



Best-in-Class Radar Performance Through Chipset Innovation



Highest Channel Count, Highest Processing Power

Comprised of a processor, transmitter, and receiver ICs, Arbe's chipset is the first to empower perception systems with the best radar image quality in the industry. The chipset's massive 48*48 transmit and receive channel array – 12 times larger than any other radar on the market – empowers next-gen radars to elevate L2+ and higher autonomy to advanced safety levels at low power consumption and low cost, resolving challenges like false alarms and lack of elevation resolution while improving sensitivity and image resolution.



2,304 channels



3 Tbps/sec



Low power consumption



Software defined



Automotive grade

Breakthrough in Radar Processing



Processor Chip

- Processing real-time data from 2,304 virtual channels
- Provides >10K detections at 20 frames per second
- 3 Tbps equivalent processing throughput
- Includes DSP cores to accommodate OEM algorithms
- Point Cloud and Object List Output

Arbe's patented processor chip integrates radar processing unit (RPU) architecture with embedded radar signal processing algorithms to convert massive amounts of raw data while maintaining low silicon power consumption. The automotive-grade system on chip (SOC) includes a safety and security processor, cryptographic core, dual-core DSP, and an application processor.

Rx Receiver Chip

- 12 Receiver channels
- Best in class noise figure
- 76-81GHz bands
- AEC-Q100, ASIL-B ready
- -40 °C to +125 °C temperature range

Arbe's proprietary automotive-grade Receiver Chip leverages the latest RF processing technology using the new FDSOI CMOS process 22FDX. Designed to support TD-MIMO, it also boasts best-in-class performance for sensitivity, channel isolation and noise figure. Arbe has achieved state-of-the-art mm wave receiving performance at the lowest cost per channel in the market. The Receiver Chip includes 12 input channels and can be used in systems of 12 to 48 receiver channels.

Tx Transmitter Chip

- 24 Transmit channels
- Highest output power
- 76-81GHz bands
- AEC-Q100, ASIL-B ready
- -40 °C to +125 °C temperature range

Arbe's proprietary automotive-grade Transmitter Chip leverages the latest RF processing technology using the new FDSOI CMOS process 22FDX. Designed to support TD-MIMO, it also boasts best-in-class performance for output power and power consumption. Arbe has achieved state-of-the-art mm wave transmitting performance at the lowest cost per channel on the market. The Transmitter Chip includes 24 channels, can be used in systems of 24 to 48 receiver channels, and allows beamforming and steering from six channels in parallel.

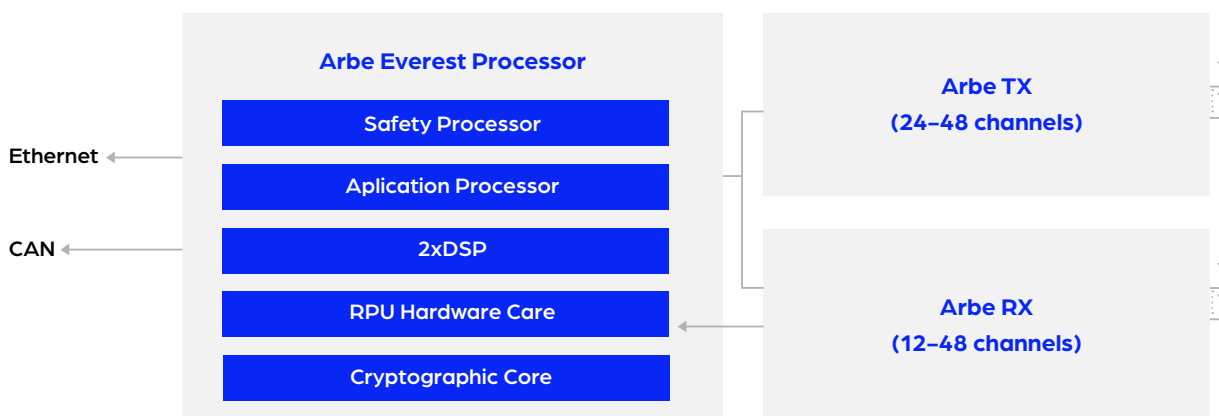
The Future-Proofed Roadmap

By equipping vehicles with radars based on the Arbe chipset, automakers will future-proof their offering and develop innovative perception features without needing to upgrade their radars throughout the vehicle lifecycle.

End-to-End Optimized Radar Technology

- Full radar chipset solution including RF transmitter and receiver along with a dedicated automotive radar processor.
- Scalable solutions enabling front, corner, and back radar design based on the same technology, providing size and cost optimization per application
- Software-defined architecture enabling control over radar parameters
- Full 360 coverage made easy – supporting both distributed and centralized architectures
- Providing the richest radar point cloud and object list for ADAS and AV features

High-Level Radar Block Diagram



Available Tools

Radar Evaluation Kit	Radar units for firmware development and performance evaluation
Full Reference Design Documentation	Complete set of documents required for manufacturing Arbe's Form Factor reference designs, including Schematics, Layout and Mechanical file
Automatic Calibration Tool	Automatic SW tool to enable full and fast chamber calibration of a radar system based on Arbe's chipsets
Software Development Kit	Full kit including Firmware and host driver binaries and sources, Tools for flashing and configuring the radar processor, Radar GUI based on ROS environment, rich set of collaterals: user manuals, installation guides, driver API and more for advanced radar configuration and rapid SW development

Arbe (Nasdaq: ARBE), a global leader in Perception Radar Solutions, is spearheading a radar revolution, enabling truly safe driver-assist systems today while paving the way to full autonomous-driving. Arbe's radar technology is 100 times more detailed than any other radar on the market and is a critical sensor for L2+ and higher autonomy. The company is empowering automakers, Tier-1 suppliers, autonomous ground vehicles, commercial and industrial vehicles, and a wide array of safety applications with advanced sensing and paradigm-changing perception. Arbe is based in Tel Aviv, Israel, and offices in China, Germany and the United States.