Battelle Barricade™

ARE COUNTERFEIT OR CLONE CHIPS IN YOUR SYSTEMS?



Introducing Battelle Barricade[™], a new technology providing authentication of integrated circuits from both trusted and untrusted sources, and eliminating the risk of counterfeit or clone devices in aerospace and defense systems, critical infrastructure, medical devices and other critical systems.

Weaponized hardware: a matter of national security

Imagine these dangerous scenarios: a plane falling from the sky midflight, medical equipment failing while inside a patient's heart, a missile intercept system missing its target and hitting a densely populated area instead.

While seemingly unrelated, each of these incidents can have the same hazardous source: counterfeit integrated circuits that can threaten the safety, security, quality, reliability and profitability of a product. In addition to national security risks, come a \$200 billion semiconductor industry loss*.

Nondestructive verification

Barricade provides a nondestructive verification of components at a dramatically lower cost than alternatives. There is no requirement for chip design modification or physical alteration. And there is no requirement for insertion of technology into the manufacturing process of a trusted source.

Unique solution to a global problem

Barricade is unlike existing and emerging technologies. Emerging technologies require each and every device to originate from a trusted source and be tagged, serialized, and tracked.

Existing commercial testing services are costly and destructive lot sampling testing of the devices in inventory must be done since conventional nondestructive authentication methods do not reliably detect counterfeits.

Avoid tagging, serializing and tracking all chips

Barricade is applicable to both analog and digital devices. The technology uses a method that creates feature vectors for each class of devices from their power consumption waveforms. Developed algorithms process the waveforms into lower dimensionality feature vectors. The feature vectors are input to the Barricade classifier algorithm that performs the electronic component classification and only a few authentic chips are necessary to enroll an entire class of chips into Barricade. This eliminates the need to tag, serialize and track all chips and provides the ability to enroll chips from untrusted sources.

Once a chip is enrolled, all chips in that class can be authenticated regardless of the source in a matter of seconds per part. Battelle is planning to expand this capability to electronic components beyond digital integrated circuits in the near future.

Features:

- Nondestructive
- Nonintrusive
- High confidence/reliability
- · Simple to use graphical user interface
- Low cost per part (pennies per part)
- High throughput rate (seconds per part)
- · Easily integrated with automated pick and place machines

Barricade Signal Acquisition Hardware Specification

Device Socket	Compatible with Xeltek SUPERPRO 5000/5004GP series sockets
Device Configuration	Up to 48 user defined pin connections per component configuration
Data Acquisition	500MS @ 12-bit sampling, 200MHz bandwidth
Push Button Switch	User control to Initiate scan of inserted device
Multi-color LED	User indicator for system status
Connection to PC	USB 2.0
Input Power	120VAC-60Hz
Enclosure Size	13" H x 9" W x 4.5" H
Enclosure Weight	14 lbs
Operational Temperature	20 deg C to 30 deg C

Barricade User Interface Requirements	
Computer	Microsoft Windows 7/10 TBD processor and RAM
Connection to Hardware	USB 2.0
Part Configuration Library and Waveform Data Storage	Authorized network connection to remote database via VPN (provided)
Software	Barricade Data Client Application with multiple user accounts (provided)





How it Works:

Barricade™ is comprised of signal acquisition hardware and software installed at customer sites.

The system collects and transmits a user/ component fingerprint to a remote, authenticated server for classification.

A user report is returned to the system with the results of the authentication classifier.

Interested?

Contact us at 800-201-2011 or solutions@battelle.org to discuss your specific needs and how Barricade can help.

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