TACHYON
LINUX FAST BOOT
FOR AUTOMOTIVE SYSTEMS

PERSEUS
Be Simple, Be Secure

LINUX BOOT
UNDER 1.5 SECONDS

Linux boot speed in vehicles directly impacts physical safety, regulatory compliance, perceived quality, system performance, and corporate credibility.

TACHYON addresses these issues with a solution that is easy to implement within the Linux ecosystem.

HIGH-PERFORMANCE,
DETERMINISTIC LINUX BOOT FOR SDVS

Foundational system software that controls and enforces Linux startup behavior at the system level

Enables fast and predictable system boot

Decouples critical system readiness from non-critical service initialization

Why Boot Time Has Become a System Requirement

Linux is a core automotive OS for infotainment, cockpit, ADAS, monitoring, and cameras. But, as software scope, connectivity, and system interdependence continue to increase, Linux boot behavior has become a primary concern.
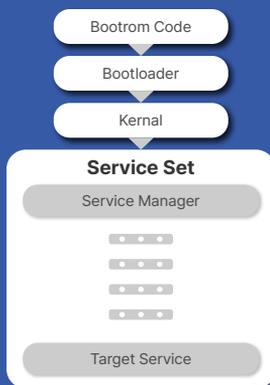
LINUX IS OFTEN:

Slow to initialize

Variable across power cycles

Sensitive to complex startup dependencies

Extended or variable boot times negatively impact key functions, like cameras, ADAS and infotainment, directly affecting safety, performance, compliance and brand value.

As a result, fast, predictable, and controlled Linux boot speed is no longer a UX feature. It is a **system-level safety and performance requirement,** ensuring critical functions are available when required and non-critical systems are brought online consistently across a vehicle's lifecycle

WITHOUT TACHYON

Bootrom Code

Bootloader

Kernal

Service Set

Service Manager

Target Service

Standard Linux boot

More than
15
Sec

Boot process optimized, ordered efficiently.
Non-essential processes removed

WITH TACHYON

Less than
1.5
Sec

Bootrom Code

Bootloader

Kernal

Service Set

Service Manager

Target Service

Optimized Linux boot

TACHYON: System-Level Linux Fast Boot

TACHYON delivers **fast, deterministic Linux boot** for automotive platforms, including full systems and critical services such as cameras.

Beyond surface-level tuning, TACHYON optimizes the Linux startup process at the system layer - where boot sequencing and readiness behavior are defined and enforced - to meet speed, consistency and regulatory requirements.

SPEED, DETERMINISM, AND CONTROL WITHIN LINUX

Reduces variability caused by complex startup dependencies

1.5 SEC — Linux boot under **1.5 sec**

Enforces controlled, repeatable startup behavior

Controls initialization order, removes unnecessary startup paths

Implements automotive-grade startup orchestration

DESIGNED FOR AUTOMOTIVE

TACHYON allows SDV platforms to treat boot time as a **managed system property,** ensuring Linux-based systems are ready when required - consistently and predictably.

Applicable Across SDV Programs

- Rear view and camera systems
- ADAS, digital cockpit and infotainment
- Regulatory-constrained Linux environments

PERSEUS
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THE PERSEUS SYSTEM SOFTWARE SUITE

TACHYON
Linux fast boot

PEGASUS
Automotive hypervisor

AEGIS
Secure hypervisor

GAIA
Secure boot loader

AEGIS-let
TrustZone-based secure kernel

Built for production automotive Linux systems, TACHYON is suitable for long-lifecycle SDV platforms and forms part of Perseus' foundational system software suite.

BEYOND AUTOMOTIVE

TACHYON is applicable to other Linux-based, software-defined platforms requiring deterministic boot behavior and early system availability, including logistics and transport, industrial infrastructure, edge computing and AI, and other high-reliability environments.

Talk to us about your system architecture

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