

# ELECTRONICS SOURCING

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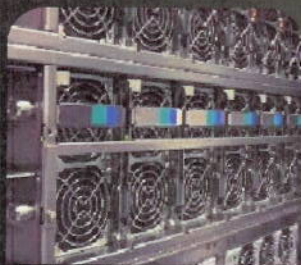
## NORTH AMERICA

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## IBM's metamorphosis

A supply chain shift from hardware to services



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WHAT'S NEW

# KEEPING FAKE PARTS OUT OF THE SUPPLY CHAIN

Independent distributors are trying to stay one step ahead of the bad guys when it comes to keeping counterfeit parts out of the supply chain by implementing quality management systems, stringent inspection processes and vendor qualification. But it's also up to the buyers to make sure they qualify their independent partners to ensure they don't get stuck with bad parts

By Gina Roos

Counterfeiting of electronic components is not a new challenge in the supply chain but it has increasingly become a bigger problem over the past few years. Contributing to the problem are component shortages, increased demand for semiconductors, and growing stockpiles of electronic waste.

Counterfeiting impacts all types of components not just semiconductors. Many independent distributors report that during the last shortage, counterfeits primarily impacted lower end devices such as capacitors, resistors, diodes and transistors. Previously, most of the counterfeits hit higher end chips such as memory ICs, FPGAs, and processors.

A few ways independent distributors are trying to stay ahead of the counterfeiters is by implementing quality management systems and vendor qualification and rating systems, along with meeting industry inspection standards. The challenge is that counterfeiters are getting better at what they do.

Since independent distributors are a key source of supply for OEMs, electronic manufacturing services (EMS) providers, and in some cases, franchised distributors, particularly during severe component shortages, it's up to them to have the processes in place to ensure that they aren't shipping counterfeit parts to their customers.

If independent distributors fail to implement counterfeit prevention measures, it not only hurts the entire electronics supply chain and the OEM's brand recognition and bottom line, it also impacts the distributors' reputations in the industry, which could lead to lost business.

In addition to impacts on issues such as brand image, safety, and the cost of bringing all the boards back, as well as reworking and retesting the boards, it's a "public relations nightmare," said Paul Romano, chief operating officer, at Fusion Trade (Andover, Mass.).

"For independents that are a part of that it's very bad. Most

OEM and EMS companies have a one and done mentality. If it happens once, you're off the list and they aren't going to use you again," he added.

"There are obvious financial and legal issues and as an independent your reputation is extremely important," said Kirk Wehby, vice president of operations, at Smith & Associates (Houston, Tex.).

## Electronic waste fuels counterfeiting

While counterfeit components have been a problem in the supply chain for years, independent distributors said they've seen an increase in the number of counterfeits in the market over the past few years for several reasons.

Shortages are always going to bring out more counterfeiters because there is an opportunity to make more money, and as the demand for semiconductors increases year over year that increasing need for chips will give counterfeiters new opportunities to find ways to sell or get those counterfeit chips into the market, said Romano.

Other contributing factors include increased outsourcing of chip production and electronic waste, which means more opportunities for the counterfeiters to get their hands on a product that can be counterfeited, particularly in China, Romano added.

A lot of chips are fabbed in China so what happens in some cases is that counterfeiters will sell chips produced on third shifts not sanctioned by the chip manufacturer, or they sell the ones that



"Shipping counterfeit product can have a very poor effect on your reputation, which ultimately could cause you to lose business," said Kirk Wehby, VP of operations, at Smith & Associates

# Counterfeit Detection



"As long as there is a high demand for chips there is an opportunity for these counterfeiters to sell their wares. They exist to make money," said Paul Romano, chief operating officer, Fusion Trade

## Advice for buyers

At some point, all electronic component buyers have to buy chips in the open market either due to shortages or obsolescence. There are a number of steps that buyers can do to mitigate the risk of receiving counterfeit components, but it all starts with working with the right independent partner.

"What the buyers need to do is to partner with independent distributors that have strong quality systems in place, strong vendor qualification, and strong inspection. It's no longer good enough to look at a chip visually. In many cases, you have to subject it to X-ray, decapsulation and other tests to make sure it is what it's supposed to be," Romano said.

"Once a counterfeit gets on a board and out in the field it becomes a huge issue for everyone, whether it's a small, mid-sized or large OEM," Romano said. "Investing the time and the small amount of money to qualify an independent is critical because you risk getting parts that are substandard or are a counterfeit," he added.

Romano's advice to those organizations that don't have the time or resources is to start with a desktop audit. One of the easier ways is to look at the membership of organizations such as the Independent Distributors of Electronics Association (IDEA), which has stringent membership requirements, said Romano.

Romano said members have to be ISO and ESD certified and have to comply with IDEA-STD-1010-A, a visual inspection standard for electronic components. This immediately narrows the choice to 32 companies. "They have certifications, they have a quality system, they understand moisture sensitivity and ESD control, and they understand counterfeit prevention and control," he added.

An update to the 1010-A standard will be released shortly. The standard provides a step-by-step process for visually inspecting a chip.

Inspectors look at several things such as misspellings or spacing issues on the label, logos positioned incorrectly and inconsistencies between the country of origin on the box and on the chip.

"This is a good first step," Romano said. "This standard drives that type of consistent inspection so you catch those kinds of issues."

## Counterfeit prevention

Many independent distributors have implemented quality and inspection processes to ensure that they can control their supply chain. Several of the largest independent distributors including Fusion Trade and Smith & Associates have invested heavily in high-tech counterfeit detection labs that include X-ray imaging systems,

decapsulation machines, and high-power optical microscopy. Testing capabilities include dimensional statistics, digital imagery, stringent product verification, functional testing, and comparisons with manufacturer specifications.

He said there are a number of groups in the U.S. that are pushing for legislation to limit the export of electronic waste not only to combat counterfeiting but also for environmental reasons.

decapsulation machines, and high-power optical microscopy.

Testing capabilities include dimensional statistics, digital imagery, stringent product verification, functional testing, and comparisons with manufacturer specifications.

"Quality independents realize that in order for us to continue to do business with some of these OEMs and EMS companies we have to consistently provide good, non-counterfeit product each and every time," Romano said

Quality and inspection processes are key. For example, Fusion has a vendor verification process and vendor rating system, which also includes site audits, a 21-point receiving inspection process, and a counterfeit avoidance program that includes 100 percent traceability using database comparisons and manufacturers' specifications.

Smith & Associates recently launched a new quality initiative called SmithSecure, which upgrades its previous quality initiative, QualityFirst. The largest component of the new program covers counterfeit detection, visual inspection and functionality tests.

## Don't ignore the small guys

There are plenty of smaller independent distributors no where near the size of a Fusion or Smith, which also take counterfeit detection just as seriously. Case in point is SPB Global in Perrysburg, Ohio, which has a "no-tolerance" policy for counterfeit components.

"Until companies put certain processes or control plans in place, I think counterfeiting will continue," said Susan Bernard, CEO and founder, at SPB Global.

"Through our vendor rating system we know who to go to and who not to," said Bernard.

"We maintain and register the approved suppliers list and create guidance on source selections and the approval process and then ensure that the suppliers are maintaining processes for counterfeit risk mitigation," said Bernard. "So we make sure that our suppliers also know our standards."

In addition to having a qualified vendor network, SPB's lab has a three-prong pass/fail process for incoming inspection, which is similar to the big independents. These cover package observations, lead abnormalities and surface inspection.

Bernard said the pass/fail criteria process is performed on every package. If additional testing is required, SPB has an agreement with a third-party military-approved inspection house for upgraded testing capabilities.



"What's prolonging and sustaining the counterfeit problem is that there are companies that knowingly sell these types of products for profit," said Susan Bernard, CEO and founder, SPB Global

▶ [www.smithweb.com](http://www.smithweb.com)

▶ [www.fusiontrade.com](http://www.fusiontrade.com)

▶ [www.spb-global.com](http://www.spb-global.com)

# BATTERY CHARGER ICs BOOST BATTERY LIFE IN SMALL PACKAGES

Although the latest battery charger ICs are aimed at helping designers deliver solutions that boost battery life, deliver faster charging and save space, these new developments also help purchasers cut costs and inventories through higher integration

By ESNA Staff

Chip makers are taking aim at the portable products market to help boost power, deliver smaller solutions and cut component count with their latest battery charger ICs as demand for tablets, eReaders and smartphones continues to fuel the consumer electronics industry's growth.

Over the past year, several IC manufacturers including Advanced Analogic Technologies, Diodes Inc., Fairchild Semiconductor, Maxim Integrated Devices, and Texas Instruments, have beefed up their charger IC portfolios with smaller devices that in some cases also cut external component count, provide faster charging and boost battery life, all while providing greater safety features.

Here we take a look at several of those products launched over the past year.

## Space savers

Fairchild Semiconductor (San Jose, Calif.) has developed the FAN5400 family of USB-compliant, lithium-ion switching chargers with USB On-The-Go (USB-OTG) capabilities to provide designers with a solution that delivers faster charge times and solves thermal issues associated with linear charger solutions today.

The FAN5400 family is aimed at single-cell or parallel-cell lithium-

ion battery charging in

devices such as cell phones, smartphones, tablets, wireless broadband hotspots, digital cameras and portable media/game players. Fairchild said as charge currents and battery sizes continue to increase, charging through the USB port or 5-V AC/DC adaptor with a linear charger becomes more inefficient. However, the FAN5400's switch-mode charger provides up to 94 percent efficiency, which helps with faster charging and lower thermal dissipation, said the chip maker.

The solution also cuts parts count. The switch-mode charger integrates a 5-V 300 mA boost regulator that uses the same inductor as the charger, which reduces external component count. In addition, both the charger and boost circuit switch at 3-MHz, minimizing the size and cost of external passive components.

Available in a 1.96 x 1.87-mm, 20-bump, 0.4-mm pitch CSP package, the FAN5400 family is claimed as the smallest solution on the market that provides both charger and USB-OTG boost functionality.

The device's charging parameters and operating modes are programmable through an I2C interface, which operates up to 3.4 Mbits/s. Maximum charge current of up to 1.25 A ensures fast

You Need Faster Charge Times Without Thermal Challenges?

FAN5400 Family of USB-Compliant Switching Li-Ion Battery Chargers

Up to 94% Efficiency

2.5W 2.35W

- Up to 94% Efficiency for Fast Charge Time and Less Heat
- Up to 1.25A Charging Current
- Smallest Switching Charger with USB-OTG 5V Boost

Fairchild Semiconductor's FAN5400 USB-compliant, lithium-ion switching chargers with USB-OTG capabilities