Qualcomm and BMW Group Unveil Groundbreaking Automated Driving System with Jointly Developed Software Stack

Highlights:

- AI-enabled Snapdragon Ride Pilot Automated Driving System, powered by Snapdragon Ride system-on-chips and a new jointly developed automated driving software stack, debuts in the all-new BMW iX3 at IAA Mobility 2025.
- System is validated in 60 countries worldwide and is targeted to be available in more than 100 countries by 2026.
- Scalable platform enabling cost-efficient single camera active safety system and scaling up to a multi-camera multi-radar L2+ highway and urban automated driving functions.
- Data-driven stack is continuously updated with information from global fleets, supported by a cloud-based data flywheel system.
- Snapdragon Ride Pilot is now offered by Qualcomm to all global automakers and Tier-1 suppliers.
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Qualcomm Technologies, Inc. (NASDAQ: QCOM) and BMW Group today introduced Snapdragon Ride Pilot, the companies' new automated driving (AD) system resulting from a three-year collaborative effort. This state-of-the-art AD system is built on Qualcomm Technologies'

Snapdragon Ride™ system-on-chips (SoCs) using the leading-edge Snapdragon Ride AD software stack co-developed by both companies. The system is engineered to meet the highest safety standards and supports AD levels ranging from entry-level New Car Assessment Program (NCAP) to Level 2+ highway and urban navigation on autopilot (NOA) capabilities. Snapdragon Ride Pilot made its global debut today in the all-new BMW iX3, the first production vehicle in BMW's Neue Klasse and has been validated for use in more than 60 countries with expected expansion to over 100 countries in 2026. Snapdragon Ride Pilot is now available to all global automakers and Tier-1 suppliers through Qualcomm Technologies.

The development of the Snapdragon Ride AD software stack in Snapdragon Ride Pilot is a testament of global collaboration, with over 1,400 specialists from various locations, including Germany, the USA, Sweden, Romania and the BMW AD Test Center in the Czech Republic, working together for three years to bring this technology to life.

"Our collaboration with BMW's world-class engineering team has been truly transformative, enabling us to build a world-class system that is now available to bring the safety and comfort benefits of automated driving to consumers across all regions and vehicle tiers," said Nakul Duggal, Group General Manager, Automotive and Industrial & Embedded IoT, Qualcomm Technologies, Inc. "Together, we've created Snapdragon Ride Pilot—a revolutionary driver assistance system that prioritizes safety and sets a new standard for the industry. We're excited to see this system come to life in the BMW iX3, supporting BMW's vision for intelligent and safe driving, and we anticipate its widespread adoption will drive a new era of innovation and excellence in mobility solutions."

"Together with Qualcomm Technologies, we've created a groundbreaking system, which is a significant contribution to the big technological leap we take with our Neue Klasse," said Dr. Mihiar Ayoubi, Senior Vice President Development Driving Experience, BMW Group. "This collaboration has enabled us to develop a cutting-edge driver assistance system, setting a new benchmark. Smart, symbiotic and safe is the core of the BMW philosophy when it comes to ADAS – our new BMW iX3 will deliver this on an unprecedented level."

Introducing the Snapdragon Ride AD Software Stack

The Snapdragon Ride AD software stack features a perception stack developed by Qualcomm Technologies and a drive policy engine co-developed with BMW. It is engineered to enable automakers and Tier-1 suppliers to build scalable solutions with flexibility, cost savings and fast time-to-market, with their own drive policy or with a turnkey platform.

The stack is structured into multiple layers including:

- **360-Degree Perception**: The system uses a camera-based vision stack for object detection, surround view, lane recognition, traffic sign interpretation, parking assistance, driver monitoring, and mapping. Perception performance is enhanced through low-level perception using bird-eye-view (BEV) architecture and new methods for information extraction from fisheye cameras. The low-level perception between camera and radar is designed to reduce tracking latency, optimize system performance in active safety scenarios, and detect complex urban intersections. To improve computational efficiency, hardware and software co-design along with network architecture search are applied to manage compute resources and memory bandwidth.

- **Safety-First Approach:** Snapdragon Ride Pilot prioritizes safety through a steadfast commitment to Automotive Safety Integrity Levels (ASIL) and Functional Safety (FuSa) standards, supporting compliance with the latest safety regulations, including NCAP, FMVSS127 and DCAS. Snapdragon Ride Pilot also addresses Safety of the Intended Functionality (SOTIF) and incorporates robust cybersecurity measures, featuring multi-layered encryption and threat detection to help safeguard against potential threats.

- **Advanced context-aware driving**: Uses a balance of rule-based and AI-based models for behavior prediction and behavior planning to help enable safe handling of complex driving scenarios.

Stack development and testing is supported by the data and simulation factory, a key component of Snapdragon Ride. This toolchain integrates real-world data with synthetic data generation and AI-based simulations to create a robust and diverse set of driving scenarios, enhancing the training and testing of automotive models. The factory's capabilities allow for fast development of automated driving software capable of addressing complex real-world scenarios.

Snapdragon Ride Pilot supports over-the-air (OTA) updates and is fully customizable via the Snapdragon Ride SDK, giving automakers the flexibility to tailor solutions across vehicle segments. The software stack leverages fleet data to evolve and enable enhanced safety and comfort over the life of the vehicle.

Snapdragon Ride Platform Powers Automated Driving in BMW´s Neue Klasse

The ADAS system in the all-new BMW iX3 is built on Snapdragon Ride, which integrates high-performance, automotive-grade systems-on-chip (SoCs) for centralized sensor data processing, advanced computer vision modules for perception, and Snapdragon Ride Automated Driving software stack co-developed with BMW – including drive policy and safety guardrails.

The automated driving system of the BMW iX3 enables advanced capabilities including:

- **Contextual lane change and overtaking**: the system initiates maneuvers based on subtle driver cues like mirror glances or steering nudges.
- **Active lane change and highway assistant**: hands-free driving on approved road networks.
- Ecosystem provided AI-powered slot detection **parking assistance** and **camera-based in-bin monitoring**

BMW's "Superbrain of Automated Driving" – a central intelligent computer powered by Snapdragon Ride SoCs – combines automated driving functions, offering 20 times higher computing power than the previous generation. The system uses a unified architecture which includes an array of high definition 8M pixel and 3M pixel cameras and radar sensors enabling 360-degree coverage and along with high-definition mapping and precise GNSS localization enables a robust system helping to enable safe and reliable automated driving.

The BMW iX3 is also equipped with Qualcomm Technologies' V2X 200 chipset to support vehicle-to-everything (V2X) communications for enhanced safety. V2X communications allows vehicles to "see" and "hear" beyond line-of-sight ADAS sensors, helping reduce collisions by uncovering unseen risks through direct communication between vehicles and their surroundings, such as road infrastructure, pedestrians, and other road users.

To learn more about our Snapdragon Ride system solutions, please read here or visit us at IAA Mobility 2025 in Hall A2, Booth C01, beginning on Monday, September 8.

About Qualcomm

Qualcomm relentlessly innovates to deliver intelligent computing everywhere, helping the world tackle some of its most important challenges. Building on our 40 years of technology leadership in creating era-defining breakthroughs, we deliver a broad portfolio of solutions built with our leading-edge AI, high-performance, low-power computing, and unrivaled connectivity. Our Snapdragon® platforms power extraordinary consumer experiences, and our Qualcomm Dragonwing™ products empower businesses and industries to scale to new heights. Together with our ecosystem partners, we enable next-generation digital transformation to enrich lives, improve businesses, and advance societies. At Qualcomm, we are engineering human progress.

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