



Intelligent, Connected and Ready to Market: ZF Makes the Next Generation of Mobility a Reality at CES 2019

- **World premiere: ZF presents the ZF ProAI RoboThink, the most powerful AI-capable supercomputer in the mobility industry**
- **Open, modular, scalable and flexible platform liberates customers from pre-defined hardware and software combinations**
- **Combined with ZF's sensor set, the ZF ProAI RoboThink supercomputer opens the door to safe Level 4+ autonomous ride-hailing**
- **ZF ProAI is the first system to run NVIDIA's DRIVE AutoPilot starting in 2020**
- **ZF and e.GO starting People Mover volume production at the end of this year in Germany**
- **Transdev officially announced as one of the first e.GO customer**

Friedrichshafen / Las Vegas. This year's CES sees an array of production-ready ZF technologies that will help to make fully autonomous driving in public traffic a reality. Making its world premiere at CES is the ZF ProAI RoboThink, the most powerful AI-capable supercomputer in the mobility industry. This automotive-grade system, combined with ZF's fully developed sensor suite, allows real-time analysis of and reaction to virtually any kind of complex traffic situations, making autonomous Mobility-as-a-service possible. Fully networked system solutions based on the ZF Cloud link the vehicle to the Internet of Things, as well as to customer applications such as payment systems or ride-hailing services. This comprehensive offering is on display at CES 2019 in the form of a fully operational robo-taxi, highlighting what is now feasible thanks to ZF. The cooperation with the French based



mobility provider Transdev further underscores ZF's readiness to market and to shape Next Generation Mobility.

"Today, we present our ZF ProAI RoboThink, the most powerful AI-capable supercomputer in the mobility industry," said Wolf-Henning Scheider, CEO of ZF Friedrichshafen AG. "With its unique concept in terms of flexibility, modularity and scalability, this outstanding product accelerates the development of driverless vehicles as well as their ability to autonomously move people and goods."

A performance of up to 600 trillion calculation operations per second (600 teraOPS) puts the ZF ProAI RoboThink in the pole position for automotive-grade central control units. This level of computing power is designed to be capable of networking the stream of internal and external sensor data with car-to-X communication and cloud-based data input in real time, providing a platform to help safely operate a Level4+ autonomous vehicle in virtually any kind of public traffic. This is a precondition to support the future segment of autonomous ride-hailing services from areas with predefined routes like campuses or company grounds to the significantly more complex environment of public road traffic.

In the wake of this developing trend, ZF also premiered its own software stack for new mobility concepts at the CES. This stack together with the latest ZF Pro AI and the company's comprehensive sensor set represent a fully integrated system for driverless vehicles that can be easily adopted by the new players in the field of mobility services.

The ZF ProAI RoboThink offers high-end performance that is critical for Mobility-as-a-Service solutions. The ProAI platform with its four models and many configuration levels provides an open, flexible, modular and scalable approach for virtually all mobility modes, liberating customers from pre-defined hardware and software combinations. Advantages include the freedom to accommodate various chip sets, as well as the option to implement different common operating systems and thus to



PRESSE-INFORMATION
PRESS RELEASE

Page 3/5, 2019-01-07

tailor the software to customer's individual needs. This level of flexibility, combined with fully automotive-grade quality and an unrestricted availability to the market is currently unmatched in the mobility industry.

NVIDIA DRIVE Autopilot premieres on ZF ProAI

The power and flexibility of ZF's ProAI also convinced NVIDIA to name ZF one of their preferred partners for the launch of their new Level2+ NVIDIA DRIVE AutoPilot. Since ZF's new product's volume production will launch within the next 12 months, it is the only automotive-grade AI-capable supercomputer that can meet NVIDIA's ambitious timeline for the launch of their DRIVE AutoPilot from the beginning. ZF's CEO Wolf-Henning Scheider explained, "We are taking advantage of the fact that ZF offers a supercomputer that is ready for volume production. Our open, flexible, modular and scalable ZF ProAI product family allows for just the right configuration of any application – for a variety of industries, and across virtually all levels of automated driving."

e.GO People Mover coming in 2019, Transdev announced as customer

ZF's 2019 CES presence highlights the e.GO People Mover, developed and marketed jointly with the German start-up e.GO Mobile AG in the joint venture e.GO Moove GmbH. Production capability is now being ramped up in Germany with a target of producing five-figure numbers. The concept and availability of the e.GO People Mover has received significant interest from mobility providers and cities worldwide. Today at ZF's CES press conference, ZF and e.GO Moove GmbH have now officially announced a customer. They will be collaborating with Transdev, one of today's leading international mobility providers with 11 million daily customers, to further develop its Mobility-as-a-Service business based on the e.GO People Mover.

Yann Leriche, CEO of Transdev North America and head of Autonomous Transportation Systems, stated: "We are convinced that public transport will be the first place where real autonomous services will be developed and available for the general public. This partnership with ZF and e.GO



PRESSE-INFORMATION
PRESS RELEASE

Page 4/5, 2019-01-07

is a great opportunity to enrich our existing mobility solutions with new autonomous vehicles in order to offer the best solutions to our clients."

Günther Schuh, CEO of e.GO Mobile AG: "With the e.GO Mover, we are developing the world's first electric minibus with full road approval. Together with our partners, we are thus making a contribution to solve the current challenges posed by urban mobility issues. In future, this will be characterized primarily by electric, locally emission-free and highly automated vehicles".

The capabilities of ZF are reflected in the ride-hailing innovation vehicle, a fully functional technology carrier, featuring ZF's full systems approach for Next Generation Mobility solutions. With no steering wheel and pedals, the vehicle combines leading sensor and computing power, connectivity solutions and the necessary mechatronic actuators and safety systems and thus provides the essential elements for "Ride Hailing powered by ZF." This package represents a great opportunity especially for new automotive customers developing robo-taxis.

"With vehicles like our ride-hailing innovation vehicle and the e.GO People Mover, we are showing our leadership in state-of-the-art technology," says Wolf-Henning Scheider. "More importantly, these vehicles bring the industry several steps closer to clean, safe and affordable individual and public mobility for everyone."

Captions:

- 1) Performance and flexibility breakthrough: ZF ProAI RoboThink, the latest model from the ZF ProAI central computer product family.
- 2) A robo-taxi featuring ZF technology at CES 2019 provides a preview of autonomous ride-hailing.
- 3) Transdev, a globally leading mobility provider, will use the e.GO People Mover and ZF technologies for its mobility solutions.



PRESSE-INFORMATION
PRESS RELEASE

Page 5/5, 2019-01-07

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ZF Friedrichshafen AG

ZF is a global leader in driveline and chassis technology as well as active and passive safety technology. The company has a global workforce of 146,000 with approximately 230 locations in some 40 countries. In 2017, ZF achieved sales of €36.4 billion and as such, is one of the largest automotive suppliers worldwide.

ZF enables vehicles to see, think and act. The company invests more than six percent of its sales in research and development annually – in particular for the development of efficient and electric drivelines and also in striving for a world without accidents. With its broad portfolio, ZF is advancing mobility and services for passenger cars, commercial vehicles and industrial technology applications.

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