

# AEGIS-let & GAIA

Security and Boot Control  
for Embedded and  
Software-Defined  
Automotive Systems



**PERSEUS**

*Be Simple, Be Secure*



## AEGIS-let

TrustZone-based secure kernel for ECU-level  
isolation and protection



## GAIA

Secure boot loader that establishes trusted system  
startup

AEGIS-let and GAIA are system-level software solutions that operate below the OS layer and support secure execution, trusted initialization, and controlled system behavior across MCU-centric and automotive SDV platforms.

[www.cyberperseus.com](http://www.cyberperseus.com)

# AEGIS-let: TrustZone-Based Secure Kernel

AEGIS-let provides **hardware-enforced isolation and secure execution** for **MCU-centric and resource-constrained systems**. It protects security-critical functions below the OS and application layer and is intended for environments where full hypervisor-based security is unnecessary or impractical.

Built on **Arm TrustZone**, AEGIS-let separates secure and non-secure domains, ensuring sensitive code and data remain protected even if non-critical software is faulty or compromised.

## KEY CHARACTERISTICS

TrustZone-based secure execution for MCU and ECU environments



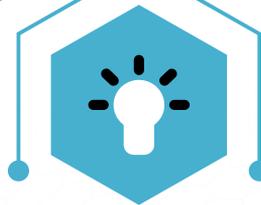
Strong isolation between secure and non-secure domains



Protection of critical functions and assets below the OS layer



Lightweight design with low overhead and limited architectural impact



Deterministic and predictable execution behavior

AEGIS-let enables **targeted, hardware-backed protection** where simplicity, determinism, and strong isolation are required, without introducing full system virtualization.

# GAIA: Secure Boot Loader

GAIA establishes a trusted system state at startup for MCU-based and multi-OS platforms. It verifies and initializes system components before operating systems are launched and provides a consistent and controlled boot process suitable for long-lifecycle embedded and automotive systems.

GAIA addresses environments where boot processes are fragmented, vendor-specific, or difficult to secure, ensuring system integrity from power-on.

## KEY CHARACTERISTICS

Secure boot loader for MCU and embedded platforms



Verification of system components at startup



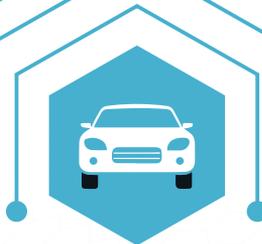
Establishes root of trust before OS execution



Supports multi-OS system initialization



Suitable for automotive ECUs and long-lifecycle platforms



GAIA can be paired with **PEGASUS**, Perseus' flagship Hypervisor solution, to provide trusted startup for hypervisor-based and multi-OS SDV systems, forming a secure foundation from power-on without extending into runtime security enforcement.

# Use Cases in SDV Platforms

## AEGIS-let

- MCU-centric ECUs requiring hardware-enforced isolation
- Security-critical functions below the OS layer
- Systems prioritizing low overhead and deterministic behavior

## GAIA

- Platforms requiring secure startup and verified initialization
- Systems with multiple software components or operating systems
- Automotive ECUs and embedded controllers with long operational lifecycles



## THE PERSEUS SYSTEM SOFTWARE SUITE



### AEGIS-let

TrustZone-based secure kernel



### GAIA

Secure boot loader



### AEGIS

Secure hypervisor



### PEGASUS

Automotive hypervisor



### TACHYON

Linux fast boot

Foundational system software for **embedded and automotive platforms**, supporting long-lifecycle, software-defined systems.

## BEYOND AUTOMOTIVE

AEGIS-let and GAIA are applicable to other software-defined, security-critical systems, including logistics and transport platforms, industrial and critical infrastructure, edge computing and AI systems, and other high-reliability professional environments.

Talk to us about your system architecture



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