L&T SEMICONDUCTOR TECHNOLOGIES LIMITED

Mobility Applications Overview

Next-Generation Power, Sense & Control ICs

Future. Made Together.

LTSCT: Shaping the new generation of smart semiconductor solutions

L&T Semiconductor Technologies (LTSCT) is the largest Indian semiconductor product company, delivering energy-efficient, high-performance chips that drive smart, connected systems worldwide. LTSCT's high-performance semiconductor solutions enable customers globally to precisely control power, capture and process data, and enable intelligent sensing. Headquartered in India, LTSCT has offices in Austin, Munich, Tokyo, Bengaluru, Delhi and Chennai.

Largest
Indian Semiconductor Product Company

60+
Patents

400+
Employees Globally

5
Geographies

Product portfolio

Analog

Compute

MEMS, RF & Sensors

Power Management

Communication Modules

Industries we serve

Energy

Driving digitalization, decentralization, and decarbonization across the energy value chain.

- Generation
- Transmission
- Distribution
- Behind the Meters and Data Center Solutions

Industrial

Advancing the industrial revolution with semiconductor solutions that power intelligent automation, spanning next-generation factory systems to adaptive, energy-efficient buildings.

- Building Automation
- Factory Automation

Mobility

Powering next-generation mobility with high-performance ICs and system solutions that enhance the vehicle experience, improve safety, and enable efficient propulsion.

- Vehicle Experience
- Vehicle Safety
- Vehicle Propulsion

Global Mobility Outlook

The global mobility landscape is undergoing three defining shifts. Cabins are evolving into intuitive digital spaces. Safety is transitioning from reactive protection to predictive intelligence, and electric drivetrains are rapidly reshaping vehicle design. These changes are transforming the vehicle's electronic architecture and accelerating demand for advanced semiconductors that deliver sensing, computation, connectivity, and efficient power control.

Drivers expect digital, intuitive cabins[1]

Connected interfaces, voice-first controls, and seamless displays are redefining the in-vehicle experience and influencing purchasing decisions across markets.

Intelligent safety can dramatically reduce fatalities[2]

AI-enabled driver monitoring, automated braking, and real-time perception systems are accelerating progress toward Vision Zero, increasing demand for high-performance sensing and compute.

Vehicles are moving rapidly toward Zonal Architecture[3]

Automakers are replacing distributed ECUs with centralized compute supported by zonal controllers—simplifying wiring, reducing cost, and enabling software-defined capabilities.

Domain-to-Zonal migration is reaching scale[4]

By 2028, over 50% of new vehicles are expected to implement zonal or pre-zonal architectures, marking a structural shift in vehicle electronics and compute consolidation.

Autonomous & ADAS compute requirements are surging[5]

Growing adoption of ADAS and higher autonomy levels requires advanced SoCs, powerful MPUs, high-bandwidth memory, and sensor fusion engines built on leading-edge nodes.

ADAS market to reach $220bn+ by 2035[5]

Demand for advanced driver-assistance systems continues to expand requirements for sensing, perception, and real-time safety compute.

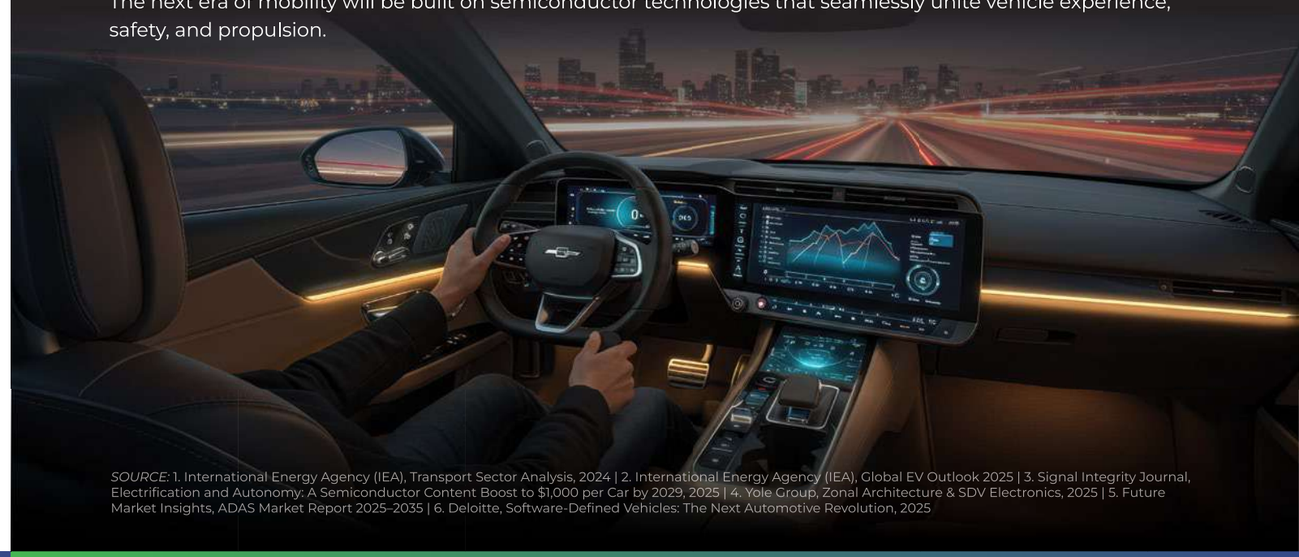
81% of OEM Fleets to become Software-Defined by 2030[6]

Automakers are rapidly transitioning to software-defined architectures powered by centralized compute, continuous OTA updates, and unif ied software stacks.

OEMs are shaping the shift toward precision, safety-focused automotive silicon[6]

Manufacturers are increasingly developing chips to meet precise performance and safety requirements, driving the need for specialized automotive-grade semiconductor innovation.

The next era of mobility will be built on semiconductor technologies that seamlessly unite vehicle experience, safety, and propulsion.



SOURCE: 1. International Energy Agency (IEA), Transport Sector Analysis, 2024 | 2. International Energy Agency (IEA), Global EV Outlook 2025 | 3. Signal Integrity Journal, Electrification and Autonomy: A Semiconductor Content Boost to $1,000 per Car by 2029, 2025 | 4. Yole Group, Zonal Architecture & SDV Electronics, 2025 | 5. Future Market Insights, ADAS Market Report 2025–2035 | 6. Deloitte, Software-Defined Vehicles: The Next Automotive Revolution, 2025

LTSCT Mobility

Powering the software-defined future of automotive innovation

LTSCT's advanced Power, Sense & Control ICs drive the next generation of electric, autonomous, and connected vehicles. By enabling the Software-Defined Vehicle (SDV) era, we enable mobility that is intelligent, efficient, and seamlessly connected. Our solutions empower automakers and mobility innovators to accelerate design with confidence, combining energy efficiency, precision sensing, and robust control architectures across every vehicle domain.

Power

Advanced battery management and high-efficiency power modules maximize range and reliability.

Sense

Precision sensors and data-processing ICs enable vehicles to perceive and respond in real time.

Control

Scalable, software-defined architecture that coordinates safety,comfort, and performance systems.

Mobility Applications Overview

Battery Management System

Battery Management Unit ICs

Traction Inverter

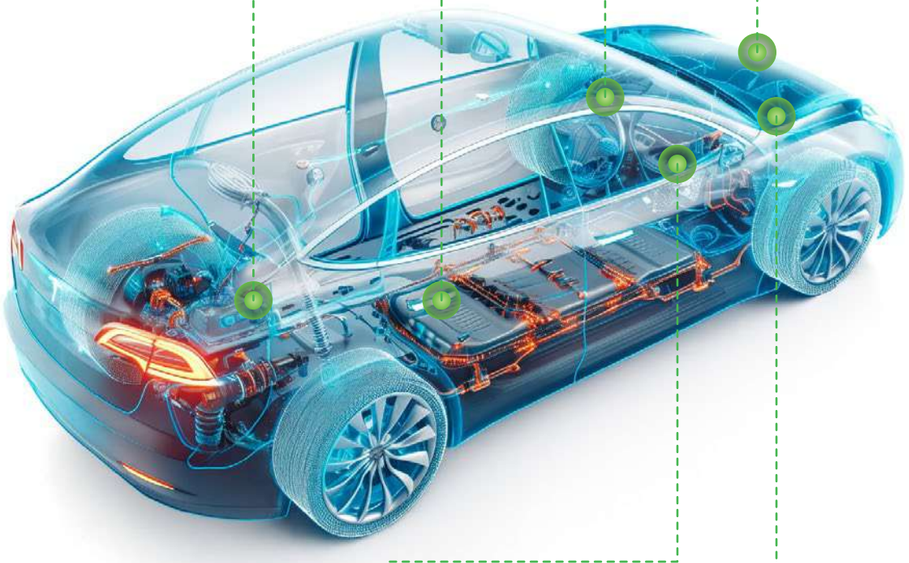
Power Modules (Si, SiC)

Instrument Cluster and IVI Solutions

Instrument Cluster and IVI SoCs

ADAS & Autonomous Driving

Unified Central Compute SoC (Monolithic and Chiplet)



In Cabin Charging

Wired USB PD Charging ICs

Body Control/ Zone Control Module (12 / 24 / 48 V)

- Smart Actuator Driver and eFuse ICs
- High-Side Switch ICs
- Motor Driver ICs

VEHICLE EXPERIENCE

VEHICLE PROPULSION

VEHICLE SAFETY

Vehicle Experience

Empowering every drive with enhanced connectivity, effortless comfort, and intuitive control

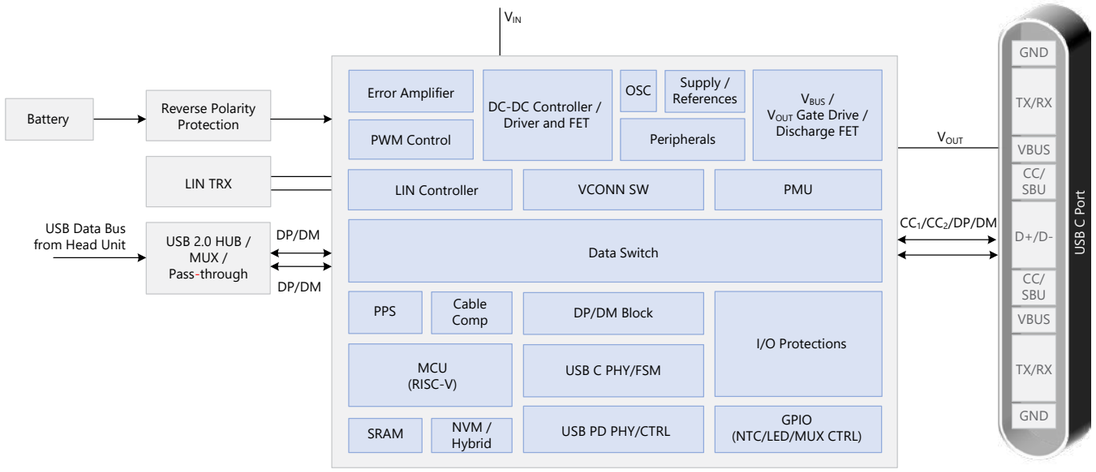
In Cabin Charging

Our portfolio includes body-control modules for seamless function management, zone and domain controllers for system integration, and advanced displays and clusters that deliver clear, responsive driver information. Media hubs and USB-charging solutions ensure passengers stay connected and powered, making every journey comfortable, convenient, and engaging.

In-cabin charging

LTSCT's Single and Dual Port USB Power Delivery (PD) solution is a compact, high-performance device delivering up to 240 W of total power from a 12 V automotive battery. These devices are fully USB-PD 3.2 v1.1 compliant. They may operate as stand-alone units, connected to a plurality of USB-PD single or dual port devices on an isolated network, or as multiple USB-PD single or dual port devices connected to a zone controller or infotainment head unit. This is supported by a roadmap of power-dense and high-integration wired and wireless charging solutions.

Block Diagram



Key Features

- Extended Power Range Charging Capability
- Compact Architecture
- Universal Charging Compatibility
- Cost-Effective Automotive USB-C Charging Solutions
- Secure and Efficient OTA Firmware Upgrades
- Automotive Grade Reliability
- Comprehensive Protection Features

Products

Wired USB PD Charging ICs

Single Port USB-C PD Charging

LTSCT's automotive USB-PD charging solution, UPD11210, is engineered to meet the growing power demands of modern vehicles. It is AEC-Q100 qualified, ensuring high reliability and performance in harsh automotive environments. The integrated design improves charging efficiency through intelligent power management. Additional features include over-the-air (OTA) updates, integrated authentication for secure communication, and optional Local Interconnect Network (LIN) support for enhanced connectivity.

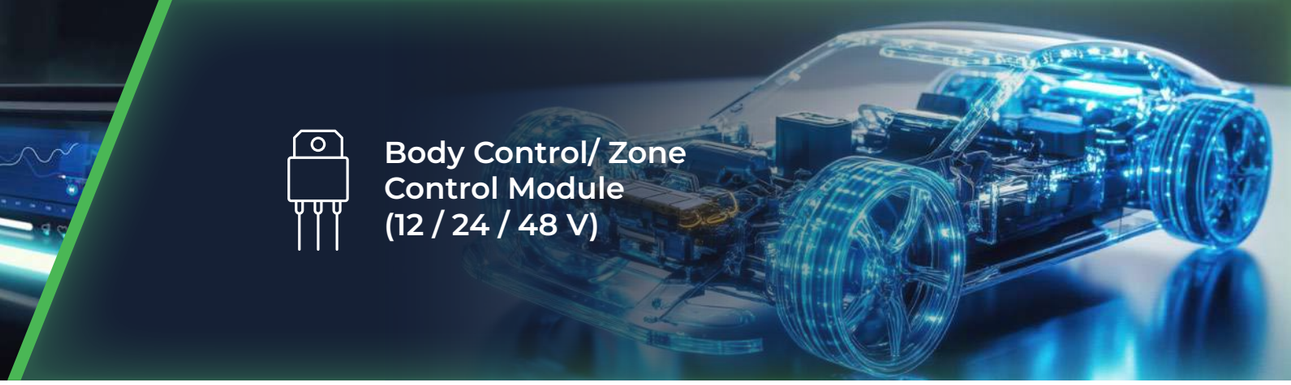
Dual Port USB-C PD Charging

The UPD21224 Dual Port USB Power Delivery (PD) Charger is a compact, high-performance device delivering up to 240 W total power from a 12 V automotive battery. Featuring 100 W integrated buck-boost MOSFETs and a 240 W external power stage, it is fully USB-PD 3.2 v 1.1 compliant and supports both stand-alone and networked operation in automotive environments. The UPD21224 integrates I^2C, UART, and LIN communication interfaces, a RISC-V microcontroller with hardware cryptography and OTA update capability and supports both PPS and proprietary charging protocols for maximum compatibility.

Scan to watch the USB-PD product video

Vehicle Experience

Empowering every drive with intelligent connectivity, effortless comfort, and intuitive control



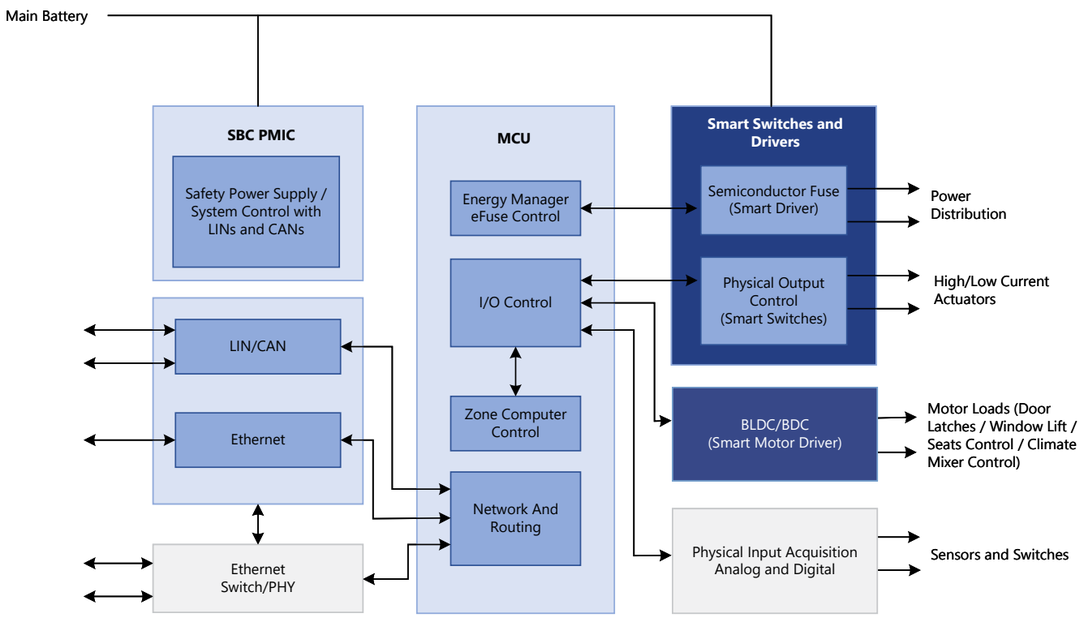
Body Control/ Zone Control Module (12 / 24 / 48 V)

Body Control Modules and Zone Control Modules (48 / 24 / 12 V)

Automotive E/E topology is rapidly shifting toward zonal architectures, driven by the needs of software-defined vehicle (SDV) design and the significant advantages of reducing wire-harness weight. Our actuator drivers deliver full software configurability, integrated control, and rich digital diagnostics—empowering OEMs to accelerate innovation across vehicle platforms.

The portfolio spans high-side (HS) drivers and eFuses, H-bridge DC motor drivers, and BLDC motor controllers, supported by a comprehensive development ecosystem. Strengthening this offering is a forward-looking roadmap of smart actuator drivers and eFuses featuring enhanced protection and advanced processing that help reduce MCU overhead and enable next-generation zonal architectures.

Block Diagram



Key Features

- Lower BOM cost with standardized hardware driving all loads
- Enable seamless transition to SDV and Zonal Architecture with fully software-configurable Smart Drivers and Edge ECU Actuators
- Reduced software complexity with MCU-less or hardware-only Edge ECU enabled by remote (Zone) commanded smart drivers
- Reduce time to market with platform development scalable across multiple vehicle platforms 12V / 24V / 48V

Products

Smart Actuator Driver and eFuse ICs

Introducing our family of multi-channel, Serial Peripheral Interface (SPI) controlled Smart Actuator Drivers, including high-side, half-bridge, and BLDC (B6) bridge FET pre-drivers. These solutions are designed to support 12 V, 24 V, and 48 V systems across a wide operating voltage range. Featuring a 32-bit SPI interface for configuration, fault, and status readouts, the smart actuator drivers are built to reduce MCU overhead and enable streamlined platform development. Each device supports configurable load drive profiles for capacitive and motor loads. Precision current sensing is achieved via internal shunt resistors or external low-cost shunts, with integrated ADCs providing digital readout over SPI.

High Side Switch ICs

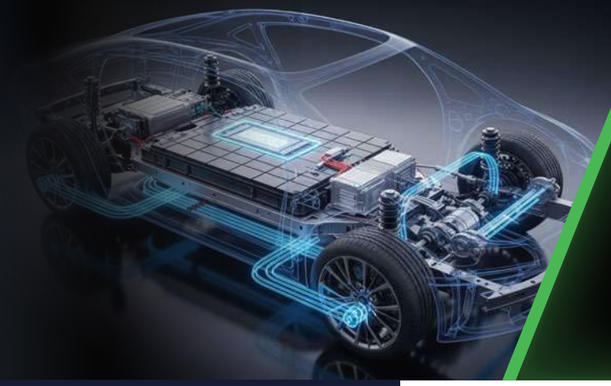
LTSCTs High Side Switch solution features Pre Drivers designed to drive up to six n-channel High Side MOSFETs. A 32-bit SPI is used by the MCU to control the HS driver FETs as well as to configure the device parameters. The load current sense can be made with a shunt resistor, or alternatively, a shunt-less current sense option eliminates the need for a sense shunt resistor. User programmable MTP NVM is provided for current sense calibration and temperature correction. The device integrates a 12-bit ADC to enable digital current sense to be read over SPI as well as output voltage monitoring without external components. In addition, all protection and diagnostic functions are fully software configurable, enabling easier transition to a Software Defined Vehicle (SDV) architecture. The device also integrates a programmable fuse function to allow the configuration of any channel as a power distribution switch.

Motor Driver ICs

LTSCT's Motor Driver solution features a Half Bridge Pre-driver targeted to control up to 8/4 half-bridges (up to 8/4 low side or high side n-channel MOSFETs) in a single package. A 32-bit SPI is used by the microcontroller to control the half-bridge driver FETs as well as to configure the device parameters. User programmable MTP NVM is provided for current sense calibration and temperature correction. Protection and diagnostic functions are fully software configurable, enabling easier transition to SDVs. This device is smaller, easier and cost-efficient to drive multiple half-bridges to control various DC motors in automotive body applications.

Vehicle Propulsion

Powering cleaner, smarter, and more efficient mobility



LTSCT's Vehicle Propulsion solutions drive the shift toward sustainable transportation through advanced systems for hybrid and electric vehicles. Our portfolio includes high-performance powertrains, intelligent battery management systems, and both onboard and wireless charging solutions designed to maximize efficiency, reliability, and range. Through innovation and precision engineering, we're enabling the next generation of electrified mobility.

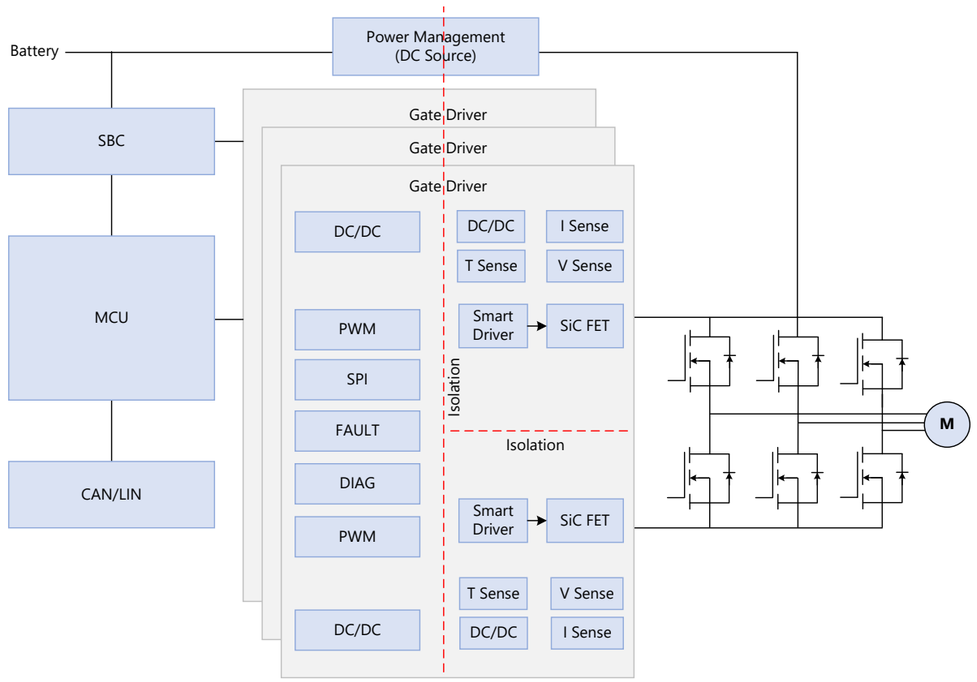
Traction Inverter

LTSCT's portfolio of electric vehicle traction inverter components focuses on high efficiency, minimal switching losses, and reliable thermal management to boost overall system performance and extend vehicle driving range. LTSCT offers a highly scalable automotive-qualified system solution tailored to meet the demands of electric car inverters, ensuring efficiency, faster time to market, and optimised performance. The portfolio is propelled by a forward-looking roadmap of intelligent, highly integrated power modules with advanced isolated gate drivers for high-frequency applications.

Key Features

- SiC MOSFETs excel at thermal conductivity, minimizing overheating and enabling efficient heat dissipation even under high-stress conditions
- Si MOSFETs provide low on-state resistance and exceptional energy efficiency for demanding power applications
- Lower switching losses and on-resistance yield higher system-level efficiency and reduced energy consumption
- MOSFETs feature high UIS robustness, meet RoHS compliance and are reliable and environmentally friendly

Block Diagram



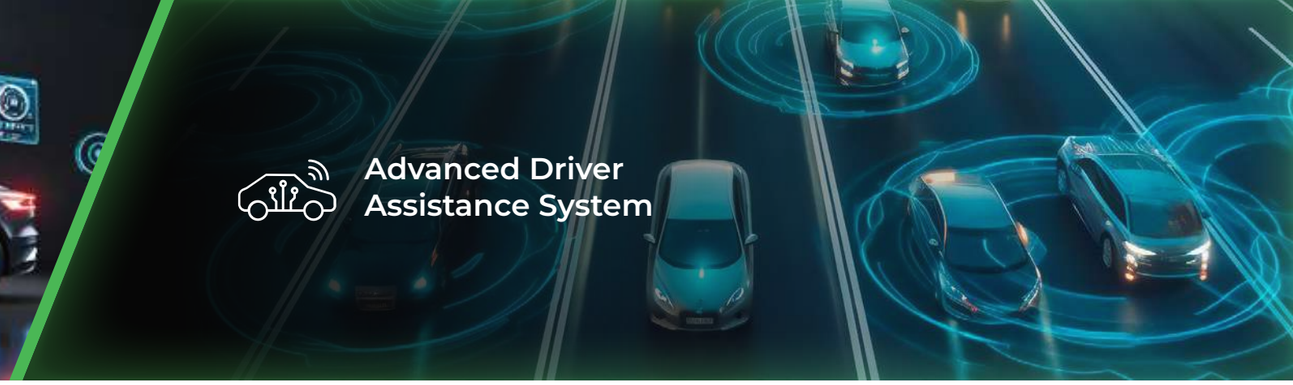
Products

Power Modules (Si, SiC)

Our Power Modules are engineered for high-performance traction inverters and motor drivers, combining advanced silicon carbide technology with robust design features for unmatched efficiency and reliability. These modules ensure superior power density, minimal conduction losses, and outstanding thermal performance. Featuring low stray inductance, high junction temperature operation, press-fit contact technology, and full RoHS compliance, our module is the optimal solution for next-generation electric passenger vehicles and demanding industrial motor drive applications.

Vehicle Safety

Enhancing protection, awareness, and trust on every journey



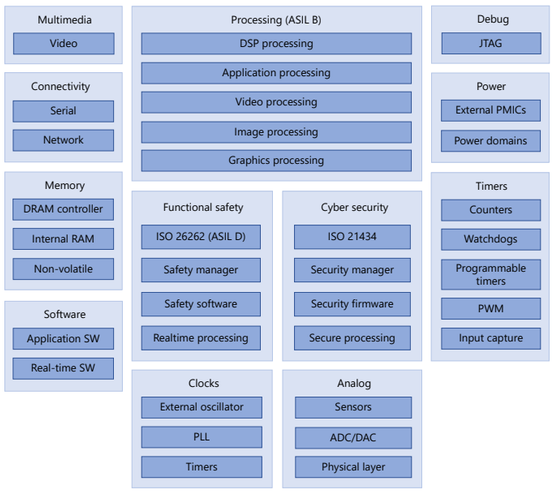
LTSCT's Vehicle Safety solutions safeguard drivers, passengers, and road users through intelligent, integrated technologies. With expertise in vehicle and advanced driver assistance systems (ADAS), we deliver solutions that improve vehicle comfort, awareness, responsiveness, and control. From proactive accident prevention to adaptive safety innovation, we're shaping a future where every drive is smarter and safer.

Advanced Driver Assistance Systems/ Autonomous Driving / High Power Compute

Elevate your vehicle's advanced driver assistance system (ADAS) and autonomous driving (AD) features with our state-of-the-art ADAS solutions. We are committed to delivering high-quality products that meet ASIL D safety standards, reduce power consumption, and enhance system reliability. ADAS technology is revolutionizing vehicle safety by integrating various sensors and systems to assist drivers in making safer decisions. As safety systems continue to evolve, automakers and regulatory institutes are increasingly focused on creating a future where collisions are eliminated.

Today, some of the challenges in ADAS adoption are driven by extensive regulatory requirements, increasing costs associated with compliance and the integration of advanced features. Our solution directly addresses these challenges with a cost-effective architecture that lowers system total cost while still enabling rapid integration of innovative ADAS and AD capabilities. Our SoC platform is fully scalable, from entry-level driver assistance to highly complex systems that seamlessly integrate in-vehicle infotainment (IVI) and high-performance compute into a single, unified architecture. Our product roadmap further accelerates this vision with heterogeneous compute SoCs, spanning both monolithic and chiplet-based architectures, ensuring performance and safety features at competitive costs.

Block Diagram



Key Features

- Scalable & cost-effective solutions
- Reusability of software and design concept across AD
- Compliant with Safety and Cyber Security standards
- ISO21434 & ISO26262 compliant: Safe compute & secure connections
- Common Software Ecosystem: Support for software scalability via OTA updates

Products

Crux

Monolithic SoC
HPC + ADAS L1/L2)

Lybra

Monolithic SoC (HPC + ADAS L2/L2+)

Perseus

Monolithic SoC (HPC + ADAS L2+/L3)

Andromeda

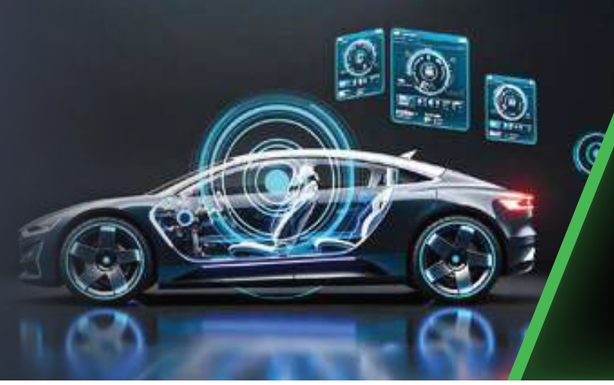
Chiplet - Based SoC
(HPC + ADAS L3/L4)

Centaurus

Chiplet - Based SoC
(HPC + ADAS L4/L5)

Vehicle Safety

Enhancing protection, awareness,
and trust on every journey



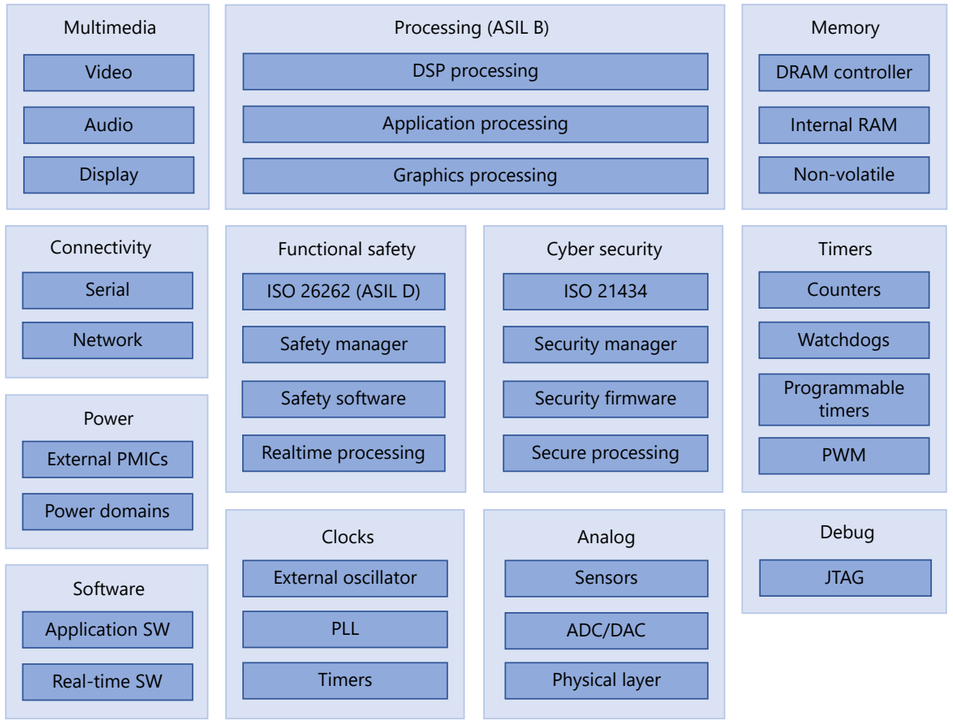
Instrument Cluster and IVI Solutions

Instrument Cluster and IVI SoCs – Digital Display

Our digital cockpit platform is a unified display solution that goes beyond traditional IVI and cluster SoCs to power fully digital, software-defined interiors across the vehicle. It combines high-performance compute with cost-optimized architecture to seamlessly handle instrument clusters, center stack displays, digital mirrors, and complex pillar-to-pillar multi-display infotainment layouts spanning front and rear seats. This integration of graphics, vision, and audio processing in a single scalable SoC simplifies system design while enabling OEMs to consolidate ECUs and reduce bill-of-material costs.

Our solution supports a wide range of display resolutions and configurations, from entry digital clusters to premium multi-screen cockpits with augmented HUD and camera-based mirrors. OEMs can flexibly scale performance and features across variants while maintaining a common software and hardware baseline, improving reuse and shortening development cycles. Rich multimedia, AI-enhanced UX, and secure connectivity deliver immersive, personalized infotainment experiences that match and exceed modern consumer electronics expectations.

Block Diagram



Key Features

- Support for SW scalability via OTA updates
- Low cost, low-power monolithic SoC or Platform solution
- Rich multimedia and AI capabilities for next-gen IVI systems.
- ISO21434 & ISO26262 compliant: Safe compute & secure connections
- Architecture enables the Software-Defined Vehicle (SDV) concept

Products

CHAMELEON - INSTRUMENT CLUSTER

Instrument Cluster, Central Stack, Digital E-Mirror, Driver Monitoring System

FALCON - INSTRUMENT CLUSTER

Instrument Cluster, Central Stack, Digital E-Mirror, Driver Monitoring System, Heads up Display, Front Passenger Display, Surround View Monitor

EAGLE - IN-VEHILCE INFOTAINMENT (IVI)

Instrument Cluster, Central Stack, Digital E-Mirror, Driver Monitoring System, Heads up Display, Front Passenger Display, Surround View Monitor, Augmented HUD, Rear-Seat Entertainment

HAWK -IN-VEHILCE INFOTAINMENT (IVI)

Instrument Cluster, Central Stack, Digital E-Mirror, Driver Monitoring System, Heads up Display, Front Passenger Display, Surround View Monitor, Augmented HUD, Rear-Seat Entertainment, Augmented Reality Display, Digital Cockpit

LTSCT Mobility

Your partner in shaping the software-defined future of mobility

Powering the Intelligence Behind Mobility

LTSCT enables safer and more sustainable vehicles through semiconductor innovation. Our advanced Power, Sense & Control ICs form the foundation of next-generation mobility platforms, enhancing energy efficiency, real-time responsiveness, and system reliability from the drivetrain to the dashboard.

Engineering the Software-Defined Vehicle

To support the transition toward software-centric vehicle architectures, we make vehicle performance scalable. LTSCT chip platforms are built for the Software-Defined Vehicle (SDV) era, enabling continuous feature upgrades, improved ADAS capabilities, and advanced decision systems through secure, high-compute designs.

Designing for Collaboration and Continuity

With global reach and local expertise, we co-create and deliver with speed. Partnering with OEMs, Tier-1s, and ecosystem leaders, LTSCT accelerates product development from concept to production while ensuring agility, supply-chain resilience, and predictable scalability through our worldwide design and manufacturing network.

Innovating with Purpose

We turn complexity into competitive advantage. Every LTSCT solution is engineered for measurable impact, combining high performance with sustainability and long-term value. As vehicle platforms evolve toward greater electrification and distributed compute, we help our partners design mobility that is efficient, secure, and responsibly built.

Customer Enablement Ecosystem

Engineering Excellence for Futuristic & Innovative Products

LTSCT offers a comprehensive range of design resources that streamline development, reduce complexity and support faster deployment across dynamic applications. Our ecosystem is built around four core pillars:

Design Tools

LTSCT offers an intuitive and immersive design experience that empowers you to create innovative and impactful solutions, supported by seamless hardware and software development tools.

System Solutions and Kits

LTSCT's system-solution guides and kits simplify workflows, improve efficiency and enable rapid simulation, development and evaluation.

Reference Designs

LTSCT provides detailed reference designs that help customers address system-level challenges with cost-effective, easy-to-manufacture approaches.

Technical Support & Forums

Access expert guidance through our application support engineers and sales teams.

Quality & Reliability

Delivering High Quality & Reliable Semiconductor Solutions

LTSCT ensures consistent, high-quality outcomes through comprehensive checks across design, manufacturing, testing, qualification and delivery. Our Quality Management System (QMS) is anchored in five key areas:

Policies & Procedures

Designed to meet strict specifications and resolve quality concerns promptly.

Standards & Certifications

Certifications underway include ISO 9001, ISO 27001, ISO 14001, ISO 45001, IATF 16949, ISO 26262, ASPICE and VDA 6.3.

Product Qualification

Evaluated to JEDEC and automotive AEC-Q100 / Q101 / Q104 and AQG-324 requirements.

Product Analysis

Robust RMA and failure-analysis processes enable fast root-cause identification.

Reliability

Comprehensive reliability testing supported by detailed data from industry-leading tools.

Sustainability Initiatives

LTSCT is committed to sustainable, eco-friendly growth by embedding ESG principles across our business and supply chain, with a clear goal of achieving carbon neutrality by 2040.

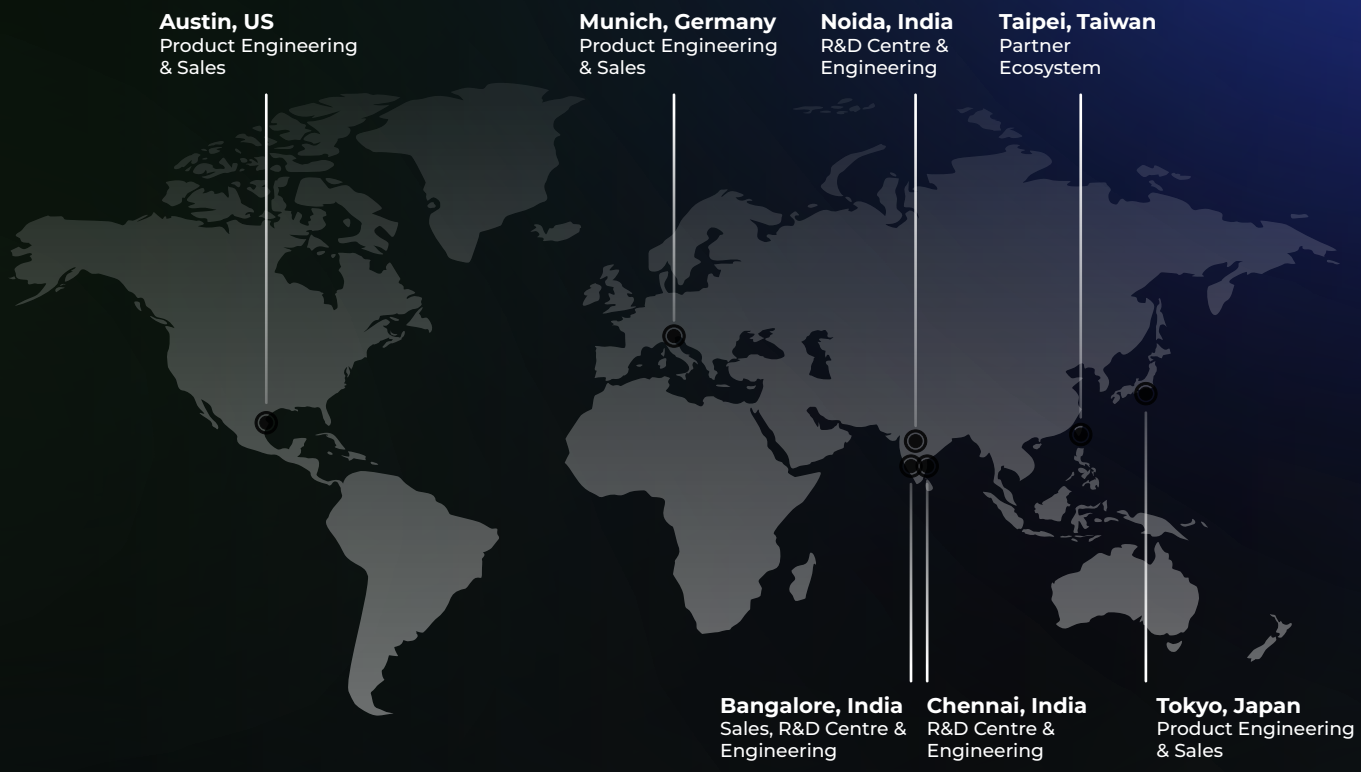
LTSCT Testing Lab

State-of-the-Art Testing for Performance, Reliability & Quality

LTSCT's Semiconductor Testing Lab in Bengaluru delivers advanced performance, reliability and quality testing for ICs, SoCs and components. With expansion planned for RF, 5G, stress-level and ATE-level capabilities, the lab ensures products meet optimal standards across varied environments and applications.

Our global footprint

LTSCT operates on a global scale with strategic locations in Asia, Europe, and North America. This footprint allows us to stay close to our customers, enabling rapid support, localized production, and seamless logistics.



INDIA

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Let's Shape the Future of Mobility, Together.

Partner with LTSCT to engineer intelligent, sustainable, and software-defined mobility systems.

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