

# Seat of the Future

## Real Time Pressure Sensing

# Auto Adjust Seating

Magna's Real Time Pressure Sensing technology obtains real time occupant pressure data to automatically adjust seating features to an optimized comfort position.



Smarter



New Mobility



Lighter



Co-Development Opportunity



Patent Pending



Magna Exclusive

### Competitive advantage/differentiators

- Obtains real time occupant pressure data to automatically adjust seating features to an optimized comfort position.
- Flexible, precise and thin (less than 1mm) 2D multiplex sensor array
- Advanced algorithms can enable more sophisticated applications (OCS)

### Applications

- Auto-Adjustment of seat comfort features
- Adjustable for different driving modes
- Anti-fatigue/discomfort mitigation
- Occupant detection in autonomous vehicles
- Detect unbuckled occupant and unattended children
- Potential to use in occupant classification system

Ideation

Discovery

Concept

Development







Serial Preparation

in Production

# FreeForm™

Magna FreeForm™ is an innovative seat trim technique that enables the freedom to achieve endless design possibilities, high seat concavity, improved comfort and enhanced cleanability.



 Smarter	 Cleaner	 Lighter	 Design
 New Mobility	 Patented	 First to Market	 Exclusive@Magna

## Competitive advantage/differentiators

- Remarkable design, craftsmanship and styling flexibility
- Allows for rapid mid-cycle trim changes
- Reduces production variation, improving overall quality

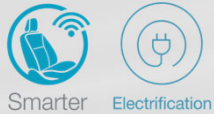
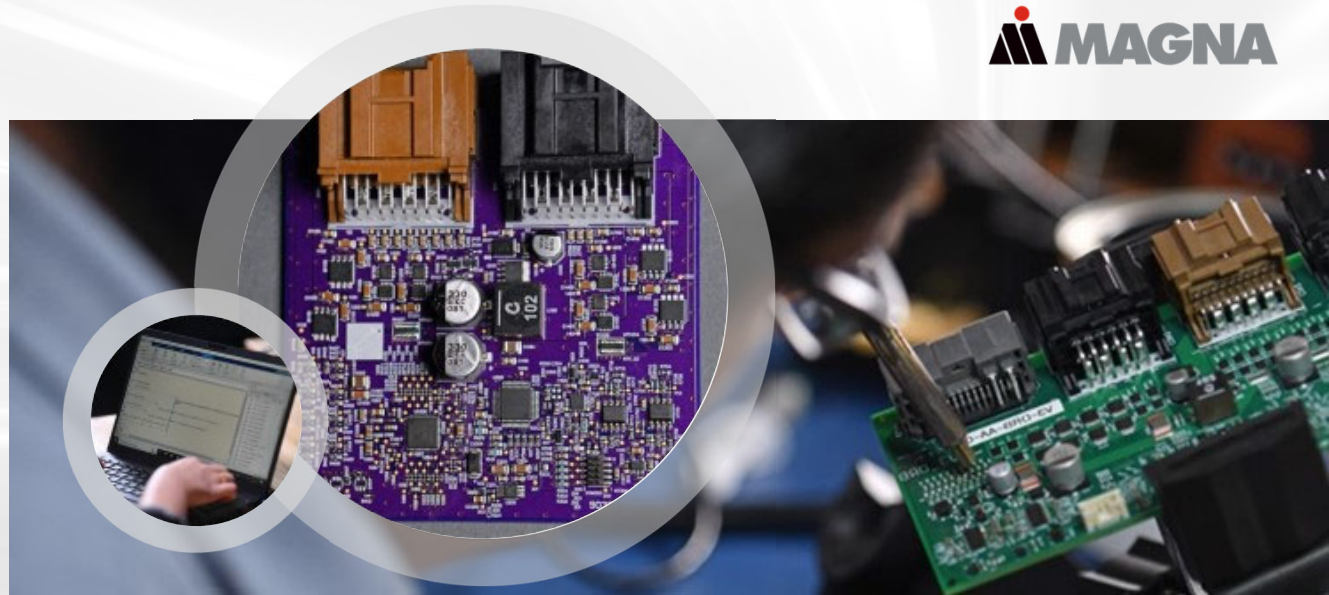
## Applications

- Technology can be executed as a front panel, back panel and cabin panel.
- Provides a highly concave surface without material bridging or traditional tie-downs
- Allows for various shapes and crisp styling lines that result in prominent visual effects
- Provides a back panel with a “soft touch” while maintaining shape, improving rear seat occupant knee clearance



# Central Seat ECU

Magna's Central Seat ECU provides a scalable solution with the capability to incorporate features for all rows of seating and the opportunity to extend into other vehicle controls (such as doors, steering wheel, mirrors, running boards, etc.).



## Competitive advantage/differentiators

- High performance 32 bit, 48MHz MCU (S32K1xx, S32K31x)
- 2 KB EEPROM/NVRAM for position memory
- High speed CAN/LIN (CAN-FD scalable)
- Object detection
- Modular concept (Configurable IOs) can be scaled up or down as required
  - Capable to run up to 12 motors with PWM controls and 12 hall effect sensors
  - 4 temperature sensors (thermistors), 10 digital inputs, 5 analog inputs and 4 solenoids
  - 4 high side drivers for heaters and 4 for vents

## Applications

- Reconfigurable IOs to support different applications
- Capable of consolidating multiple functions to reduce the number of individual controllers





**ii MAGNA**

Forward. For all.