



intive

Real-Time Hardware Integration for Automotive Prototyping

SIMBA Embedded

Where your future vehicle concepts come to life today.

In early-stage development, turning bold ideas into meaningful user experiences is no small task. Most virtual prototypes lack one critical component: connection to real hardware.

That's where SIMBA Embedded steps in.

Developed by intive, SIMBA Embedded enables automotive teams to connect digital HMI concepts directly to physical vehicle systems. With full control over hardware components like seats, mirrors, and lights, your UX becomes interactive and testable – before production even begins.

Contact our sales team: sales@intive.com

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The value of virtual-physical integration

Solving the Industry's Biggest Bottleneck

In traditional setups, early testing often happens in simulated environments, detached from the actual vehicle. This disconnect creates delays, missed opportunities, and costly late-stage changes.

SIMBA Embedded eliminates this gap by enabling:

- Bidirectional communication between a development PC and real vehicle components
- Real-time control of car systems in fully functional prototypes
- Consistent UX evaluation across global markets and study environments

Why Leading OEMs Choose SIMBA Embedded

- Accelerated time to market: Identify what works – faster
- Hardware and software in sync: No more fractured development setups
- Proven in global R&D: Used in long-term HMI pre-development with Audi, MAN, Cariad
- Compatible with all major automotive protocols: CAN, LIN, FlexRay, Automotive Ethernet
- Future-ready: Easily adapted to AI-driven features and evolving platforms

Real-World Example: Global Automotive UX Study

In collaboration with a premium automotive manufacturer, intive supported a large-scale international market study aimed at testing an innovative interior concept. The goal: evaluate user experience and interaction in fully functional vehicles across both **China** and the **USA**.

To achieve this, intive equipped real, drivable vehicles with four specialized **Canny hardware units**. This setup enabled precise control over components including **seat positioning, steering wheel axes, and exterior mirrors**, all orchestrated through SIMBA Embedded and a connected development PC.

The result was a fully interactive, research-ready prototype that allowed the automaker to conduct scientifically grounded UX studies in authentic driving conditions – helping their team gather valuable insights, iterate quickly, and bring future-forward ideas closer to production readiness.



Built for These Use Cases

- HMI & UX concept validation
- Prototyping for AI-driven systems
- Multi-market user testing
- Interactive showcases at automotive expos



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The technology behind the experience

Canny Hardware Platform

The foundation of SIMBA Embedded is a flexible, high-performance hardware system engineered to interact with real vehicles – reliably and in real time.

CannyLX - The Heart of the Network

Gateway between PC and car

- Runs a customized Yocto Linux
- Hosts the SIMBA Message Broker
- Connects directly to CAN, LIN, Ethernet, FlexRay
- Delivers low-latency communication with vehicle networks
- Offers a module slot for extensibility
- Operates on vehicle power or USB

CannySwitch - Maximum Connectivity

Bridge to Automotive Ethernet

- Logs, reads, and modifies Automotive Ethernet streams
- Enables VLAN grouping and Ethernet–CAN gateway functionality
- Operates in energy-efficient sleep mode
- Rapid wake-up time triggered by CAN activity

CannyCU Series- Modular Control Units

Flexible architecture for any scenario

- CU-26: General-purpose microcontroller with two module slots for flexible configurations
- CU-18: Compact version with one slot, ideal for space-constrained setups
- Supports CAN-FD and custom expansion modules
- Same CPU and CAN setup; both integrate easily into vehicle or desktop environments

Canny Microhardware - Embedded for Every Use Case

Purpose-built miniature components for tight integrations and precise functionality:

Component	What it Does
2C2L-USB	USB-to-CAN/LIN adapter (4 buses in one unit)
CannyLIN	LIN/CAN gateway for steering wheel button control
CannyRelay	CAN-based power switching (up to 10 A)
CannyButton	Minimalist microcontroller add-on board

Additional modules available: Stepper control, LED strip handling, ADC inputs, OLED display, rotary encoders, and more.

What Sets SIMBA Embedded Apart

- Not just a test rig – a real-time development enabler
- Used by OEMs like Audi in real vehicles, not just labs
- Hardware-software synergy: Built as part of intive's SIMBA ecosystem
- Scalable architecture: Expandable through CannyModules for future needs
- AI-compatible: Architecture supports advanced HMI use cases like:
 - Voice-activated comfort adjustments
 - AI-based seating recommendations
 - Context-aware climate and mirror settings

Ready to Bring Your Concepts to Life?

SIMBA Embedded helps OEMs bridge the gap between digital ambition and physical performance.

From R&D studies to interactive showcases, it's the smart choice for teams who prototype with purpose.