Driving automotive forward

Heinz-Peter Beckemeyer
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Your partner in systems innovation

Advanced driver assistance system
Advanced-assist and autonomous-driving capabilities for reducing human error

Passive safety systems
Reliable solutions to increase passenger safety

Body electronics and lighting
Innovative analog and embedded processors to optimize comfort and convenience

Infotainment and cluster
Immersive systems that keep drivers more informed and less distracted

Hybrid and electric vehicles
Reducing emissions by electrifying systems from the car to the grid
The roadmap toward zero-emission transportation

- **Start-Stop**, most basic level of electrification
  - Limited recuperation

- **Downsized internal combustion engine (ICE)**
  - Electric torque assist
  - Limited electric propulsion

- **Electric-only drive mode**
  - Electric propulsion limited by amount of energy recuperated

- **Adds on-board charger (OBC) for recharging and increased electrical mileage**

- **Entirely propelled by electric motor**
  - No ICE on board

**Micro Hybrid**
- <5 KW
  - 3%-10% savings
  - 12 V

**Mild Hybrid**
- 5-12(40) KW
  - 8%-16(30)% savings
  - 48 V (some HV)

**Full Hybrid**
- 20-80 KW
  - 20%-50% savings
  - (48V) 100 V-400 V

**Plug-in Hybrid**
- >50 KW
  - 40%-80% savings
  - (48V) 100 V-800 V

**Battery Electric**
- >>50 KW
  - 100% savings
  - (48V) 100 V-800 V

**CO₂ reduction**

**TI Information – Selective Disclosure**

**Texas Instruments**
Three key powertrain trends

Add power with 48 volt
- Boost efficiency
- Manages power-hungry loads
- Helps transition from lead-acid battery to Lithium based

Evolve battery management systems
- Wired daisy-chain communication
- Wireless improves reliability, efficiency, and design flexibility and scalability

Integrate powertrain applications
- Reduces weight
- Increase reliability
- Optimize cost
7000+ Analog and embedded products

- **Sensors**
  - Temperature
  - Current
  - Humidity
  - Radar
  - Magnetic
  - Specialty

- **Amplifier**
- **Data converter**
- **Embedded processing**
  - DLP® products
  - Motor drives
- **Interface**
- **Protection**
  - ESD / EMI
- **Wireless connectivity**

- **Switches & multiplexers**
- **Voltage translation**
- **Logic**

- **Power management**
  - Buck DC/DC switching regulators
  - Boost, multichannel/phase DC/DC
  - Linear power
  - Power switches, interface & lighting
  - High-voltage power
  - Battery management

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