

Buyer beware. Supply shortages mean more counterfeit parts, fraud

Reports of fake semiconductors and passives in the supply chain increased in the first half of the year as counterfeiters and criminals exploited tight supply conditions

Some electronics buyers who search for shortage parts online may unwittingly be venturing into the black market and are at greater risk of buying counterfeit or substandard parts or becoming the victims of fraud.

There are cases of criminals setting up fake professional-looking websites that claim to have inventories of shortage parts. In some cases, buyers will purchase parts from those sites and the components turn out to be counterfeit. In other cases, buyers may wire funds to an account on the site but parts are never sent because the inventories did not exist.

While component counterfeiting is not new in the electronics supply chain, it

thrives when there are severe shortages of parts, which is the current supply scenario. ERAI, a global information services organization that monitors, investigates, and reports issues affecting the global electronics supply chain, says that the number of reported counterfeit, suspect counterfeit nonconforming parts was up in the first and second quarters of 2021. ERAI maintains a database of such parts that are reported to be suspect or counterfeit.

“The number of reported parts was down last year presumably due to the COVID-19 shutdowns, so we expected an increase in 2021 with or without a chip shortage,” said Kristal Snider, vice president of ERAI, Inc.

Since 2000, ERAI has tracked the proliferation of counterfeit components in the supply chain through reports from ERAI members including distributors, brokers, trading companies, manufacturers, test labs and government agencies in 40 countries. It also receives reports of suspected counterfeit parts from non-members.

“Counterfeiting is constant and consistent in that counterfeiters always seem to exploit any and all market conditions to their advantage,” said Snider. She notes that current market conditions “where demand seriously exceeds supply” has occurred many times over the decades and is one of many factors that drive counterfeit



There are more opportunities for counterfeit products to enter the supply chain and we are doing due diligence. We are doing a lot of due diligence

Kirk Wehby, chief operating officer for independent distributor **Smith**

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activity. Others are obsolescence, availability of materials, component prices and the rise and fall of global sales.

The bad news for buyers is the current wave of counterfeiting will get worse before it gets better. Faiza Khan, executive vice president of the Independent Distributors of Electronics Association, says there is always a lag from the time there are shortages to when counterfeit parts are introduced into the open market.

“Counterfeiters are working as hard as they can to get counterfeit parts out there,” said Khan. “I don’t think we’ve reached the peak yet. I think there are more to come,” she said.

Khan said one reason there are many reports of counterfeit parts is there are a lot more buyers purchasing components in the open market. “There is a lot more than there ever has been.” She said although there is an increase in reports of bogus parts, reliable independent distributors that are members of IDEA are not seeing as many counterfeit components as are being reported by the ERAI because of the way they screen and evaluate potential new sources of components. She said IDEA members – and some nonmembers – use a vendor rating system before they do business with potential new vendors. “They have a very stringent way of evaluating their vendors” to make sure

the potential source of a part is legitimate and carries genuine quality products.

“They’re not going to buy from someone they found on Google who says he has 1,000 pieces of a part that cannot be found anywhere in the world,” said Khan. “They know better than that.”

More due diligence needed

Counterfeit parts have become a part of the electronics supply chain landscape and it is incumbent on electronics purchasers to double down on their due diligence efforts of potential new sources of shortage components.

Obviously, many buyers turn to independent distributors for hard-to-find components. Many purchasing organizations have vetted and qualified a select few non-franchised independent distributors that they use during times of shortages. Many of those responsible distributors have beefed up their efforts to screen and test for parts to try to stop the proliferation of them in the supply chain.

Some have invested heavily in decapsulation, X-ray imaging and microscopy imaging equipment. Others send parts to third-party labs to determine if components are genuine. Some independent distributors try to seek the assistance from original component manufacturers (OCMs) for help in determining if a part is authentic, although often they do receive much help from the OCMs.

One independent distributor that has boosted its investment in equipment to identify bogus parts is Smith, based in Houston. Kirk Wehby, chief operating officer for Smith, said currently there are “more opportunities for counterfeit products to enter the supply chain” so Smith is seeking more information about the sources of parts before it purchases them.

“We are being more proactive. We are digging a little deeper” to determine if there is some additional traceability of parts, said Wehby. In addition, Smith has invested in more equipment to test and screen components. “In the last 6 to 8 months we have probably tripled our equipment globally,” he said. The distributor has purchased new X-ray equipment and an XRF machine.

“We have a counterfeit detection lab in each one of our operations in Hong Kong and Amsterdam. Each one of those labs has seen an increase in capacity” in testing and screening of parts, he said.

Seeking help from OCMs

Wehby also said that Smith will also ask for help from original component manufacturers (OCMs) to identify whether a component is authentic. However, he said Smith does not receive much assistance from component manufacturers unless the part was purchased directly from the OCM or from a franchised distributor. That has been the experience of other independent distributors as well.

“Component manufacturers continue to show independent distributors a cold shoulder when contacted to determine whether a part is authentic,” said Steve Calabria, founder and CEO of independent distributor PC Components, based in Seaside Park, N.J. Few component manufacturers “offer any help to thwart the spread of counterfeit parts,” he said.

Some independent distributors are good at finding “indicators” of counterfeit parts, according to Calabria. However, only the component manufacturer can confirm that a suspect part is counterfeit and most manufacturers will not cooperate with the distributors, he said. Calabria said “blacktopping” is a common indicator that a part is counterfeit. When parts sourced on the open market are determined to be blacktopped, they are commonly classified as suspect, “even though it is well-known that component manufacturers actually blacktop and remark authentic parts for valid reasons,” he said.

“One reason is to fix mistakes,” said Calabria. For example, an incorrect date code or lot code may have been marked on the part. “However, more commonly remarking is required due to binning operations.” he said

Binning operations take place when a component manufacturer sells the same part with different speed, temperature, power, or test grades. In these cases, the parts are tested and put in different “bins”

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Kristal Snider, vice president ERAI



depending upon which tests they pass, he said.

An OEM or electronics manufacturing services customer may place an order for a slower speed DRAM. The OCM may not have the slower speed part but could substitute a faster speed part which would also work. However, the customer may not accept parts marked with any part number that is not on their approved part list to prevent problems during QC inspection, said Calabria.

Good parts destroyed

Manufacturing a new batch of components might take 12-26 weeks, so remarking the faster part with the number of the slower part number may be the best solution.

An independent distributor that purchased blacktopped parts needs an OCM to verify that a part was or wasn't blacktopped at the manufacturer's factory to determine if it was authentic. Without such cooperation, "good parts located on the open market are literally being destroyed every day, forcing OEMs to redesign, or to wait for stock to become available through the authorized supplier," said Calabria.

Snider said because component supply is so tight, many buyers, perhaps unwittingly, venture into the black market in search of scarce parts and become

victims of fraud. "Untrained, overwhelmed buyers that are under pressure to keep manufacturing lines moving are an easy mark," she said. Buyers are using Google and Internet-based part sourcing platforms to search for parts. However, they may not be able to distinguish between the black market and the open market, which is comprised of verified independent distributors with legitimate parts availabilities and OEM excess parts, said Snider. "The black market is comprised of fraud, e-waste and counterfeit parts," said Snider.

Buyer beware!

With the black market, criminals set up fraudulent websites, which "are visually appealing, extremely well-designed, and offer huge amounts of hard-to-find inventory which seem to lull buyers into a false sense of security," she said. At such sites buyers receive an almost immediate response to their requests for quotes. The criminals are quick to respond and know exactly what to say to put the buyer at ease, according to Snyder.

"They offer a generous warranty and inspection period, promise supply chain traceability will accompany the shipment and offer net payment terms, for future orders," she said. Only the first order is a wire transfer in advance to establish a relationship. "This is the only

order they will be placing" because the website and the inventories are bogus. Since 2017 ERAI has received complaints from 273 victims representing 48 different countries with losses exceeding one million dollars, said Snider. She said the number of victims of such fraud is actually 10 times the number reported.

She said there are steps purchasing organizations can take to avoid counterfeit parts and becoming the victims of fraud. Snider said purchasing from component manufacturers and their authorized sources is the best way to avoid counterfeit electronic parts.

"However, in times like this where there is a global chip shortage, buying from authorized sources is not always possible," she said. As a result, buyers should receive training using "an internally designed training program that specifically addresses supplier selection, counterfeit screening and reporting," said Snider.

Look for certifications

Buyers should look for independent distributors that have attained certifications to ISO 9001:2015, AS9120 and SAE AS6081. Distributors with the certifications will have established best practices and procedures for selecting suppliers and testing parts," said Snider.

Watch for red flags when searching for parts online

It's no secret that during the current component shortages, buyers are scouring the Internet trying to find parts that are on allocation or that have very long lead times.

Before buying from any website of an unfamiliar company, buyers need to do their due diligence and carefully research the company to determine if it is a legitimate source for electronic components. ERAI, which maintains a database of counterfeit and suspected counterfeit parts, says there are certain red flags buyers should watch for out before doing business at any website that purportedly has stock of hard-to-find components. Red flags include:

- The website offers below market pricing during a shortage.
- The seller will only accept a wire transfer in advance payment.
- The so-called supplier is unable to provide a photograph of the parts they say they have in stock.
- A website offering millions of parts as "in-stock" that has been operational for less than a year.
- The seller refuses to provide trade references.
- The supplier refuses to issue an RMA without an electrical test report.