeit. Sentry can be customized for each IC type by setting tolerances that define the point at which a tested device is deemed "bad."

If no reference devices are available, two alternatives could be used. Reference data can be exported from other users' machines or libraries and imported into the Sentry's database. Alternatively (and not quite as good), testing can be done across the batch. If there's any variance, then the whole batch becomes suspect and should be rejected. A package with no internal die is easily detected—all pins will show the straight line "null response" of an open circuit.

Sentry contains a set of ZIF sockets accepting adapters for DIP, SOIC, BGA, SSOP, as well as discrete components. The system uses a comparative technique to rapidly analyze and learn new components, and then test the unknown parts. A known-good component is locked into the ZIF socket while a test pattern is applied across all of its pins. The component's response to this test pattern is automatically measured and stored as a benchmark.

A combination of Sentry's electronic parameter settings (voltage, frequency, source resistance and waveform) generate the "signature" for each pin of the IC being checked. It then compares the unique electrical characteristics of known components and with suspect components. Testing between every possible pin combination is included, maximizing the chances of capturing internal fault conditions. Sentry can quickly detect missing or incorrect dies, lack of bond wires, inaccurate pinouts, and pin impedance variations. Simple pass or fail results are returned after testing, offering a high level of confidence in the authenticity of components.

As parts become increasingly complex, 100% testing becomes burdensome, but testing one or two pieces out of, say, 200 pieces is manageable. Experience has

shown that variations arising from a suspect shipment will reveal themselves well before such a test is complete. Nevertheless, if 100% non-destructive testing is required, using a Sentry Counterfeit IC Detector is a workable solution.

Sentry is able to identify parts that have a different internal structure, or no structure at all, and even components originating from a different manufacturer. Controlled via USB using the PC software provided, Sentry's stored device library can be built up by adding specific known-good devices.

Each device can have documents associated with it in the software, such as photos of device markings, datasheets, and other documents to further help in confirming the integrity of a device. Detailed reports are able to be saved to provide quality-control traceability. Sentry can protect production facilities from the infiltration of counterfeit devices, identifying bad parts before they cause problems.

Sentry Hardware

Sentry contains all of the hardware required to analyze the electrical characteristics of ICs with up to 256 pins *(Fig. 4)*. In addition, 256-pin+ devices can be tested by rotating the device (BGA, QFP) to allow all pins to be learned and compared.

4. Sentry contains all of the hardware required to analyze the electrical characteristics of ICs with up to 256 pins.

Sentry comes with four 48-pin dual-inline (DIL) zero-insertion-force (ZIF) sockets. These can be used directly for older DIP components, but also can be used to

accommodate a variety of additional socket adapters available for different package types. The socket adapter may contain multiple IC sockets if required, to allow testing several ICs at the same time or comparing one IC with another. An expansion connector allows custom socket adapters with up to 256 pins to be attached.

ABI Sentry is housed in a sturdy metal box (10.6 × 10 × 3.6 in.) and weighs 8 lbs. It can receive separate interchangeable adapters for accepting various IC packages under test. With its large range of optional adapters, Sentry can accommodate most types of IC packages, including DIP, SOIC, PLCC, QFP, and even BGA. For simplicity of operation, Sentry has no display or keypad, but is entirely controlled by a PC via USB using ABI's custom-designed free software.

Conclusion

The ABI Sentry is an example of a practical solution for solving the counterfeit IC issue, using its rapidly learned dedicated library of component data to cross-check each part tested. With lead-time issues making ICs harder to acquire for meeting aggressive manufacturing schedules, identifying any parts that aren't "real" before they enter production can potentially save every manufacturer a great deal of time and money. It also helps build the intangible but hard-to-retrieve trait of brand reputation.

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SEMICONDUCTOR INDUSTRY NEWS

For the latest news from the finest semiconductor industry forecaster, no better place to go than click on the link below.

https://www.futurehorizons.com/assets/future_horizons_newsletter_1639472783.pdf

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NEWS FROM THE UK

Wednesday 30 March 2022 at Rutherford Appleton Laboratories, Harwell Campus, Oxon

CALL FOR ABSTRACTS

MICROTECH 2022

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Further Information on MicroTech 2022 - Click Here

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NEWS FROM THE USA

Isola Introduces Low-Loss I-Tera® MT40 Circuit Material Supporting Multilayer PCBs for LEO Satellites

Isola Group has announced its low-loss **I-Tera® MT40** circuit materials supporting multilayer printed circuit boards (PCBs) for the military- and commercial-grade low-Earth-orbit (LEO) satellites. The laminates and prepreg materials are suitable for high-density-interconnect (HDI) multilayer assemblies that must meet demanding military size, weight, and power (SWaP) requirements for LEO satellite payloads. The circuit materials are available in the form of I-Tera MT40 laminates and prepreg materials for high-speed-digital (HSD) circuit applications and I-Tera MT40 (RF/MW) laminates for high-frequency RF and microwave (MW) circuits through W-band frequencies.

Straightforward processing methods and manufacturing steps are used to fabricate single-, dual-, and multilayer circuits, as well as HDI, built with **I-TERA MT40** circuit materials in contrast to the complex and lengthy PCB fabrication processes required with other commonly used high-speed/high-frequency circuit materials such as PTFE. The ease of manufacturing reduces wear on machine tools, fabrication time, and assembly costs.

I-TERA MT40 (RF/MW) laminates maintain a dielectric constant (Dk) of 3.38, 3.45, 3.60, and 3.75 in the z-axis (thickness). The Dk remains stable over a wide temperature range, from -40 to +140°C. The laminates feature low loss at high frequencies, with a dissipation factor (Df) as low as 0.0028. They do not require any special thru-hole treatments when forming multilayer circuits and HDIs and support both HSD, RF/MW, and hybrid mixed-signal circuits. Laminates and prepregs are available in standard thicknesses and panel sizes, with standard copper weights of 0.5 to 2.0 oz. (and custom weights), with the lightweight and durability required for critical military LEO satellite payloads.

News from
WECC members

WECC
World Electronic Circuits Council

Issue 36 – December 2021

NEWS FROM THE HKPCA

In addition to the planned Exhibition, those excellent people at the Hong Kong Printed Circuit Association, ever resourceful, are also organizing a 'virtual' exhibition again so that any visitor who cannot physically participate may also join the show and find useful information.

Here at the EIPC we are sending this news to our members, and the link to the EDM is shown below.

If you have any queries, please feel free to let us know.

https://api.hkpcashow.org/media/documents/2021HKPCAShow_VirtualExhibition_eDM_EN.html

The 2021 International Electronics Circuit Exhibition (Shenzhen) is taking place online! (hkpcashow.org)

2002-2021 20 HKPCA SHOW ANNIVERSARY
INTERNATIONAL ELECTRONICS CIRCUIT EXHIBITION (SHENZHEN)
国际电子电路(深圳)展览会

(中文版本)

The 2021 International Electronics Circuit Exhibition (Shenzhen) is taking place online!
OPEN until 21 January 2022

With 20 years' experience in PCB and Electronics Assembly trade exhibition, we are excited to announce that HKPCA Show will be held both online and physical in hybrid mode to strengthen the industry. The Virtual Exhibition provides a professional business trade platform to you in the new normal without time and geographical constraints. Thousands of latest products and solutions shared by the industry leading companies can be found in the virtual exhibition.

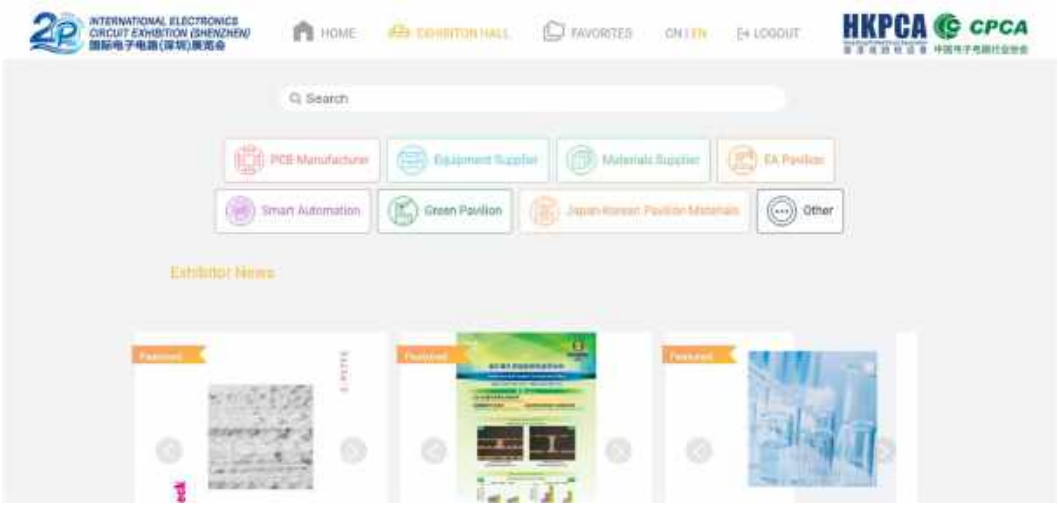
Over
600+ Exhibitors
Close to
4,100 booths

Exhibition Space
80,000 sq.m.

Exhibition Hall

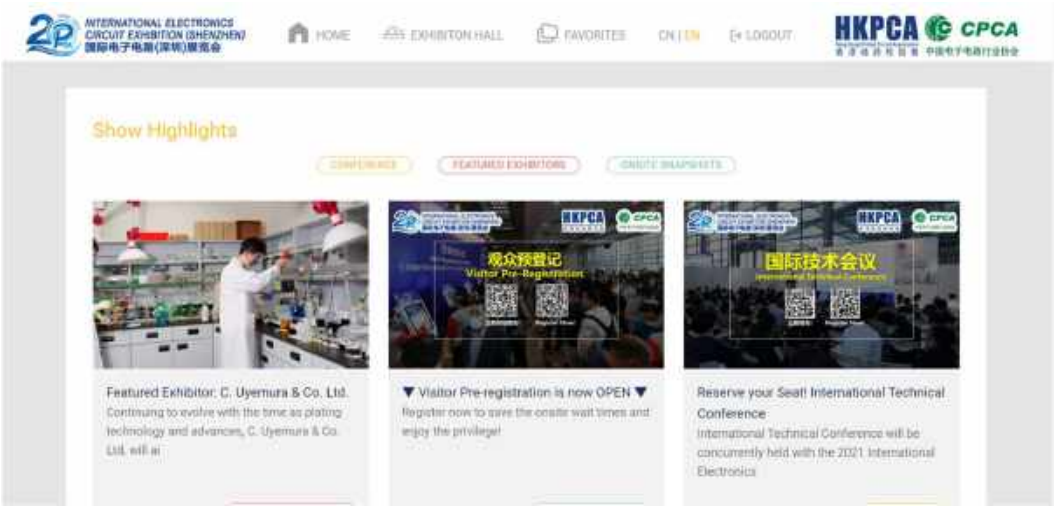
7 Exhibition Zones cover PCB Manufacturer, Equipment Supplier, Materials Supplier, Electronics Assembly, Smart Automation, Green Pavilion and Japan-Korea Pavilion which showcasing the technology and equipment of upstream and downstream PCB supply chain.

What's more? Through the virtual exhibition, you also can make meeting appointment with your interested exhibitors before the physical show.



Show Highlights

- Conference: Exclusively preview the selected sessions of International Technica Conference
- Featured Exhibitors: Browse through the featured exhibitors that will be exhibiting at HKPCA Show
- Onsite Snapshots: Get involved with the fruitful moments of the Show on the spot



How to join the Virtual Exhibition?

Click to Go Virtual!

Visitor Registration is Now Open!

Real name verification will be required for the physical Show in Shenzhen! Click here or scan the QR code to pre-register with real name information to save the

onsite waiting time and grab the visitor giveaway!

What benefits you can get?*

- Express gateway to get the visitor badges, saving the wait times
- Lucky draw program to win the gifts
- Group of 4 and more: Special gift to the group leaders
- Group of 30 and more: Free Shuttle Bus pick-up service (Guangdong Province Only)

*Gift is on first-come-first-served and while stock lasts.
**According to pandemic prevention requirement, real name verification will be required for the physical Show in Shenzhen.

Please visit the official show website www.HKPCAshow.org or follow our official WeChat and LinkedIn account to get the latest show news.

Official WeChat Account: PCB_SMT

Official LinkedIn Account: HKPCA Show

Should you have any inquries, please contact:

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with interview requests.

EIPC SPEeDNEWS

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International Diary

2021

TPCA Taiwan
21-23 December
Taipei, Taiwan

2022

14th EIPC Technical Snapshot Webinar
Registrations via www.eipc.org
19 January

EIPC@ IPC APEX EXPO
25-27 January
San Diego, USA

EIPC Winter Conference
10 February
Frankfurt, Germany

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
Stockholm, Sweden

EIPC @ Electronica
15-18 November
Munich, Germany