

GM to introduce centralized vehicle computing platform in 2028

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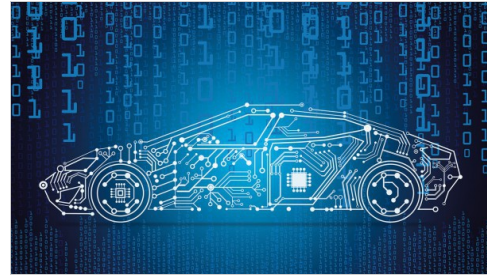
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New architecture enhances vehicle performance, efficiency and connectivity across GM's electric and gas-powered models

General Motors (GM) is set to introduce a centralized vehicle computing platform and next-generation electrical architecture across electric and gas-powered vehicles, starting with the Cadillac Escalade IQ in 2028. This new design reflects a significant transformation in the construction and potential updates of GM vehicles



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over time. More than 4.5 million GM vehicles can receive over-the-air (OTA) system updates, with this capability expanding by approximately 2 million vehicles annually. In 2022, GM consolidated various infotainment modules into a single computing platform and unified multiple advanced driver assistance systems (ADAS). The upcoming platform will combine numerous electronic control units into a unified computing core, coordinating all vehicle subsystems in real time.

The new centralized computing design offers enhanced performance, scalability and software efficiency while reducing the number of vehicle modules, which simplifies design, boosts reliability and allows faster software updates. It also preserves GM's manufacturing scale and flexibility. This approach enables GM to share software across its portfolio, connecting electric and gas-powered vehicles regardless of size. With this architecture, GM vehicles will remain constantly connected and responsive to remote commands, thanks to a high-speed Ethernet backbone similar to a smartphone's powerful microprocessor.

At the core of the system is a liquid-cooled central compute unit driven by advanced processors like Nvidia Thor. It connects to three aggregators serving different vehicle zones. These aggregators act as translators for sensor signals, simplifying the network topology into a star-network design. They manage data and commands without executing control logic, as all intelligence processes run on the Thor-powered platform, enhancing centralized processing and streamlining software updates.

The new architecture is built for scale, with up to 35 times more AI computing power for autonomy and increased infotainment performance. Its high-speed, low-latency Ethernet backbone supports real-time responsiveness and future technology integration. GM's propulsion-agnostic platform accommodates both electric and internal-combustion vehicles, allowing rapid scaling of innovations across its portfolio while maintaining safety and cybersecurity standards. By integrating centralized computing, software consolidation, and global scale, GM aims to usher in a new era of smart, continuously improving vehicles capable of learning and offering real-time intelligence alongside faster autonomy.

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