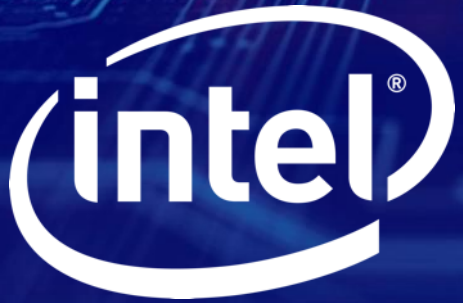
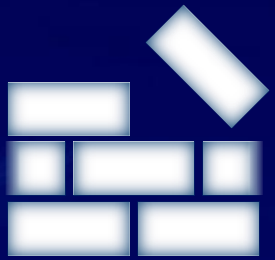


A WINNING COMBINATION

RISK FACTORS

- Statements in this presentation that refer to future plans and expectations are forward-looking statements that involve a number of risks and uncertainties. Words such as "anticipates," "expects," "intends," "goals," "plans," "believes," "seeks," "estimates," "continues," "may," "will," “would,” "should," “could,” and variations of such words and similar expressions are intended to identify such forward looking statements. Statements that refer to or are based on projections, uncertain events or assumptions also identify forward-looking statements. Such statements involve many risks and uncertainties that could cause actual results to differ materially from those expressed or implied in these forward-looking statements. Important factors that could cause actual results to differ materially from the company's expectations are set in Intel's earnings release dated April 26, 2018, which is included as an exhibit to Intel’s Form 8-K furnished to the SEC on such date. Additional information regarding these and other factors that could affect Intel's results is included in Intel's SEC filings, including the company's most recent reports on Forms 10-K and 10-Q. Copies of Intel's Form 10-K, 10-Q and 8-K reports may be obtained by visiting our Investor Relations website at www.intc.com or the SEC's website at www.sec.gov.

AV TECH MUST BE SAFE, SCALABLE, AND RELEVANT TODAY



BUILDING BLOCKS (SINGLE EFFORT)

ECONOMIC SCALABILITY

VERIFIABLE SAFETY

MULTIPLE LARGE ACCESSIBLE MARKETS

ADAS
(L1/L2)

- Next-gen safety beyond seatbelts / airbags
- ~80% of revenue, growing >40% per year, mid-$40 ASP.
- Currently 15% penetration of 90m annual auto production

AFTERMARKET

- Collision avoidance retrofit onto vehicles already on road
- ~20% of revenue. Majority Israel…large opportunity ROW
- 1 billion vehicles on road globally

CONSUMER-TARGETED AV
(L2+/L3)

- Highway autonomous for consumer convenience
- EQ4, multiple cameras, mapping, planning / RSS. ASP up to $200
- 11 design wins with OEM's represent >50% share launch from '18

FULLY AUTONOMOUS
(L4/L5)

- Compete on Safety and Economic Scalability. 2x EQ5 plus IA.
- Primarily targeted at networked ride-share.
- 100-vehicle fleet in 2018, Aptiv launch in 2019, BMW / FCA launch in 2021. (More to come…)

INDUSTRY 'FIRSTS'

TRACK RECORD OF CONVERTING RESEARCH TO AUTOMOTIVE-GRADE MASS PRODUCTION

DOZENS OF PRODUCTION PROGRAMS PROVIDED 200MM MILE, GEOGRAPHICALLY DIVERSE DATA-SET

2007

First camera/radar fusion

VOLVO

2008

First bundling of lane departure warning, intelligent high-beam, traffic sign recognition

BMW

2010–11

First pedestrian automatic emergency braking

VOLVO

First camera-only forward collision warning

OPEL BMW GM

2013

First camera-only adaptive cruise control and traffic jam assistant

BMW

First camera-only AEB (partial braking)

BMW NISSAN

2015–2016

First camera-only full auto braking (AEB)

AUDI

First camera-only advanced adaptive cruise control (Nissan Pro-Pilot*)

NISSAN

2017–2018

First camera/fusion system for Level 3 (Audi A8*)

AUDI

REM™ mapping launch: Two million vehicles collecting data by YE 2018

VW BMW NISSAN

EyeQ4® launch—L2+ and above with 11 OEMs

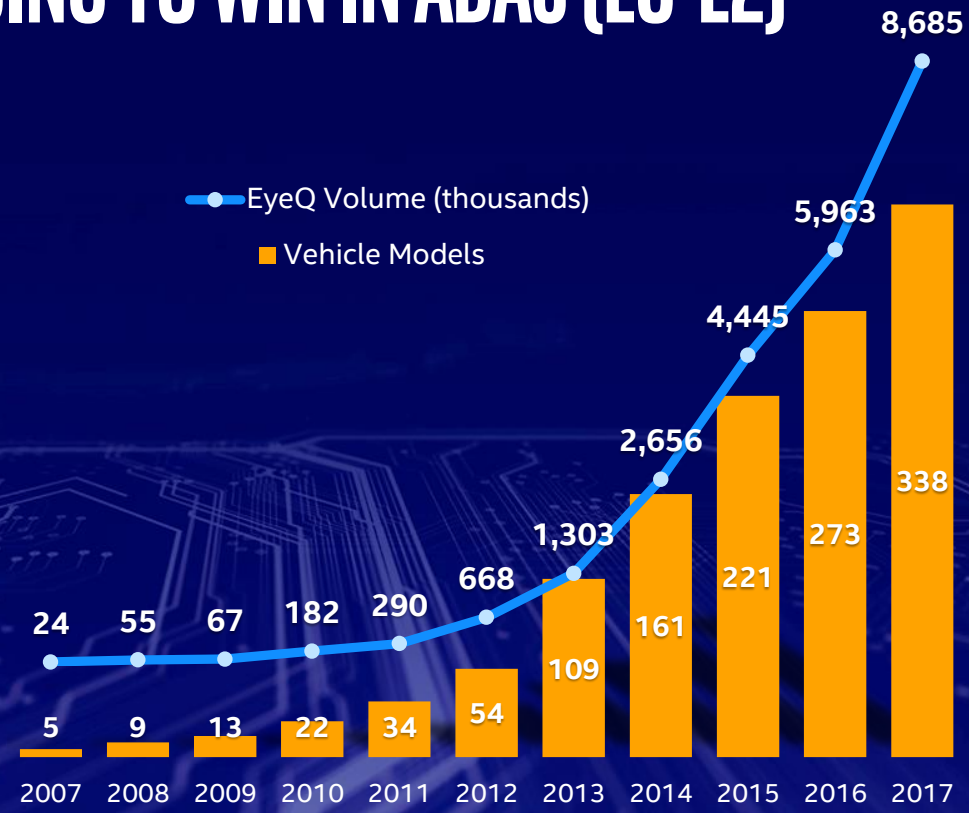
CONTINUING TO WIN IN ADAS (L0-L2)

27M
Systems shipped to date

30
Design wins in 2017
(2.5x vs 2016)

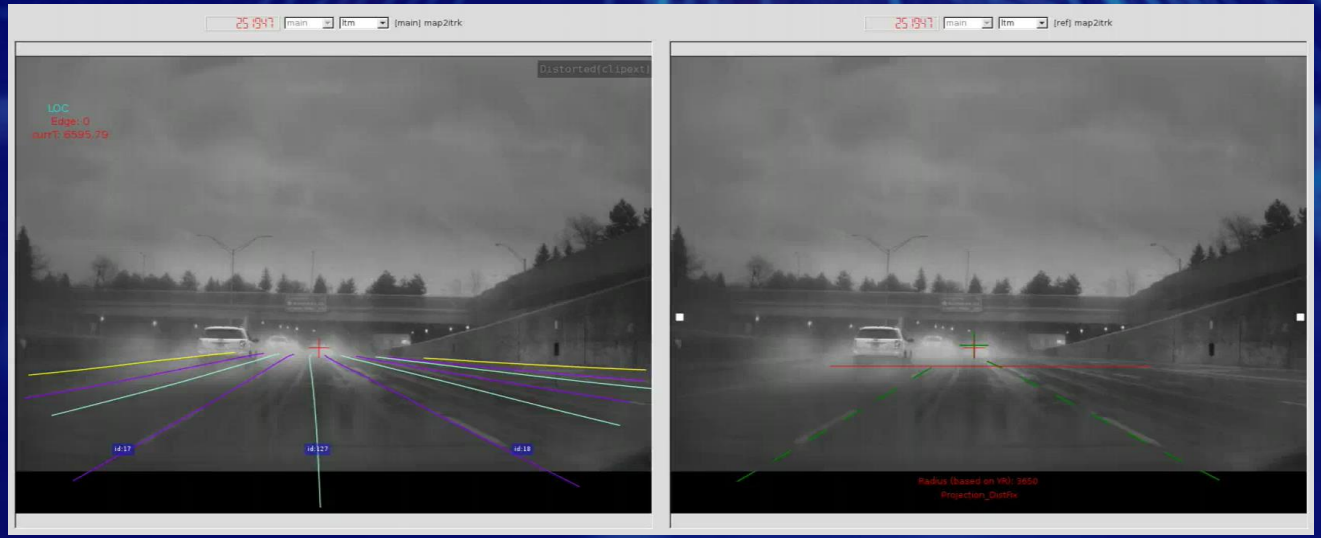
46%
Unit Growth in 2017

15
Launches in 2018
(2.5x vs 2017)



CONSUMER-TARGETED AV (L2+/L3)

A major leap in Adaptive Cruise & Lane-Keeping Support



Software: Computer Vision + Roadbook™ + Policy & RSS

Hardware: Tri-focal / 8mp camera + EyeQ®4 SoC

3 FACETS OF AUTOMATED DRIVING

SENSE

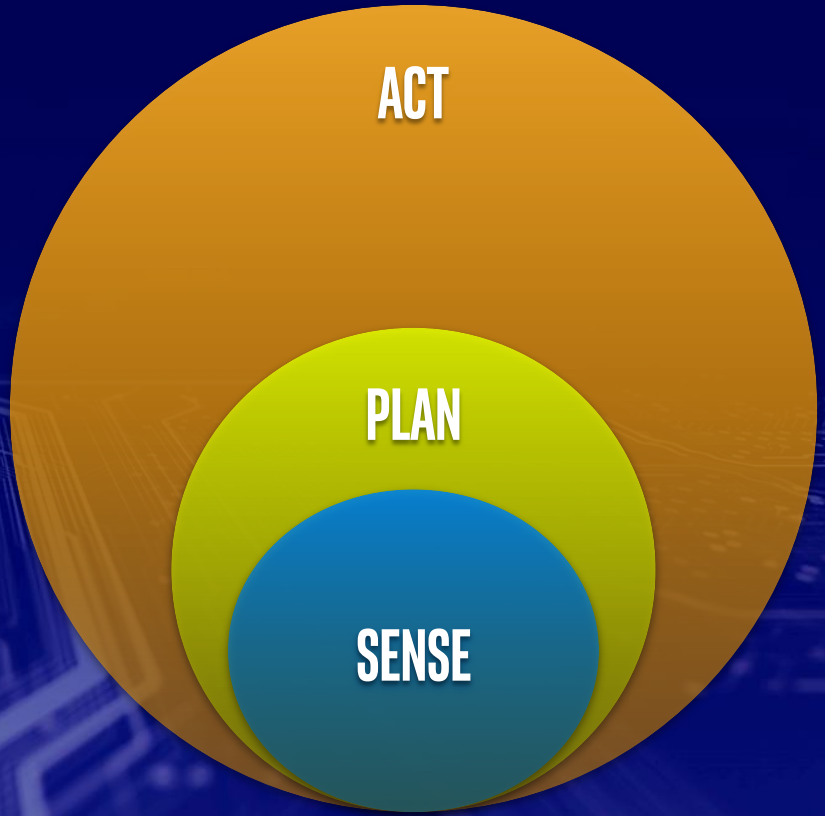
- Perception of the complete environment
- The raw material

PLAN

- Decision-making
- Analyze the raw material, and what action to take

ACT

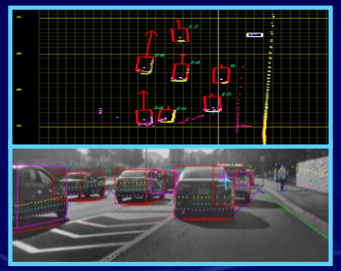
- Execute the plan
- Control acceleration, braking, steering



ME/INTEL AUTONOMOUS DRIVING CORE ENGINES

Visual perception

Sensor Fusion



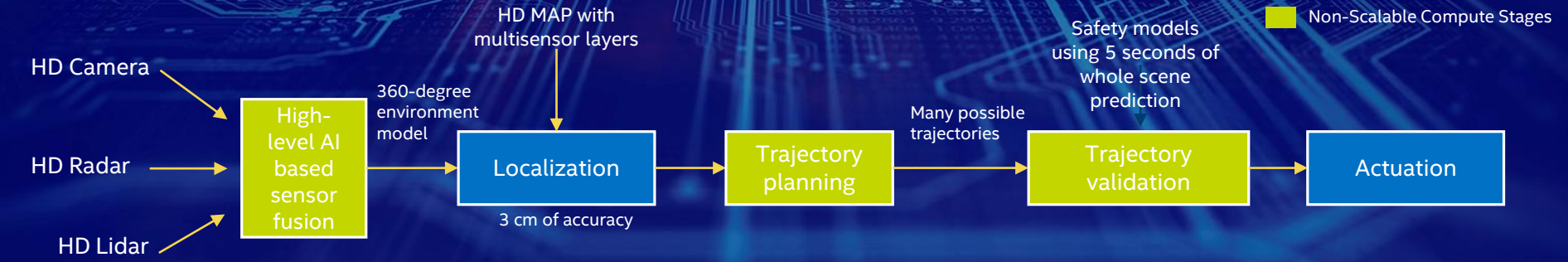
Dynamic mapping

RL-based Driving Policy

Compute platform

RSS

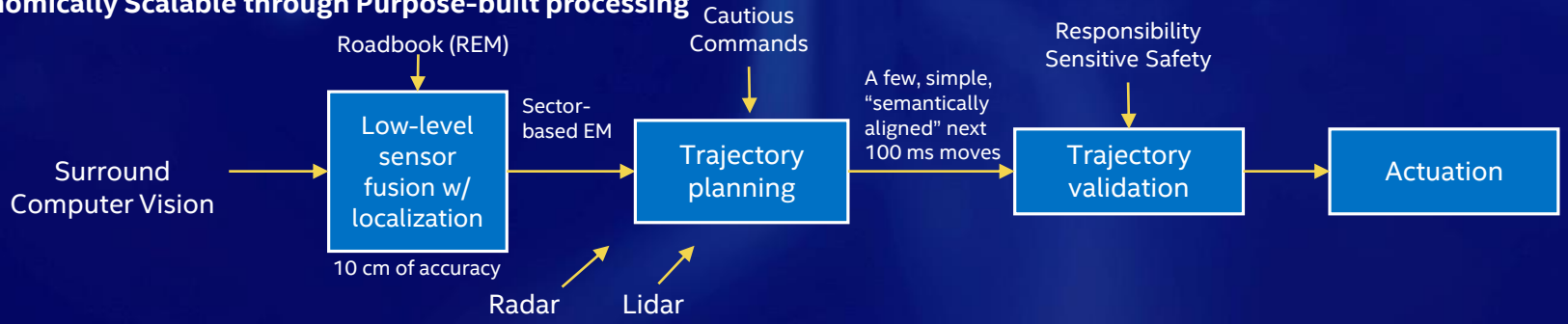
TWO WAYS TO DO AV: COMPUTE-INTENSIVE VS. ECONOMICALLY SCALABLE



Compute Intensive through General Purpose processing

SENSE PLAN ACT

Economically Scalable through Purpose-built processing

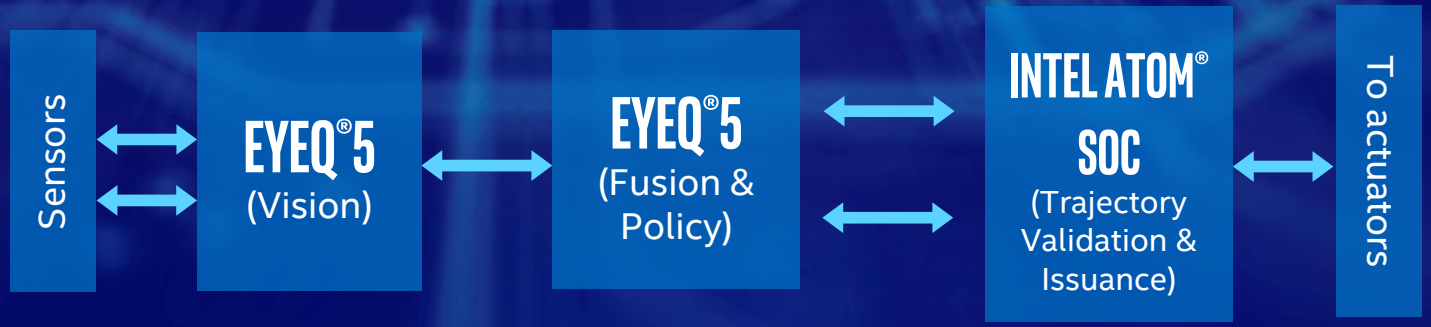


HARNESSING THE POWER OF INTEL

Closed EyeQ®5 → Intel → Open EyeQ®5

Open compute platform with SDKs and Libraries

SOLUTION ARCHITECTURE



FLEET

Intel

- 100 vehicles
- Data collection / validation, customer demonstration, scenario testing

DATA CENTER

Intel

- 250 Pb for Fleet support
- Validation and customer support

POWER OF CHOICE

AV Partnerships come in several forms

Turnkey: CV, mapping, fusion, driving policy, safety, MDC (2 x EQ®5 + Atom)

- Demonstrated in 100 car fleet

Perception Turnkey: CV / Mapping (closed-EyeQ®5); Fusion / Driving Policy (open-EyeQ5)

- Fusion and/or Policy software in collaboration with or solely by OEM/Tier-1

Open-compute + Libraries

SAFETY VALIDATION

How would you demonstrate that an automated vehicle is safe?

THE STATISTICAL APPROACH TO SAFETY

The more miles I drive, the safer I am

To demonstrate AV system safety[1]

EQUALS HUMAN DRIVERS

We would need to drive

~30M MILES

100 cars driving 24/7/365 would take

OVER A YEAR
1.3 YEARS

To build trust,
we need to be better
by 2-3 orders of magnitude

1 Kalra, Nidhi and Susan M. Paddock, Driving to Safety: How Many Miles of Driving Would It Take to Demonstrate Autonomous Vehicle Reliability?. Santa Monica, CA: RAND Corporation, 2016. https://www.rand.org/pubs/research_reports/RR1478.html

THE STATISTICAL APPROACH TO SAFETY

The more miles I drive, the safer I am

To demonstrate AV system safety[1]

99%-99.9% BETTER THAN HUMAN DRIVERS

Not Safe

We would need to drive

~3B-30B MILES

Not just once:

Every update of hardware & software

100 cars driving 24/7/365 would take

BETWEEN 100-1000 YEARS

Not Affordable

1 Kalra, Nidhi and Susan M. Paddock, Driving to Safety: How Many Miles of Driving Would It Take to Demonstrate Autonomous Vehicle Reliability?. Santa Monica, CA: RAND Corporation, 2016. https://www.rand.org/pubs/research_reports/RR1478.html

A BETTER SOLUTION: RESPONSIBILITY SENSITIVE SAFETY (RSS)

An open and transparent industry standard that provides verifiable safety assurance for AV decision-making

FORMALIZE

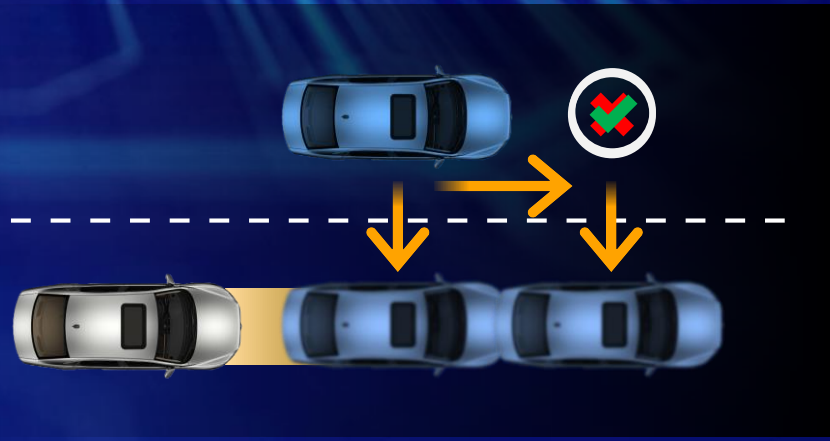
Human notions of safe driving

DEFINE

Dangerous situations and proper responses

AVOID

Causing and being involved in crashes



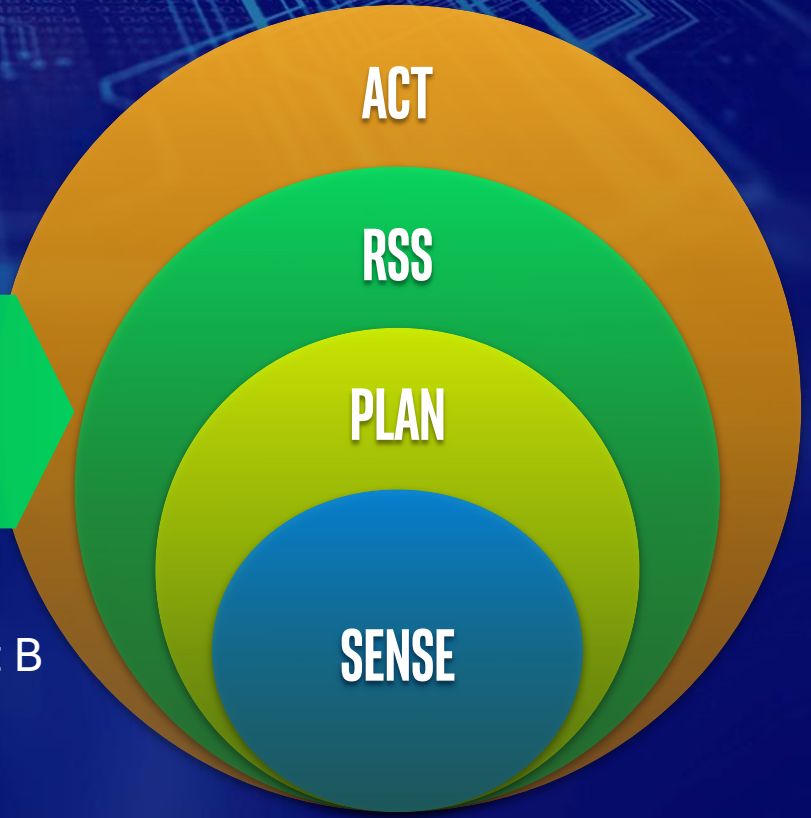
RSS is technology neutral starting point for the industry to formalize what it means for an AV to drive safely

4 FACETS OF AUTOMATED DRIVING

PLAN

- Analyze the raw material, and consider actions
- *Propose* a Decision

RSS IS A PLANNING SAFETY SEAL



Planning is how you get from point A to point B

RSS helps keep you safe along the way

AV SAFETY: AN ISSUE LARGER THAN ONE COMPANY

What are we doing

INDUSTRY

Engaging with customers, competitors and consortia to have an open dialogue on the safety assurance of AV's

GOVERNMENT / NGO'S

Understanding government and NHO expectations on transparency and measurable verification of AV's

ACADEMIA

RSS Research Centers at Universities in key geographic markets

REAL WORLD

Deploying RSS in our AV Fleet in some of the most challenging environments

An Intel Company