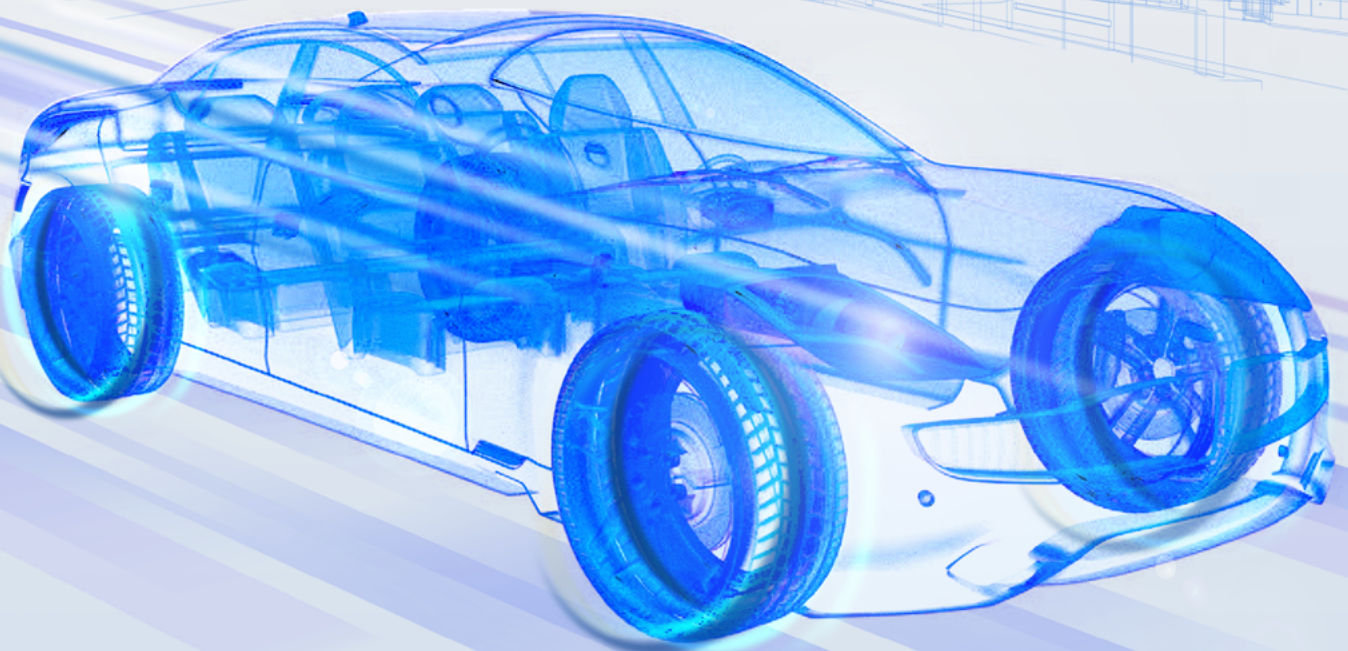# Valens

Valens Automotive:
Taking Ultra-High-Speed In-Vehicle Connectivity to the Next Level with PCIe®

With an increasing number of devices in our connected cars – including cameras, sensors, radars, LiDARs and displays – our vehicles are becoming data centers on wheels. In-vehicle infrastructure is at a breaking point.

Valens Automotive is leading the market with innovative concepts, bringing the most resilient solution to in-vehicle connectivity, and delivering ultra-high speeds and more applications over a leaner infrastructure, with long-distance transmission of native PCIe.

Addressing the Challenges of In-Vehicle Connectivity

Valens' resilient, long-distance PCIe connectivity solution enables a simplified backbone architecture, optimizing a range of applications, such as modems, shared storage and HPC connectivity. It brings:

> Configurable physical layer (PHY), supporting up to 16Gbps symmetric bandwidth, and superior performance

> Considerable savings on devices and BoM (e.g., a single central SSD can connect to several CPUs in the car)

> Ability to relocate devices in an optimal physical location for distributed compute power (e.g., modems on the car's roof and TCU gateway inside the car for easier cooling and maintenance)

> Additional features including dynamic power management, diagnostics, ability to handle electromagnetic interference, load balancing, and data link protection (encryption and authentication)

Smart Antenna: Optimized TCU architecture

> Multi-Gig PHY (4/8/16Gbps) for in-vehicle connectivity supporting V2X, WiGig and 5G modems

> Balanced heat dissipation

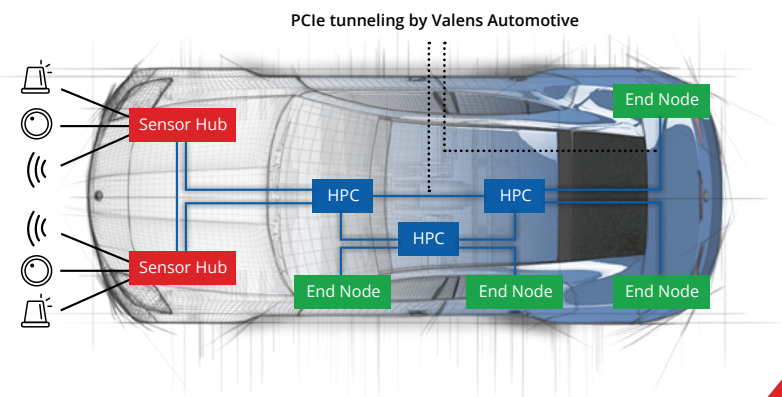> Lower cost by converging additional native interfaces over the same link

PCIe tunneling by Valens Automotive
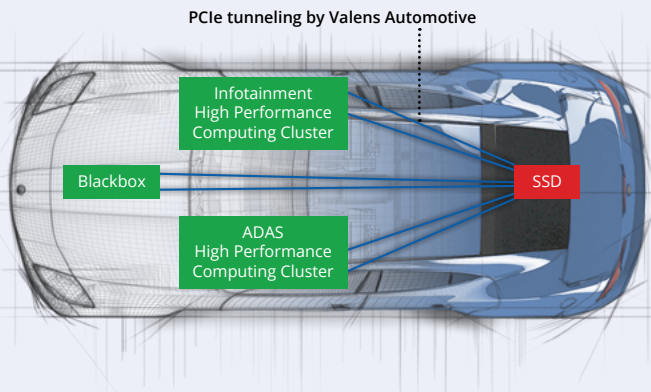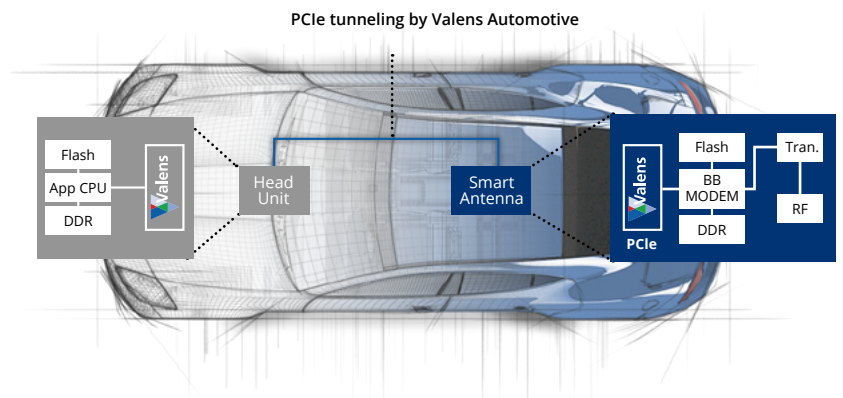
Shared Storage: Central storage topology for reduced BoM

PCIe tunneling by Valens Automotive

> Storage of real-time sensor data for Blackbox and other applications

> High memory capacity for ADAS and infotainment data files

> In-vehicle virtualization for optimized resource sharing

High Performance Computing: Seamless failover and redundancy

> Ultra-low latency, multi-Gig connectivity

> Redundancy and modularity

> Increase in compute power

PCIe tunneling by Valens Automotive

For more information, visit https://www.valens.com/automotive-solutions, follow @ValensAuto, or contact us at info-auto@valens.com.

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