# Texas Instruments launches new automotive chips to enhance safety and audio



Texas Instruments (TI) has announced the launch of a novel range of integrated automotive chips aimed at enhancing safety and audio experiences in vehicles at varying price points. This suite, which includes the AWRL6844 60GHz mmWave radar sensor, is designed to incorporate edge AI capabilities, facilitating functionalities such as seat belt reminders, child presence detection, and intrusion detection all within a single chip.

The AWRL6844 radar sensor addresses the complexity and cost associated with multiple sensor technologies by streamlining implementation. It replaces several existing technologies, including in-seat weight mats and ultrasonic sensors, which is projected to reduce the overall cost by approximately $20 per vehicle. The sensor has four transmitters and four receivers that deliver high-resolution sensing data, finely tuned for cost-efficiency. This data benefits from processing via on-chip hardware accelerators and digital signal processing (DSP), enabling precise decision-making and accelerated processing times.

Additionally, TI has revealed the AM275x-Q1 microcontrollers and AM62D-Q1 processors aimed at improving audio experiences within vehicles. These processors feature the cutting-edge C7x DSP core, which integrates Arm cores, memory, audio networking capabilities, and a hardware security module into a single system-on-chip (SoC). This integration not only streamlines design efforts but also reduces the number of components required, allowing for a more compact solution while delivering advanced audio features. Capabilities such as spatial audio, active noise cancellation, and extensive networking using Audio Video Bridging over Ethernet mark significant improvements in audio technology for vehicles.

The C7x DSP core is notable for offering over four times the processing power of traditional audio DSPs, thus accommodating both traditional and AI-driven audio algorithms via its neural processing unit. This flexibility allows original equipment manufacturers (OEMs) to develop tailored designs that cater to a wide spectrum of audio systems, ranging from entry-level to premium offerings, with minimal need for redesign.

TI plans to showcase these advancements, alongside the TAS6754-Q1 Class-D audio amplifier and other analog solutions, at the upcoming 2025 Consumer Electronics Show (CES) in Las Vegas, scheduled for January 7–10.

As automotive manufacturers increasingly implement advanced sensor technologies and sophisticated audio systems to adhere to shifting safety standards and meet consumer demands, TI's robust solutions are positioned to empower engineers in their innovation efforts, all while aiming to cut costs and simplify design processes.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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3. <https://www.mobilityoutlook.com/news/texas-instruments-unveils-next-gen-chips-for-safer-smarter-immersive-in-cabin-experience/> - Details the AWRL6844 sensor's accuracy for occupant detection and child monitoring, and its compliance with Euro NCAP 2025 standards.
4. <https://www.stocktitan.net/news/TXN/new-edge-ai-enabled-radar-sensor-and-automotive-audio-processors-o61uvdqau7tb.html> - Explains the sensor's technical specifications, including four transmitters and four receivers, and the use of on-chip hardware accelerators and DSP.
5. <https://dallasinnovates.com/dallas-based-ti-debuts-radar-sensor-audio-processors-to-enhance-in-cabin-automotive-experiences/> - Describes the replacement of multiple sensor technologies by the AWRL6844 and its impact on cost and complexity.
6. <https://dallasinnovates.com/dallas-based-ti-debuts-radar-sensor-audio-processors-to-enhance-in-cabin-automotive-experiences/> - Details the AM275x-Q1 microcontrollers and AM62D-Q1 processors, including the C7x DSP core and its features.
7. <https://www.mobilityoutlook.com/news/texas-instruments-unveils-next-gen-chips-for-safer-smarter-immersive-in-cabin-experience/> - Explains the integration of Arm cores, memory, audio networking capabilities, and a hardware security module into the C7x DSP core.
8. <https://dallasinnovates.com/dallas-based-ti-debuts-radar-sensor-audio-processors-to-enhance-in-cabin-automotive-experiences/> - Highlights the C7x DSP core's processing power and its ability to accommodate traditional and AI-driven audio algorithms.
9. <https://www.stocktitan.net/news/TXN/new-edge-ai-enabled-radar-sensor-and-automotive-audio-processors-o61uvdqau7tb.html> - Mentions the showcase of these advancements at CES 2025, including the TAS6754-Q1 Class-D audio amplifier and other analog solutions.
10. <https://dallasinnovates.com/dallas-based-ti-debuts-radar-sensor-audio-processors-to-enhance-in-cabin-automotive-experiences/> - Discusses the collaboration with Dolby Laboratories to enhance automotive audio experiences using TI's semiconductor technologies.
11. <https://www.stocktitan.net/news/TXN/new-edge-ai-enabled-radar-sensor-and-automotive-audio-processors-o61uvdqau7tb.html> - Provides details on TI's demonstrations at CES 2025, including innovations in software-defined vehicles, advanced driver-assistance systems, and more.
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