





# Production Experience & Awards

SCHAEFFLER  
Symposium  
2018


## Series Production – 12V



BMW 7 Series 2015




BMW 5 Series 2017




RR Phantom 2018


## Series Production – 48V




Bentley Bentayga 2015




Audi SQ7 2016



Porsche Panamera 2017




Porsche Cayenne 2017




Bentley Continental 2018


## Award-Winning System




German Innovation Award  
2016



Vehicle Dynamics International Award  
2016



Auto Test Sieger  
2016



PACE Award  
2017


# Feature to Product Mapping

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Feature

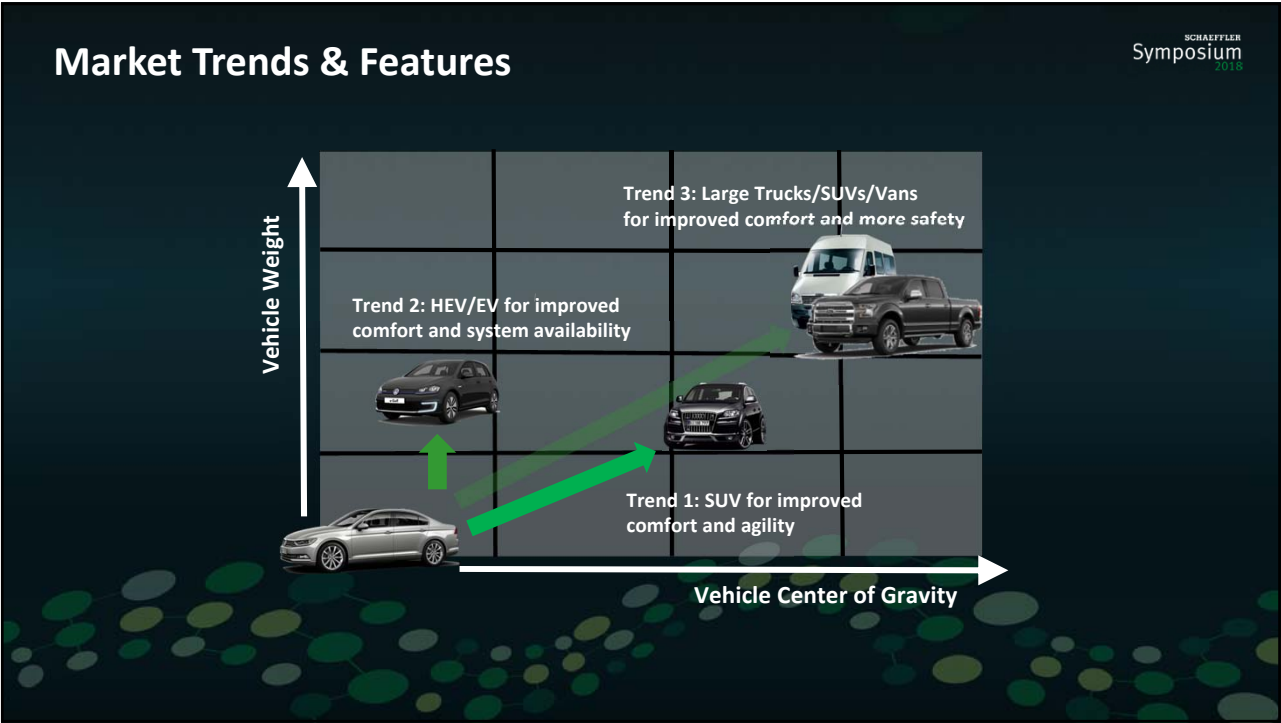
Products

iARC



Stationary Conditions			Adaptive Suspension Setup				Ride Comfort Improvement			Agility & Stability			
Easy Loading	Easy Entry / Exit	Easy Parking	Adapt Ground Clearance	Adapt Wheel Base	Increase Articulation	Load Leveling	Reduce Vertical Acceleration	Reduce Lateral Acceleration	Reduce Yaw Acceleration	Adapt Self-Steering	Adapt Steering Response	Dynamic Body Roll Control	Trailer Stability
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### Selling Features Using Schaeffler iARC System

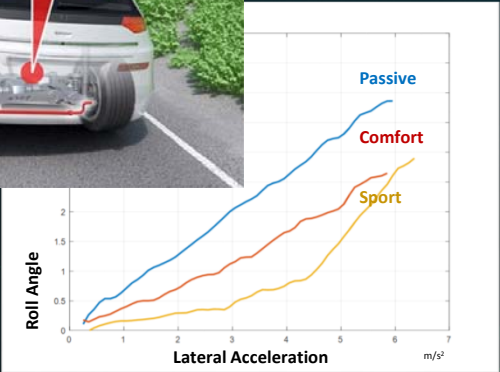
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Feature  Vehicle Class		Driving Dynamics			Comfort Features			ADAS Support L3 / Active Safety					
		Active Body Roll Control	Dynamic Self-Steer Control	Off-Road Mode	Dynamic Steering Ratio Control	Low Speed Maneuverability	Smooth Ride Control	Active Tilt Into Corner	Acc. Free Lane Changes	Enh. Emergency Steering	Enh. Split-m Stability	Trailer Stability Control	Dynamic Yaw Stabilization
Sports Car		●	●				●						
Luxury Sedan / Coupe		●	●				●	●	●				
SUV		●	●	●			●	●	●			●	
Trucks / Off-Road Vehicle		●	●	●			●	●	●			●	

### Dynamic Body-Roll Control



- Control body-roll-angle relative to lateral acceleration, steering angle input and vehicle speed
- Enhancing body-roll-control performance using roll acceleration, strut acceleration or suspension displacement signals
- Supporting different tuning modes



### Adaptive Self-Steering Behavior



- Adaptation of roll-moment distribution through look-up tables (e.g. relative to vehicle speed)
- Support of different tunes through mode selections
- Enhanced performance opportunities through integration with ESC by adaptation of roll-moment-to-road-conditions or stability rating relative to dynamic vehicle reference model



# Improved Ride Comfort & Off-Road Capabilities



- ▶ Reduction of copying behavior through wheel-force decoupling between left and right
- ▶ Increased suspension articulation through reduced-static-roll stiffness
- ▶ Enhanced dynamic comfort control using wheel acceleration and displacement sensors



Measurement on bumpy road



# System Evolution

## Generation 1

### Design 1

July 2015  
Launch BMW 7 Series  
1st Generation  
12V  
900 Nm  
Torque Sensor  
Elastic Decoupling Unit  
Fully Integrated



12V

## Generation 2

### Design 2

November 2015  
Launch Bentley Bentayga  
1st Generation  
48V  
1200 Nm  
Split Gears  
External ECU



48V

### Design 3

June 2020  
Launch Generation 2  
48V  
1400 Nm  
Torque Sensor  
Elastic Decoupling Unit  
External ECU



48V

+



+



Modularity

Performance

Product Cost

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- Total weight 12 kg + roll bars
- 
- Stabilizer Bar
- Stabilizer Bushing
- Decoupling Unit
- Planetary Gear Sets
- Housing
- Brushless DC Motor
- Angle Sensor
- Torque Sensor
- Harness to ECU

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