Volvo Cars Deepens Collaboration With NVIDIA; Next-Generation Self-Driving Volvos Powered By NVIDIA DRIVE Orin

Volvo is expanding its collaboration with NVIDIA to use NVIDIA DRIVE Orin™ system-on-a-chip (SoC) technology to power the autonomous driving computer in next generation Volvo models.

Large amounts of computing power are a prerequisite for safe autonomous driving. NVIDIA DRIVE Orin, an industry-leading AI-computing platform for the automotive industry, is capable of an unprecedented 254 tera (or 254 trillion) operations per second (TOPS).

Volvo Cars aims to be the first car maker with a global footprint to use NVIDIA DRIVE Orin in its next generation models, based on the forthcoming SPA2 modular vehicle architecture. The first car featuring this SoC is the next generation Volvo XC90, which will be revealed next year.

“We believe in partnering with the world’s leading technology firms to build the best Volvos possible,” said Henrik Green, chief technology officer. “With the help of NVIDIA DRIVE Orin technology, we can take safety to the next level on our next generation of cars.”

Volvo Cars’ plans to use NVIDIA DRIVE Orin for its autonomous driving computer are driven by the company’s unwavering commitment to the highest safety standards possible.

The NVIDIA DRIVE Orin-powered computer is a key element to enable safe and continuously updated, autonomous driving. It will work together with software developed in-house and by Zenseact, Volvo Cars’ autonomous driving software development company, as well as backup systems for steering and braking.

The added computing power and graphics processing delivered by NVIDIA DRIVE Orin enable advanced sensor suites needed for autonomous driving, such as the state-of-the-art LiDAR technology developed by Luminar, another of Volvo Cars’ technology partners.

Volvo Cars’ SPA2 architecture will be available as hardware-ready for autonomous drive from production start. Its unsupervised autonomous driving feature, called Highway Pilot, will be activated when it is verified to be safe for individual geographic locations and conditions.

Today’s announcement represents the next step in the deepening collaboration between Volvo Cars and NVIDIA. In 2018, Volvo Cars announced it will also use NVIDIA DRIVE Xavier SoC technology for the core computer on cars based on SPA2.

The NVIDIA DRIVE Xavier-powered core computer will manage core functionalities inside the car such as base-software, energy management and driver assistance. It works together with the NVIDIA DRIVE Orin-powered autonomous driving computer, which is dedicated to computing-intense work such as vision and LiDAR processing and delivering the high safety integrity level required for autonomous driving.

Volvo Cars is centralising computing in its next generation cars to enable them to be safer, more personal and more sustainable, as well as allow the company to make its cars better every day.
Moving to a centralised computing architecture means removing a lot of complexity. Rather than relying on multiple electronic control units around the car that control individual features and systems, much of the software is now developed in-house and kept in a central computer in the car. This enables more frequent improvements and growth in features via over-the-air updates.

Financial terms of Volvo Cars’ deeper collaboration with NVIDIA are subject to final negotiation between the parties.

Volvo Car Group in 2020
For the 2020 financial year, Volvo Car Group recorded an operating profit of 8.5 BSEK (14.3 BSEK in 2019). Revenue over the period amounted to 262.8 BSEK (274.1 BSEK). For the full year of 2020, global sales reached 661,713 cars (705,452), a decline of 6.2 per cent compared to 2019.

About Volvo Car Group
Volvo Cars was founded in 1927. Today, it is one of the most well-known and respected car brands in the world with sales of 661,713 cars in 2020 in about 100 countries. Volvo Cars has been under the ownership of the Zhejiang Geely Holding since 2010.

As of December 2020, Volvo Cars employed approximately 40,000 (41,500) full-time employees. Volvo Cars head office, product development, marketing and administration functions are mainly located in Gothenburg, Sweden. Volvo Cars head office for APAC is located in Shanghai. The company’s main car production plants are located in Gothenburg (Sweden), Ghent (Belgium), South Carolina (US), Chengdu and Daqing (China), while engines are manufactured in Skövde (Sweden) and body components in Olofström (Sweden).

Under its new company purpose, Volvo Cars aims to provide customers with the Freedom to Move in a personal, sustainable and safe way. This purpose is reflected into a number of business ambitions: for example, by the middle of this decade it aims for half of its global sales to be fully electric cars and to establish five million direct consumer relationships. Volvo Cars is also committed to an ongoing reduction of its carbon footprint, with the ambition to be a climate-neutral company by 2040.

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Descriptions and facts in this press material relate to Volvo Cars’ international car range. Described features might be optional. Vehicle specifications may vary from one country to another and may be altered without prior notification.
Volvo Cars’ plans to use NVIDIA DRIVE Orin in its autonomous driving computer are driven by the need for large amounts of computing power. "We believe in partnering with the world’s leading technology firms to build the best Volvos possible," said Henrik Green, chief technology officer. "With the help of NVIDIA DRIVE Orin technology, we can take safety to the next level on our next generation of cars."