Automotive Advanced Driver Assistance Systems

Challenges & Opportunities

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Agenda

• One Slide Strategy Analytics Overview

• Advanced Driver Assistance System (ADAS) Growth
  – How much growth?
  – Why?
  – What’s the consequent system, sensor & semiconductor demand?
  – Are there any barriers to growth?
  – What about the autonomous car?

• Key ADAS Battle Grounds

• Conclusions & Recommendations

• Q&A
Strategy Analytics
Overview

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Research to Address Client Needs

Strategy Analytics

User Experience

Automotive

Automotive Multimedia & Comms

Digital Consumer

Wireless Device Lab
Automotive Consumer

Smart Home

Connected Home Devices

Digital Media

Apps

Mobile/ Wireless

RF Wireless Components

Handset Components

Global Forces

Tariff Benchmarking Systems

Enterprise Cloud Mobile Workforce

M2M

Tariffs Networks

Wireless Devices & Smartphones

Tablets & Touchscreen

Automotive Electronics

Commercial Vehicle Telematics

GaAs & Compound Semi

Strategic Technologies

Handset Components

Automotive Electronics

RF Wireless Components

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ADAS Growth

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ADAS and HEV/EV electronic systems showing growth WAY beyond all other auto electronics application areas
Why’s ADAS Growing so Fast?

- Governments continue to push for greater road safety
- Automakers need new features
- Consumers interest is growing
- Prices are coming down – now typically in the $00s not $000s

Source: Volvo
• Parking and lighting systems ~63% of market in 2010
• Down to 27% by 2019 as other systems see faster growth
• Ultrasonic sensors not going away!
• Camera sensors show excellent mix of growth & volume

Source: Strategy Analytics Data Jan 2013
$2.5 B of semi demand from OEM ADAS systems by 2019

Almost $1 B of demand for processors. Next biggest is linear (Op Amp, ADC/DAC, Vreg, Bus Transceivers etc.)
Are There Any Barriers to ADAS Growth?

- Consumer reaction to any potential system “failures”
- Current lukewarm reception by insurance industry
- Phones & aftermarket devices
What About the Autonomous Car?

• Legislation being put into place to support autonomous driving developments:
  – Nevada Department of Motor Vehicles issued the first license for a self-driven car in May 2012. Nevada's regulations require a person behind the wheel and one in the passenger’s seat during tests. Google's autonomous system permits a human driver to take control by stepping on the brake or turning the wheel.

• Strategy Analytics believes that fully autonomous vehicles will take many years to reach market maturity. Steps along the way will include:
  – More mandating of ADAS technologies for conventional vehicles
  – Deployment of autonomous technologies for highway “platooning” (e.g. EU SATRE project) – likely in heavy truck market first?
Key ADAS Battle Grounds

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Key ADAS System Battlegrounds

- Center Stack: Infotainment companies to expand into ADAS?
- Sensor Clusters: How many? Who integrates?
- HMI: How best to communicate? Legislation?
Driver Assistance Impacting Cluster Designs

- More camera-based driver assist systems will be deployed
- Cluster processing power requirements will increase
  - Advanced Driver Assistance is still in an early development phase, hardware and algorithms are in flux. Growing use of sensor fusion
- Head-up display (HUD) is ideal match for many ADAS products
Conclusions & Recommendations

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Conclusions & Recommendations

• ADAS is one of the fastest growth areas in automotive electronics
  – However – non-traditional automotive companies traditionally struggle to penetrate the industry and usually **significantly under-estimate** the timescales, difficulties and costs involved in becoming OEM-fitted
  – Suppliers need to offer a **scalable platform** that allows cost-effective deployment across a range of features & price points. As some regions see moves to mandate some ADAS, the “value” falls to zero. Suppliers must offer extensions to the mandated technology that the consumer will continue to pay extra for

• ADAS development is seeing safety & infotainment worlds collide
  – Safety-centric companies are seeking to **hold onto** this market
  – Center-stack-centric companies seeking to **expand and leverage** their increasingly powerful processors and HMI technologies
  – Global OEMs are typically **wary** of sourcing safety from non-traditional safety vendors. OEMs in emerging regions will likely prove more **flexible**

• Aftermarket & Phone-based systems cannot be ignored
  – Especially in **emerging regions** and when bundled with **driver-cam** functions
Any Questions?