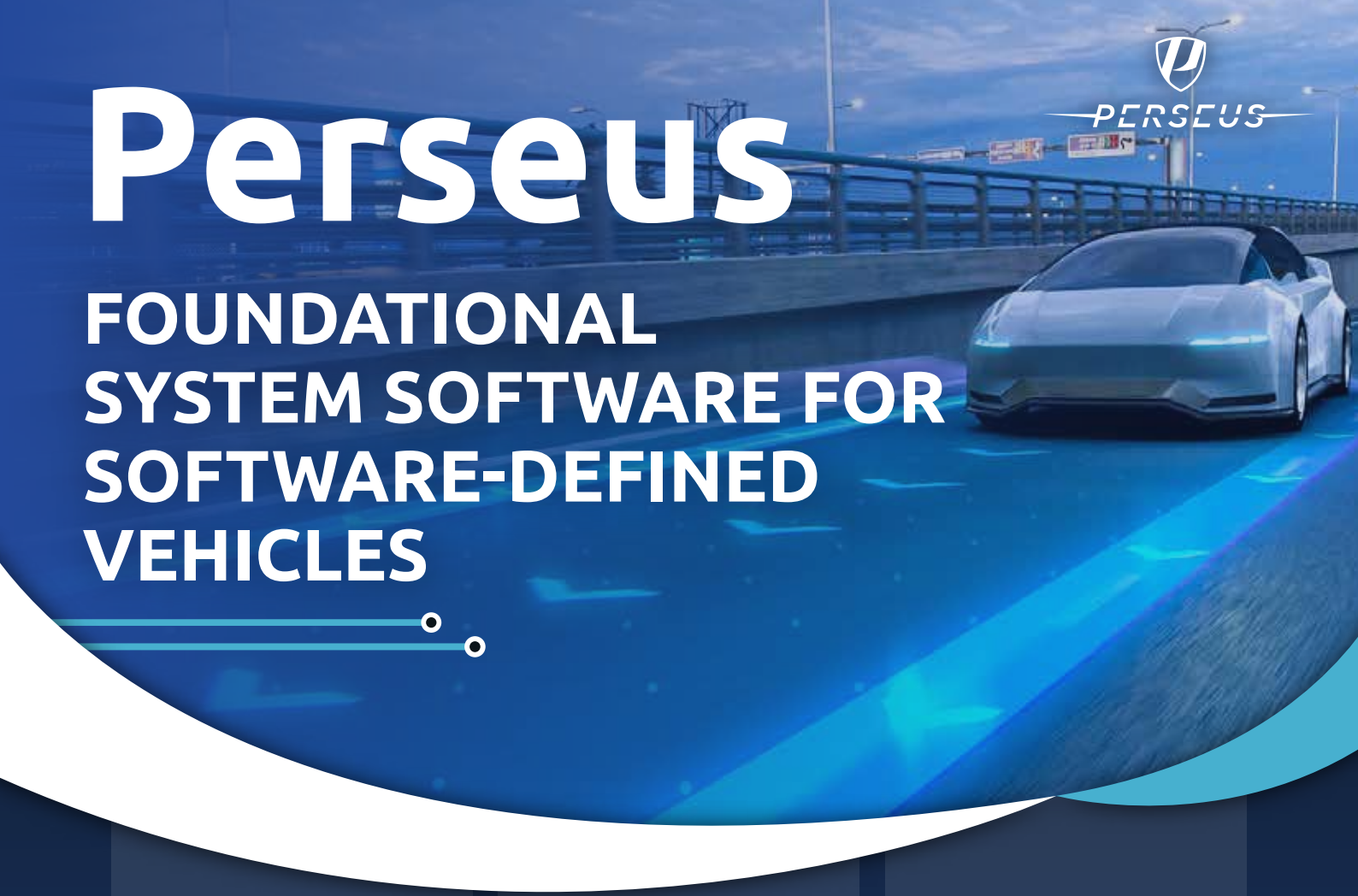
Perseus

FOUNDATIONAL SYSTEM SOFTWARE FOR SOFTWARE-DEFINED VEHICLES



Build efficient in-vehicle architectures

Implement system-level security

Achieve reliably high performance

Perseus solutions establish isolation, determinism, and controlled resource sharing at the system layer where hardware utilization, isolation boundaries, execution decisions and performance are defined and where SDV features are managed.

Includes PEGASUS

ISO 26262 ASIL-D certified automotive hypervisor
(CPU & MCU architectures)

CERTIFIED
PEGASUS Hypervisor
ISO 26262 ASIL-D

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Making SDV Programs Practical at Scale

SDV programs shift automotive value creation from hardware to software. As scope expands, traditional E/E architectures face increasing strain.

SDV platforms must support:

Cyber security, functional safety and predictable performance

Rapid growth in software functionality & system complexity

Long lifecycles (up to ten years) with remote updates

Mixed-criticality workloads on shared compute

Historically, these challenges were managed by adding hardware - more ECUs, more SoCs - and through physical separation, but this approach does not scale.

Modern SDVs demand that architectural control moves from hardware to foundational system software. Perseus enables this transition.

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SDV Trade-offs, Resolved Together

Efficiency, security, and performance cannot be optimised independently.

Hardware reduction risks software complexity

Scaling performance without isolation risks security

Isolated security control risks scalability

Perseus resolves these trade-offs together at the **system architecture level,** where resource sharing, isolation, security and performance are defined.

Efficiency

Multiple OSes run safely on shared hardware. This reduces reliance on dedicated SoCs and enables efficient service additions and updates over long vehicle lifecycles without hardware redesign.

Security

Isolation, privilege control, and fault containment are enforced below the OS layer. This protects safety-critical workloads as non-critical software evolves, limits fault propagation and reduces cyber-attack impact.

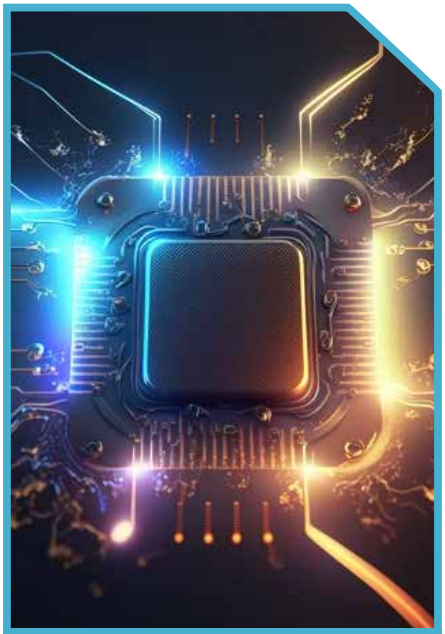
Performance

Deterministic scheduling and system-level resource control enable predictable real-time and safety-critical behavior, while allowing performance to scale with software complexity.

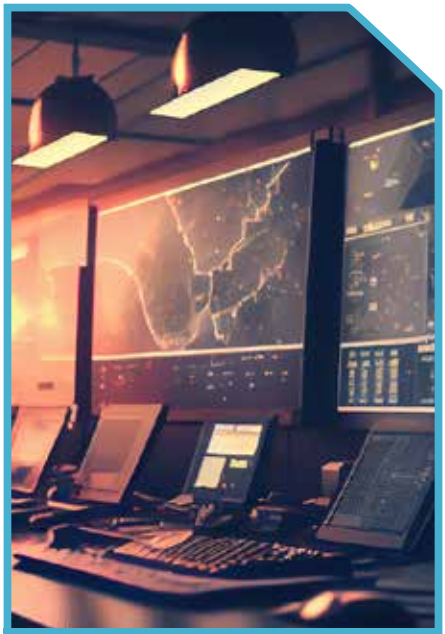
Foundational System Software for the SDV Era

Perseus develops system software that operates at the **bare-metal and system layer**, below operating systems and applications. Decisions made at this layer are difficult to reverse and shape the entire vehicle lifecycle.

Perseus enables SDV platforms to scale without trading efficiency for safety, or performance for flexibility:



Controls how CPUs, MCUs, memory, and I/O resources are shared



Enforces isolation between mixed-criticality workloads

Defines execution behaviour, for safety and high performance

Perseus supports heterogeneous environments including:

AUTOSAR · RTOS · Linux · android · QNX

and legacy systems, running safely on shared hardware.

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Foundational Software is Invisible to Drivers, but Critical to OEMs

Drivers experience software through infotainment, ADAS, connectivity, and automation. OEMs experience it through integration effort, validation timelines, lifecycle risk, and cost.

Foundational system software determines:

Whether hardware can be shared safely

Whether platforms remain maintainable over 10+ years

Whether safety guarantees remain intact as software evolves

Whether performance stays predictable as complexity increases

Getting this layer right early reduces

- Long-term cost
- Validation effort
- Architectural lock-in

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Perseus' Solutions
A Foundation for the SDV Lifecycle

PEGASUS — Automotive Hypervisor

Type-1 (bare-metal) automotive hypervisor enabling safe virtualization of multiple OSes on shared hardware.

- ISO 26262 ASIL-D certified (CPU & MCU)
- Deterministic mixed-criticality workloads
- Can reduce SoC requirements by **up to 70% on average**

Purpose-built Tooling for PEGASUS Hypervisor

Workbench (SDK)
design-time configuration and validation

User Dashboard
runtime observability and controlled interaction

AEGIS — System-Level Security

Hypervisor-based security enforcing isolation and resource control below the OS layer.

TACHYON — Linux Fast Boot

Enables Linux-based automotive systems to boot in under **1.5 seconds**, supporting safety, compliance, and user experience

Supporting Components

AEGIS-let — lightweight TrustZone-based ECU security

GAIA — standardized, secure boot loader for multi-OS systems

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Built for the Real World

Perseus' solutions are designed and validated for production SDV programs, not R&D.

ISO 26262 **ASIL-D certified** PEGASUS (CPU & MCU)

Integration with leading automotive semiconductor platforms

Production deployment of **TACHYON** with global OEMs

Perseus' engineering leadership brings **18+ years** of embedded systems and virtualization experience, spanning research, open-source leadership, and commercial automotive deployment.

Perseus works with OEMs, Tier-1s, and Tier-2 suppliers, typically engaging at the architectural level where long-term platform decisions are made.

Partners

NXP · HYUNDAI KEFICO · HYUNDAI NGV · Infineon · RENESAS · SOAFEE · arm · LG Innotek

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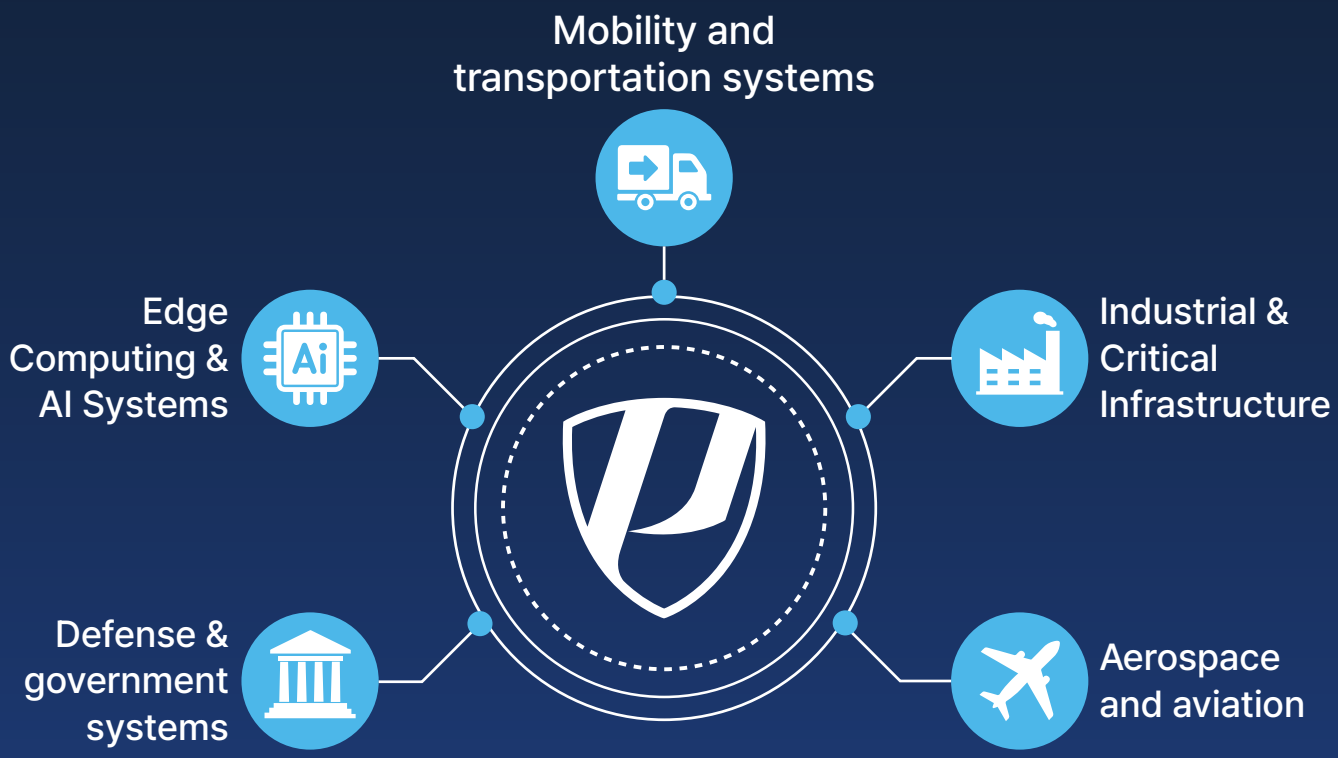
PERSEUS

Software-Defined Everything

The architectural principles employed in SDV development apply wherever efficiency, security, and deterministic performance are system-level requirements:



Perseus

Foundational System Software for a Software-Defined World

Talk to us about your system architecture

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