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ZF Announces Major Business Wins: Electric Drives and first ProAI Supercomputer Applications for CVs Confirmed at IAA

- **ZF's Commercial Vehicle Solutions division has achieved major new business wins for its technologies since its January 1 launch.**
- **ZF ProAI: In 2023, the first applications will be launched in China and the U.S. delivering enhanced safety and supporting autonomous driving.**
- **Powering next generation mobility: all-new CeTrax 2 electric central drive will celebrate production with DAF Trucks; underlining customer confidence, new SCALAR fleet orchestration platform is already attracting significant global interest following its July presentation.**

Friedrichshafen, Germany. At IAA Transportation 2022 in Hanover, Germany, ZF's new Commercial Vehicle Solutions (CVS) division will showcase how its latest automated, connected and eMobility solutions are setting new industry benchmarks in safety, efficiency and sustainability. ZF has revealed that its industry-leading technologies have generated a series of significant business wins for its new CVS division since its 1 January launch. Presenting its advanced ProAI commercial vehicle supercomputer at IAA, ZF will also showcase its new CeTrax 2 electric central drive, next generation mbSP 'XBS' braking platform and pioneering SCALAR fleet orchestration solution.

"ZF's CVS division is the commercial vehicle industry's one-stop-shop, offering the broadest technology portfolio and the most extensive global presence. This enables us to offer the right products and solutions locally for our customers," said Wilhelm Rehm, ZF Board Member with responsibility for Commercial Vehicle Solutions, Industrial Technology and Materials Management. "Our business wins and the new products being brought to market powerfully demonstrate that our transformation is on track and our Next Generation Mobility strategy is already paying off."



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"As a valued development partner for customers world-wide, ZF is helping to propel the commercial vehicle industry towards a future where people and goods will be transported safely, efficiently and sustainably by fully autonomous, connected and electric vehicles. In addition, the Group's ability to successfully transfer technologies between vehicle applications helps make transformation costs more readily calculable for customers," added Rehm.

At IAA Transportation 2022, ZF will display cutting-edge innovations that are fundamental to helping manufacturers and fleets achieve safer, more efficient and environmentally sustainable commercial vehicles.

New CeTrax 2 Electric Central Drive

Unveiling its all-new CeTrax 2 electric central drive system at IAA, ZF is also marking the beginning of series production. With series production of CeTrax 2 set to begin in early 2023, ZF will equip one of manufacturer DAF's trucks with this advanced driveline technology.

CeTrax 2 features two high performance e-motors as well as silicon carbide inverters and three-speed gearbox able to perform powershifts. With all major components integrated within a single unit, it enables manufacturers to offer conventional combustion and electric drivelines on a single vehicle platform and enables high power and torque, lighter weight and enhanced efficiency. With continuous power of 360 kW and a 24,700 nm maximum output, the CeTrax 2 Electric Central Drive is actioned with smooth and almost imperceptible gear changes due to its seamless powershifting. CeTrax 2 can be easily installed in existing as well as new vehicle platforms

Production Commences for ZF ProAI

At IAA, ZF will announce the start of its first ever series production of its newly upgraded ProAI supercomputer. Specifically designed for commercial vehicle applications, ProAI is the industry's most flexible, scalable, and powerful automotive supercomputer providing vehicle intelligence for all vehicle platforms, software applications and electrical/electronic vehicle system architectures.



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Compact, more energy-efficient and more powerful than the previous generation, it supports all levels of automation levels from ADAS up to Level 5 autonomous driving. Providing the advanced computing capabilities demanded by autonomous driving, ProAI's processing power is up to one quadrillion operations per second. Expected to be launched first in China from 2023, ProAI will be installed as a supercomputer in heavy-duty vehicles in China and the US to support autonomous driving.

Driven by industry demand for transportation with a lower Total Cost of Ownership (TCO), Level 4 autonomous driving for commercial vehicles is expected to lead the way on public roads. CVS will showcase its advanced capabilities at IAA Transportation 2022. This includes presenting ZF's future-ready portfolio of Level 4 automated vehicle chassis components and controls as well as turnkey autonomous driving solutions complete with virtual drivers.

SCALAR – High Customer Interest

Following the recent unveiling of its new digital Fleet Orchestration Platform, 'SCALAR,' ZF is already attracting significant global interest in this advanced technology from leading manufacturers. SCALAR builds on over 35 years of advanced Fleet Management Solutions (FMS), digital connectivity and world-class autonomous vehicle operation optimization algorithm. The platform offers real-time, AI-based automated decision-making and optimization for fleets to help improve operational efficiency, sustainability, safety, uptime as well as cargo and passenger security.

SCALAR will offer a diverse suite of fleet operations optimization features including fully automatic and live planning, routing, scheduling and dispatching solutions. Leveraging unique vehicle data, best-in-class machine-learning and AI-based algorithms, its open, modular platform can support a wide range of customer requirements. It will provide real-time coordination and management of goods and people transportation for both homogeneous and mixed fleets. This will help operators,



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including shippers, carriers, cities, and other stakeholders, embark on the next levels of transportation (TaaS) and Mobility as a Service (MaaS). A key building-block of SCALAR is its industry-leading Orchestration autonomous vehicle operation optimization solution which was acquired from Bestmile in November 2021.

Advancing Safety - Next Generation Modular Braking System Platform

ZF's new modular and scalable mBSP XBS braking system platform will also be showcased at IAA. Demonstrating its capabilities in a ZF Innovation Truck, the new braking system shows promising capabilities in 'real life' situations with ZF's new OnGuardMAX emergency braking assist.

Captions:

- 1.) Showcasing how its latest automated, connected and eMobility solutions are setting new industry benchmarks in safety, efficiency and sustainability, ZF has revealed its industry-leading technologies have generated major business wins for its new CVS division.
- 2.) ZF's Safety Innovation Truck combining the Group's comprehensive latest safety technologies.
- 3.) ZF's Efficiency Innovation Truck with OptiFlow Tail.
- 4.) ZF test vehicle with the new all-electric CeTrax 2 central drive.
- 5.) ZF CeTrax 2: Next Generation eMobility for commercial vehicles.
- 6.) Hub-to-hub automation using ZF's ADOPT 3.0.
- 7.) Currently the most flexible and powerful supercomputer for the automotive industry: ZF has received several major orders for the latest generation of ZF ProAI. Production is scheduled to start in 2023.
- 8.) ZF SCALAR: fully automated and AI-based orchestration platform for fleet operators.

Images: ZF

Visit ZF in Hall 21 at Booth A90

Deutsche Messe Exhibition Grounds, 30521 Hanover, Germany



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Press Day: September 19, 2022

Public Days: September 20 - 25, 2018, 9 AM – 6 PM CET

For more information about ZF's participation at IAA Transportation 2022, please visit <http://www.zf.com/IAA>

ZF's Live Demonstrations

For the duration of IAA Transportation 2022, ZF will conduct a series of live demonstrations each day that feature its newest eWorX electric Power Take-Off system as well as its latest eBike solutions. Visit these demonstrations in the outdoor exhibition area.

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About ZF

ZF is a global technology company supplying systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains of Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive product and software solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies a wide range of vehicle types. With its products, the company contributes to reducing emissions, protecting the climate and enhancing safe mobility.

With some 157,500 employees worldwide, ZF reported sales of €38.3 billion in fiscal 2021. The company operates 188 production locations in 31 countries.

For further press information and photos, please visit: www.zf.com

About CVS Division

ZF's Commercial Vehicle Solutions (CVS) division is helping shape the future of commercial transportation ecosystems. Our mission is to be the preferred global



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technology partner to the commercial vehicle industry. Powerfully combining ZF's commercial vehicle systems expertise, extensive technology portfolio and global operations, the division serves the full commercial vehicle industry value chain. As the automotive industry progresses towards an increasingly autonomous, connected, and electrified (ACE) future, ZF's CVS division innovates, integrates and supplies components and advanced control systems that help make commercial vehicles and fleets operate more safely and sustainably. CVS unites ZF's former Commercial Vehicle Technology and Commercial Vehicle Control Systems divisions, the latter being formed following ZF's acquisition of WABCO in Spring 2020.