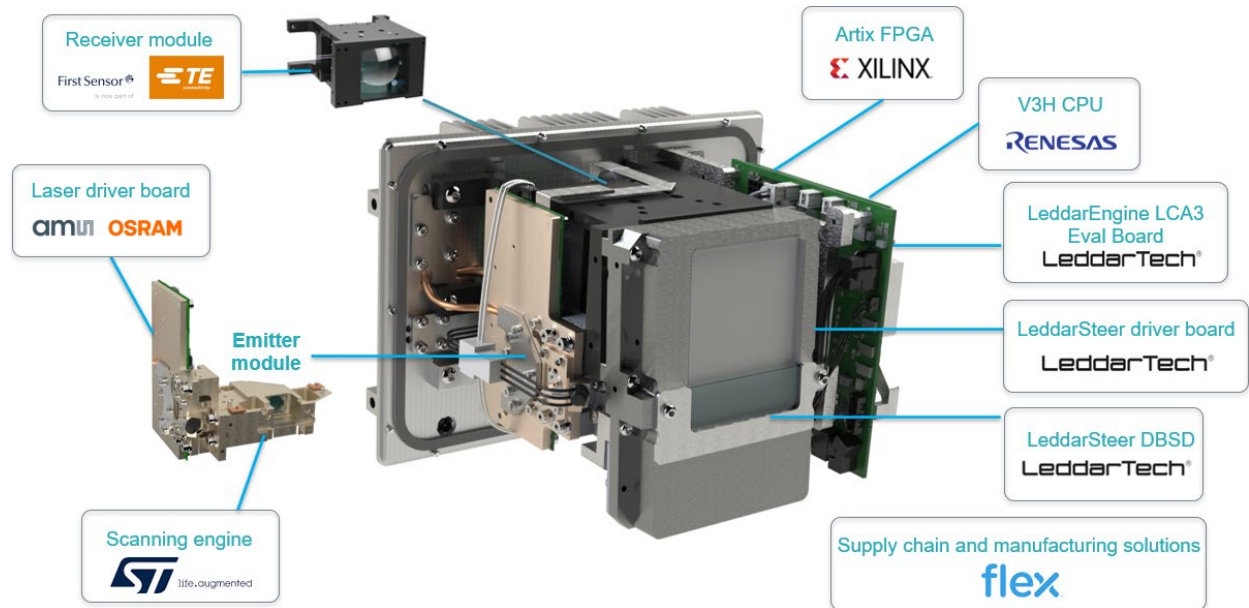


LiDAR XLRator

Development Platform and Automotive Reference Design for LiDAR Manufacturers, Automotive System Integrators and Tier 1-2 Suppliers



LiDAR XLRator™ represents an industry-first where leading technology companies collaborated to design a LiDAR development solution for LiDAR manufacturers, automotive Tier 1-2 suppliers and system integrators that reduces the development effort, cost and risks and accelerates time-to-market. XLRator assists customers in developing their own LiDARs to address the market needs for ADAS and AD applications.

Based on LeeddarTech's LeeddarEngine™ SoC and software and integrating LeeddarSteer™ DBSD beam steering technology, the LiDAR XLRator development platform leverages established building blocks with a path to auto-grade certification, unlike off-the-shelf LiDARs which lack flexibility and are not optimized for specific customer use cases.

Developed in collaboration with strategic partners and members of the Leeddar™ Ecosystem, the LiDAR XLRator provides preferred access to key components and technical expertise, from prototyping to production.



Reduces Risk and Development Time

Tested, proven technologies reduce design risks and potentially avoid years of research and development trial and error.



Reduces Financial Investment

Benefit from the significant R&D investments injected by development partners.



Enables State-of-the-Art Performance

LiDAR XLRator can deliver high range, high resolution, large FoV and fast frame rate.



Provides Flexible Signal Processing

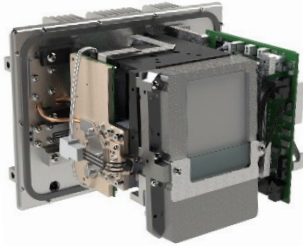
Leverage the full-waveform processing algorithms included, or develop your own from the high-SNR waveforms.



Accelerates Time-to-Market

Get your LiDAR solutions ready for market faster and accelerate revenue generation.

Design Your Optimized LiDAR With the XLRator Development Tools



The **XLRator Evaluation/Development Kit** is a modular, complete LiDAR sensor demonstrator kit that allows LiDAR developers to demonstrate, evaluate and test key components from leading technology providers towards automotive LiDAR designs. This development kit accelerates and reduces costs of automotive LiDAR development by:

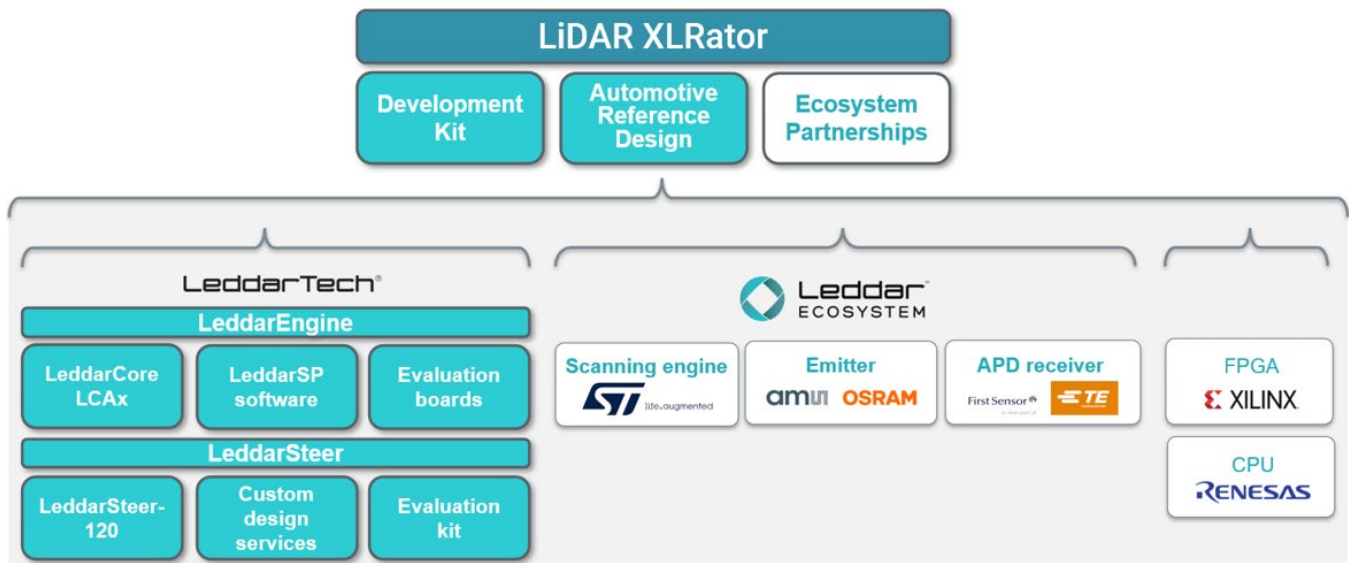
- Providing a complete and flexible development environment around LeddarEngine and LeddarSteer
- Making sure key components used are or have a path to automotive grade
- Facilitating component evaluation via modular design
- Providing design documentation as an example of implementation
- Accelerating path to certification with automotive-grade components and reference design

Developers can integrate any subsystem (laser, sensor, steering device, etc.) and use the API to create control drivers to assemble state-of-the-art LiDAR designs using the included acquisition management and signal processing algorithms.



The **XLRator Automotive Reference Design** is a compact, automotive-grade implementation of the XLRator development platform demonstrating its capabilities and performance. This LiDAR proof of concept integrates automotive-grade components in an automotive form factor, achieving key ADAS/AD performance with a focus on integration and reliability. The XLRator reference design accelerates development and reduces costs for automotive LiDAR developers and system integrators by:

- Providing an automotive reference design implementation based on leading technologies
- Demonstrating the concrete integration of key component offering in a fully optimized system
- Allowing for rapid evaluation and test driving of the LiDAR solution
- Enabling real-life data collection and performance benchmarking
- Providing support via the experience and expertise of leading technology suppliers

The LiDAR XLRator allows you to build multiple sensor designs around a single functional-safe, industry-trusted and flexible core that reduces electronics real-estate, enhances SNR and minimizes power consumption.



LiDAR XLRator: Performance Example

Configuration ¹	Traffic Jam Pilot	Narrow L-Range
FoV (H x V)	120° x 18°	15° x 6°
RoI FoV (H x V)	30° x 18°	N/A
RoI angular resolution	0.23° x 0.2°	0.1°x 0.2°
Range ² @ 0° (center)	140	>200
Range ² @ FoV edge	70	>200
Frame rate (Hz)	11	25
		

¹ Operation modes achievable with same hardware, changeable dynamically at run-time.

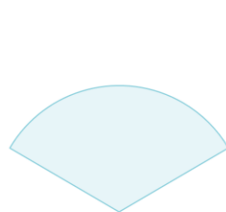
² Target @ 10% reflectivity, 100 klux ambient illumination, 50% probability of detection, 0.1% false detection rate.

LiDAR XLRator: Customizable Configurations

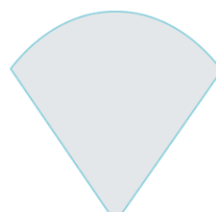
The Development Platform currently contains two built-in configurations and offers a practically infinite number of configuration possibilities, which could also be modified dynamically at run-time.

Resolution	Frame Rate	Range	FoV (14 x 4)
Down to 0.05° x 0.1°	Up to 40 Hz	Up to 480 m	From 7.5° x 6° to 120° x 24°

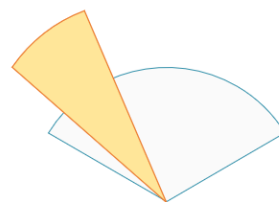
Examples of additional configurations possible with the same hardware:



120° x 24°






60° x 12°






Dynamic region of interest

XLRator Key Benefits for LiDAR Manufacturers

Development Benefits 	Financial Benefits 	Differentiated Solution 
<ul style="list-style-type: none"> Auto-grade, production-ready components accelerating and lowering costs for auto certification, designed for ISO-26262, ASIL-B and AEC-Q100 Leverages your LiDAR system design and data processing expertise Compatible with most architectures Preferred access to platform partners' expertise 	<ul style="list-style-type: none"> Enhances competitive edge by accelerating time-to-market Reduced R&D costs and risks (both development and production), leveraging multiple hardware abstraction layers (HAL) Optimized performances mitigating component specification requirements, hence reducing component costs 	<ul style="list-style-type: none"> Enables flexible design tailored to specific application needs Enables reduced power consumption and form factor Can build multiple products around the same flexible, high-performance core components, leveraging the acquired experience Own the design and maintain control over it

XLRator Key Benefits for Tier 1-2 Suppliers

Development Benefits 	Financial Benefits 	Differentiated Solution 
<ul style="list-style-type: none"> Complete, modular, highly integrated solution from the components to the signal-processing and software (LeddarEngine™) to the perception stack (LeddarVision™) Auto-grade, production-ready components Easy-to-use development APIs and SDK Leverages your integration expertise Preferred access to LeddarTech's expertise and design services 	<ul style="list-style-type: none"> Enhances competitive edge by accelerating time-to-market Modular plug-and-play design enables lower cost, rapid PoC with flexible architecture and state-of-the-art components Reduced R&D costs (both development and production), leveraging multiple hardware abstraction layers (HAL) 	<ul style="list-style-type: none"> Enables flexible design tailored to specific application needs Enables reduced power consumption and form factor Helps you build multiple systems around a common, flexible, high SNR and industry-trusted core Own the design and maintain control over it

Preferred Access to Components and Technical Expertise



First Sensor®
is now part of



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