CodeSEAL

Programmable Tamper Responses with Push-Button Protection

Software Anti Tamper Layers

Microsemi's software protection product CodeSEAL™ enables security engineers to build robust anti-tamper (AT) protection schemes to protect critical technologies and intellectual property against reverse engineering, tampering, and counterfeiting by hostile entities. Built from the ground up and drawing on more than a decade of software protection experience, CodeSEAL takes a defense-in-depth approach to AT by inserting layers of preventative, proactive, and reactive countermeasures into software applications. These protection mechanisms form a dense network of security from common software attacks that cannot be defeated without sophisticated attack tools and capabilities.

Simple, Effective Software Protecting Software

CodeSEAL secures desktop and embedded systems such as VxWorks on PowerPC or Windows/linux on x86 from numerous software attacks. Active layers of protections are easy to install as drag-and-drop.

Securing Vulnerable Software

Reverse engineering is the first form of attack on any software application. Understanding program structure, flow, and the location of sensitive routines enables adversaries to exploit vulnerabilities and otherwise compromise critical technologies. CodeSEAL adds multiple layers of obfuscation, encryption, anti-debugging, and self-modification to prevent such attacks.

Tampering is the route by which attackers compromise the software, unlock controlled functionality, or otherwise extend software functionality beyond what was deployed. Tampering attacks can extract valuable software components that can then be used in counterfeit systems. CodeSEAL protection mechanisms actively detect and react to changes in the software integrity.

Guards are the building blocks of CodeSEAL protections. Each Guard is a small protection mechanism inserted by the CodeSEAL engine. When the protected software is attacked, Guards provide custom reactions and defend each other against reverse engineering and tampering in a layered network of defense. Guards constantly evaluate the program's security at run time so any reverse engineering attempts are detected. Defensive and offensive reactions can be fired to stop the attacker from further progress.

The CodeSEAL Advantage

Many software security solutions fall short of a strong defense allowing attackers to quickly and easily dispose of any protections. CodeSEAL eases the development of a defense-in-depth security strategy making attacks prohibitively difficult and expensive. The CodeSEAL protection development environment is a streamlined interface that walks you through the process of quickly and easily applying anti-tamper to your system.

Supported Platforms

CodeSEAL protects applications executing Intel x86 or PowerPC instructions running on Windows™, Linux, VxWorks, and other embedded operating systems.

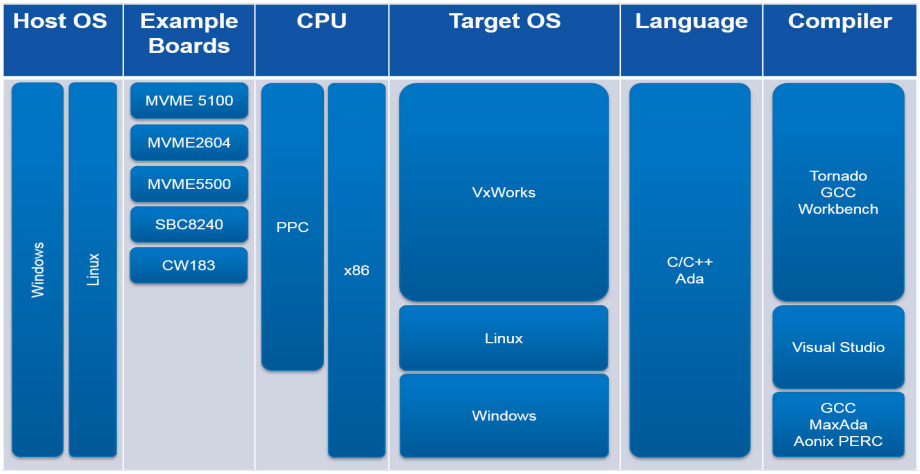


Figure 1: CodeSEAL Platform Support

CodeSEAL

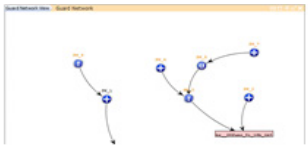
Programmable Tamper Responses with Push-Button Protection

Graphical, Drag-and-Drop Protection Development

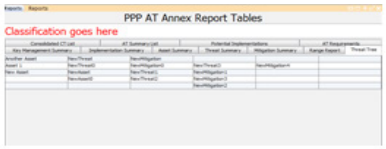
The protection development environment contains utilities for generating threat trees, injecting software countermeasures, configuring your protection network, and generating anti-tamper reports. Security can be configured down to the bit level, or viewed at the system level. Injecting countermeasures is as simple as drag-and-drop. The CodeSEAL Protection Development Environment significantly decreases the complexity and time of implementing a complex, defense-in-depth software protection.

Customize Protections

Build Threat Trees



Drag-And-Drop Security



Generate Reports

Table 1: Features and Benefits

CodeSEAL Features	CodeSEAL Benefits
Active Defense	Active defense means your application can identify attacks and has the power to respond.
Full Automation	Fully automated protection for even the most complex build environments.
No Single Point of Failure	Guards protect each other and your application, significantly challenging the expertise and tools of even the most sophisticated adversaries.
Low, Configurable Impact	Guards are extremely small and highly configurable, allowing you to insert fine-grained protection into your application with an acceptable balance of performance and security.
Ease of Use	A drag-and-drop user interface enables software protection in minutes. Protection defaults get a protection running quickly and are based on best-practices in the industry.
Protection Development Environment	The CodeSEAL Protection Development Environment goes beyond a typical IDE with threat tree development, protection design visualization, and critical technology marking.
Reporting	Threat trees, protection designs, and other info are stored in a central database. Reports easily export these into documents for management and the anti-tamper authority.
Guard Development Kit	Additional, powerful guards can be developed and debugged with a Guard Development Kit giving each application its own unique protection mechanisms, custom reactions, etc.

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at www.microsemi.com.

Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
email: sales.support@microsemi.com
www.microsemi.com