

Connectivity for
Automotive Light & Vision

Inova Semiconductors
Q2.2024

APIX®

ISELED®

ILaS®

Confidential to Inova

inova
Semiconductors

Inova Semiconductors GmbH



Private fabless semiconductor company

Headquarter: Munich, Germany

Founded 1999

Mission:

Development, manufacturing and worldwide sales of innovative Gigabit link solutions for serial data communication and smart LED solutions for the Automotive Market.

CONNECTIVITY FOR AUTOMOTIVE LIGHT & VISION

APIX®

ISELED®

ILaS®

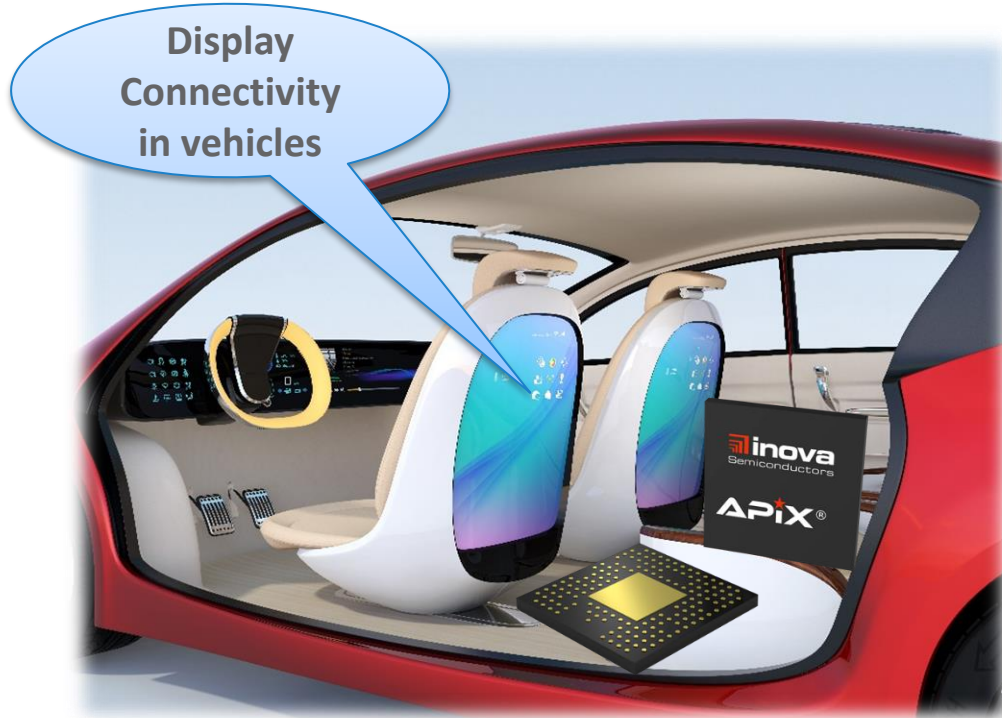
Confidential to Inova

2


inova
Semiconductors

Business segments and goals

APIX[®]



Provide Most **Reliable** Digital Gigabit **Multichannel SerDes** Solutions to the **Automotive** Market

ISELED[®]

ILaS[®]



Provide **Smart LED Driver Chips** and **Light & Sensor Networks** solutions for the **Automotive** Market.

APIX[®]

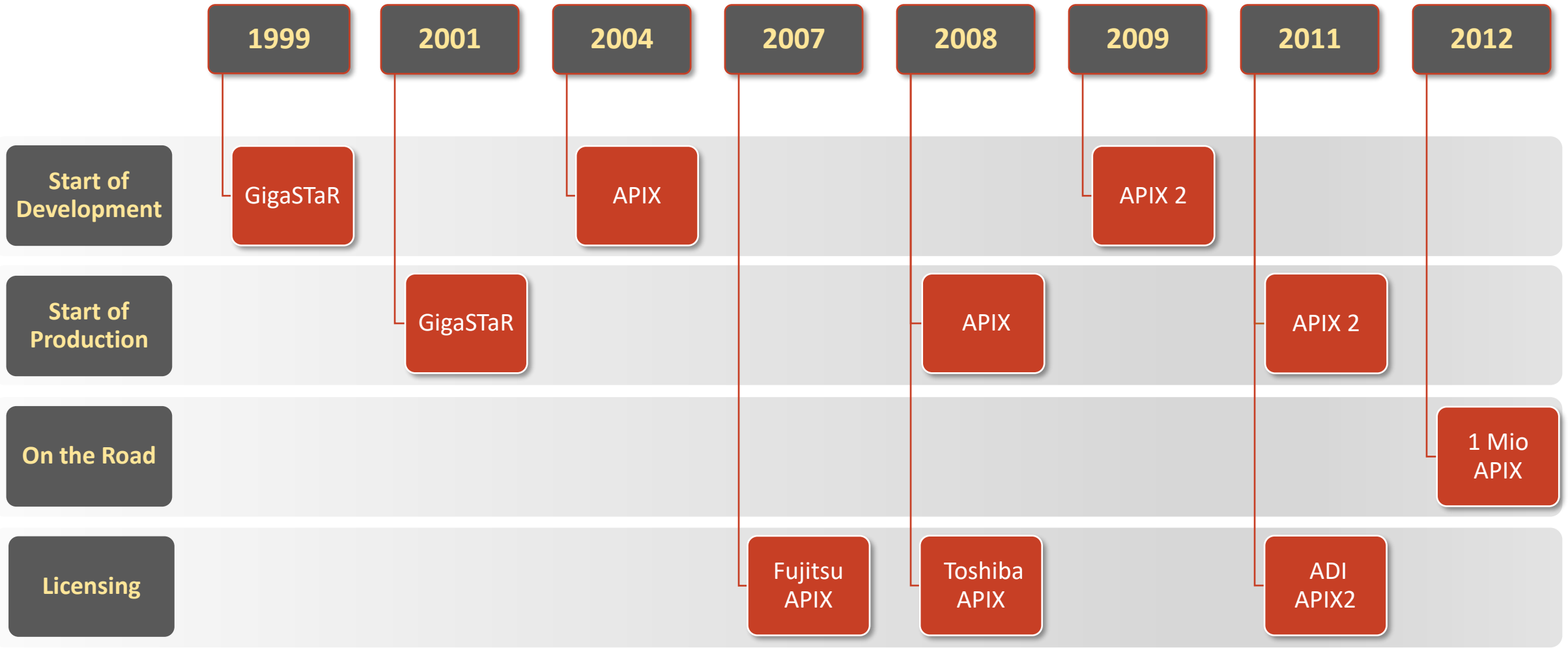
ISELED[®]

ILaS[®]

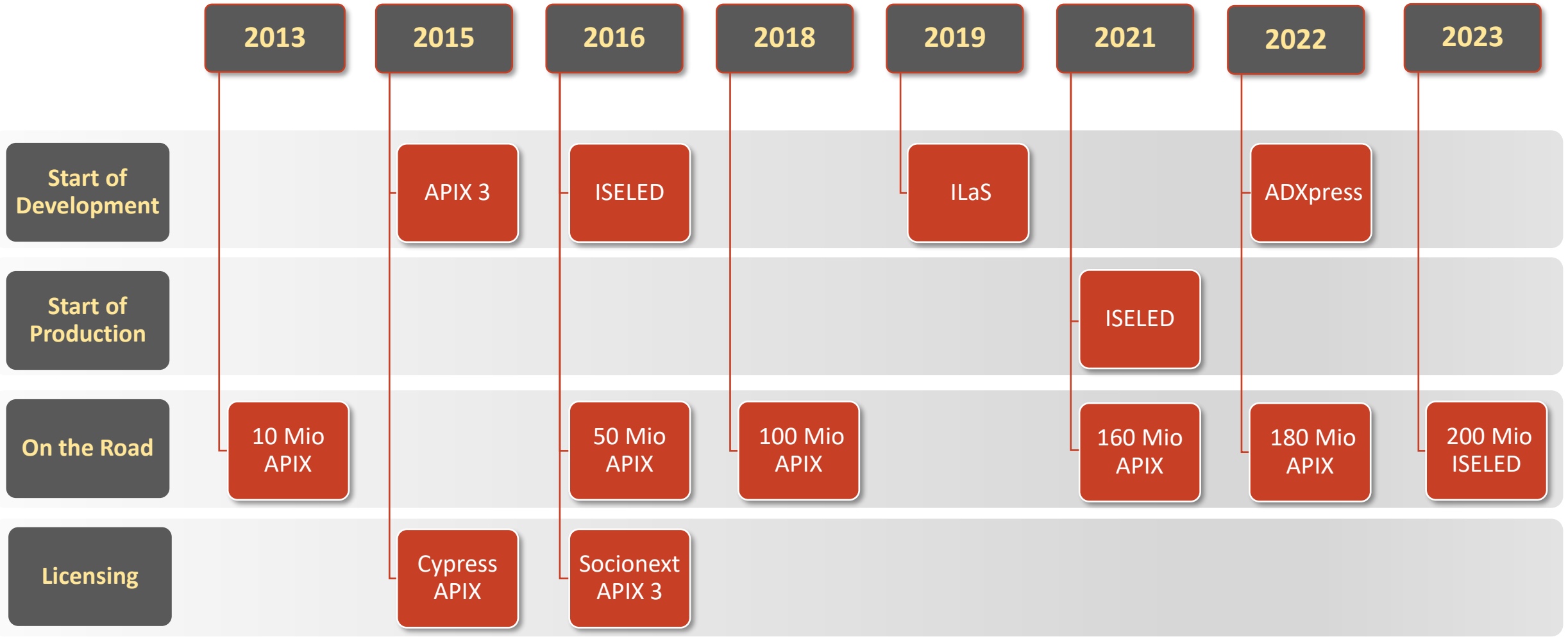
Confidential to Inova

inova
Semiconductors

History – Milestones



History – Milestones



Global Presence



Confidential to Inova



Business Segments and Goals

APIX[®]

Display
Connectivity
in vehicles



Provide Most **Reliable** Digital
Gigabit **Multichannel SerDes** Solutions to the
Automotive Market

APIX[®]

Central Instrumentation Displays

Cluster Displays

Passenger Displays

Console Displays

Rear Seat Entertainment

Displays for Camera Monitor Systems

HVAC Displays

APIX[®]

ISELED[®]

ILaS[®]

Confidential to Inova

7

inova
Semiconductors

APIX – Automotive Pixel Link



2008	2012	2018	2022
1 Gbps	3 Gbps	12 Gbps	12 Gbps
Video only	Multichannel HD Video Content Protection Ethernet Digital Audio	Multichannel UHD Video Content Protection Ethernet Digital Audio DSI & HDMI Digital Stream Compression Diagnostics Safety	Multichannel UHD Video Content Protection Ethernet Digital Audio DSI & HDMI Digital Stream Compression Diagnostics Safety Multistream Transport Display Port

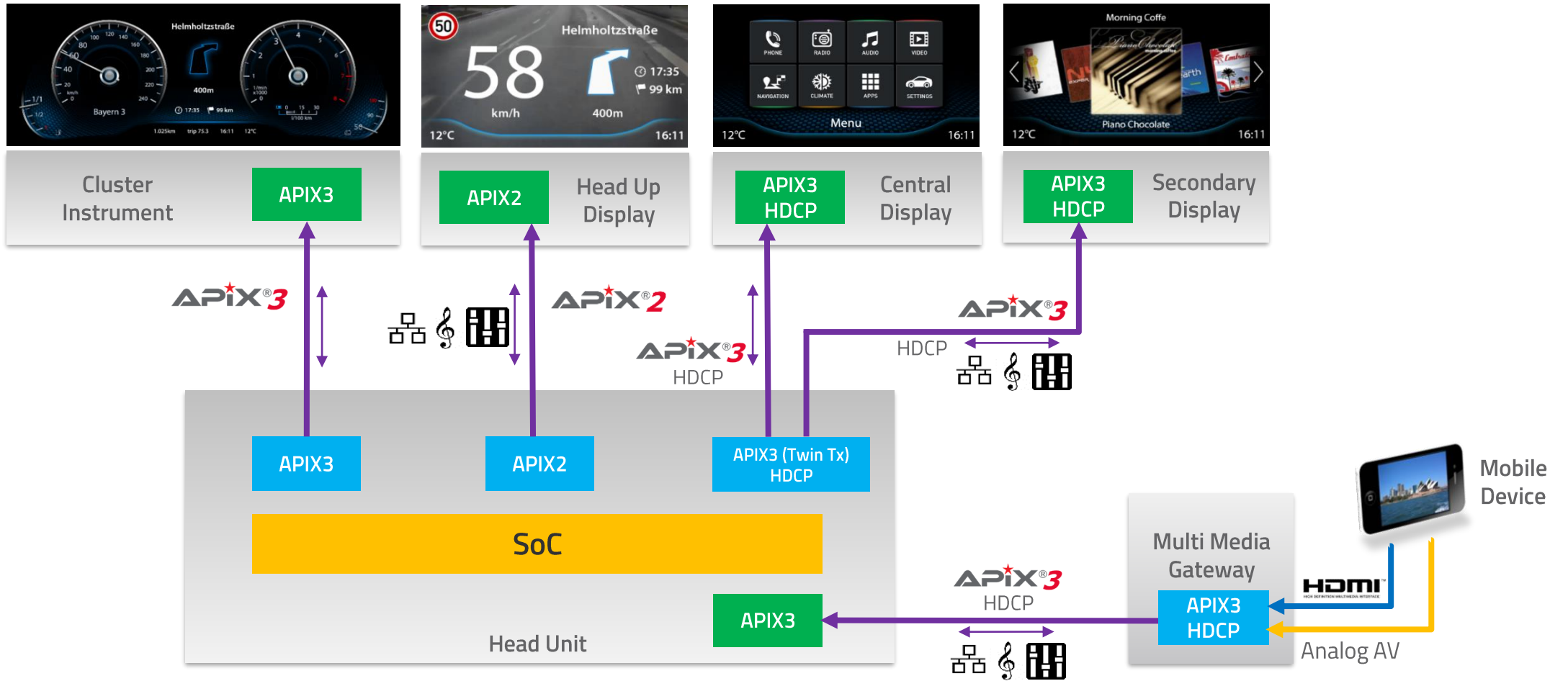
Coming soon



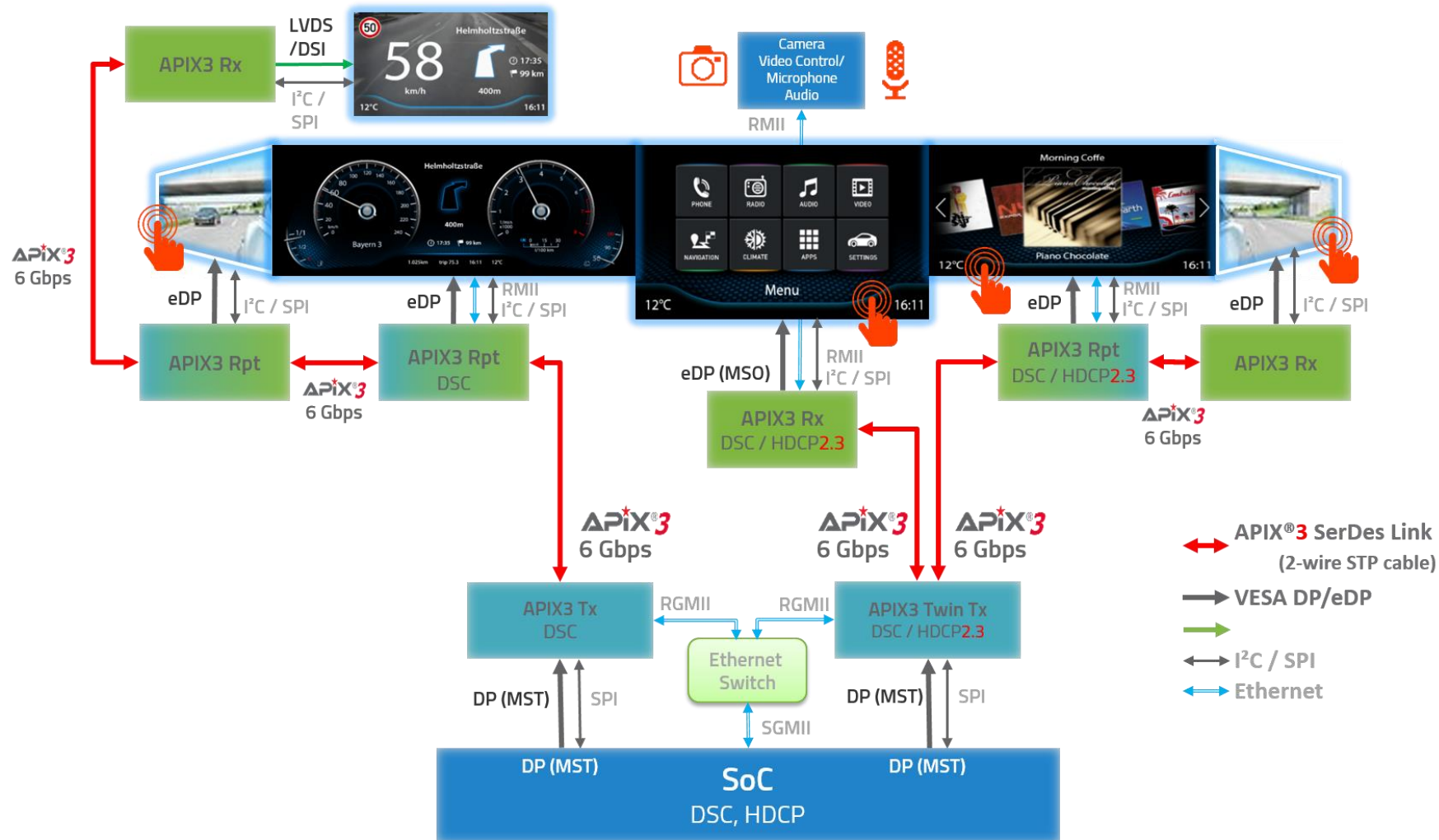
Confidential to Inova



APIX – Example Application



APIX – Cockpit Solution with Repeater Architecture



APIX – Ecosystem



Licensing

socionext™



SAMSUNG

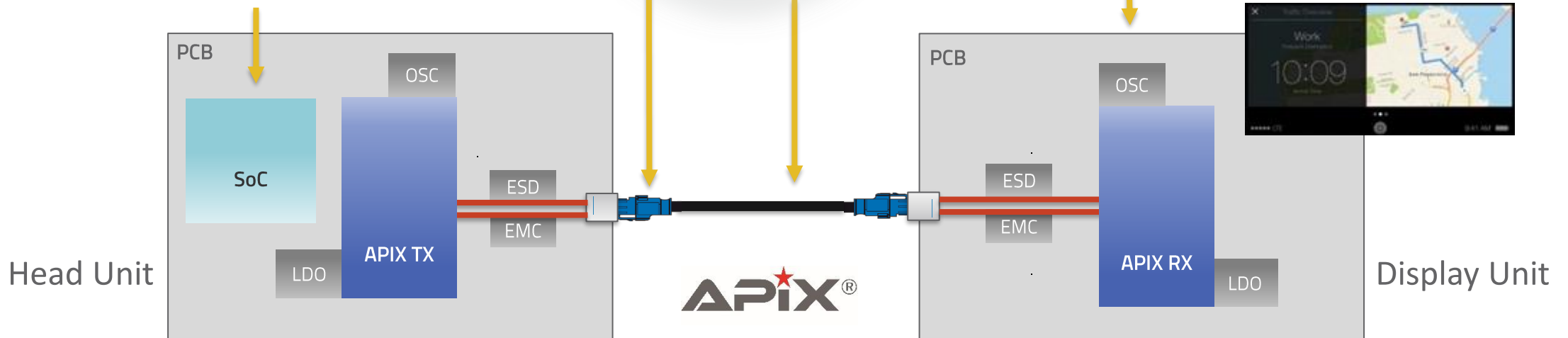
molex®



Rosenberger®

LEONI

Display Panel Manufacturers



* ESD / EMI protection not mandatory for APIX



Confidential to Inova



Business Segments and Goals



Automotive Lighting

Light & Sensor Networks



Providing **Smart LED Driver Chips** and **Light & Sensor Networks** solutions for the **Automotive Market**.

Dynamic Ambient Lighting

Light Networks HUB Solutions

Functional Lighting

Mood Lighting

External Lighting

Welcome Lighting

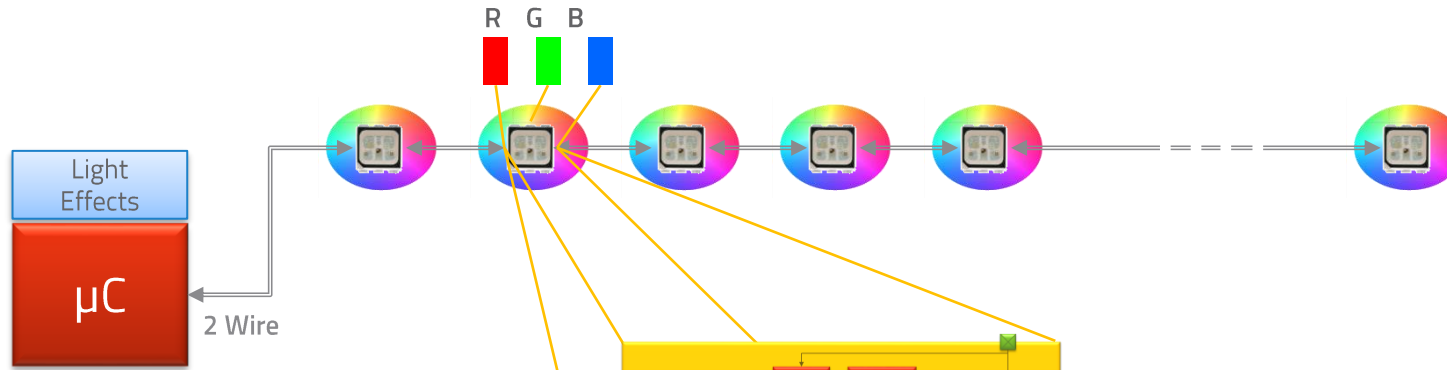
Logo Lighting



Confidential to Inova

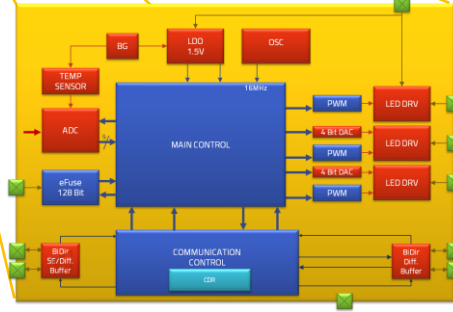


ISELED – the smart LED Technology



High Integration

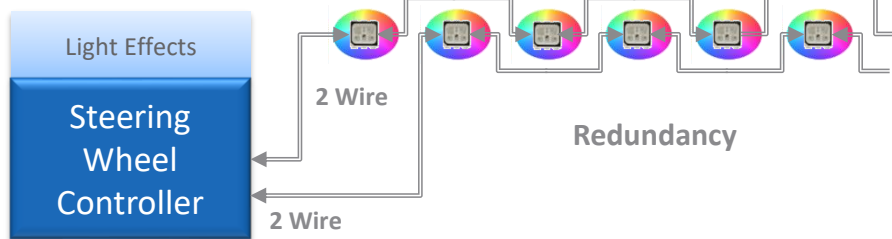
- ISELED Driver & Controller IC
- LEDs
- Optics
- Integrated oscillator, bandgap etc,
- Nearly no external components necessary
- Lowest System Costs



Daisy-Chaining of up to 4079 LEDs



ISELED – Example Applications



Functional Lighting



Dynamic Ambient Lighting

ISELED Light and Sensor Network (ILaS)

APPLICATIONS

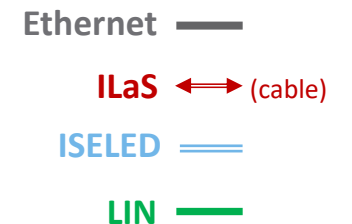
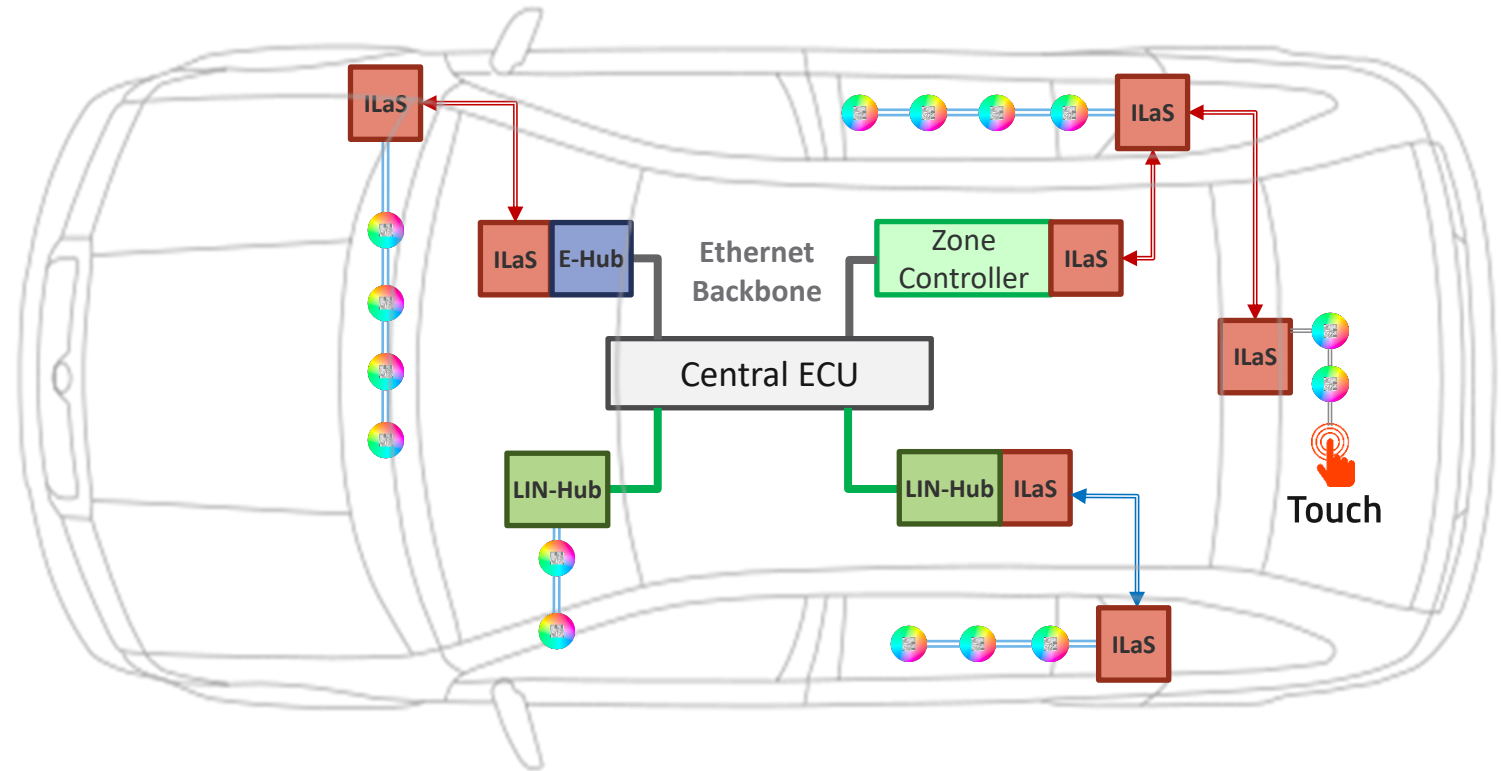
- In-car Light and Sensor Networks

BENEFITS

- Supports domain and zone controlled E/E architectures
- Total freedom for placement of LEDs and Sensors
- Reduction of weight, harness, cost
- SW less Light & Sensor network (LED, touch, proximity..)
- Central controlled
- Allows colour homogeneity of LEDs and Displays
- Legacy field bus support (LIN)

FEATURES

- LIN, CAN, Ethernet support (e.g. via hubs)
- UTP cables
- Bi-directional communication
- IEEE 1722, Ethernet
- Determinism & QoS
- Virtually daisychained LEDs and Sensors
- Branching
- Automotive robustness (EMI, ESD)
- Integrated Power Controller, (direct battery)
- Fail over pass through



Open ISELED Alliance

The open Alliance provides complete system solutions for smart LED, initially targeting automotive interior lighting.

More information can be found at <https://iseled.com/>.



General Facts

Standards

Inova is working with several standards such as VESA, MIPI Alliance, HDMI, DisplayPort Technology, High-bandwidth Digital Content Protection, Open LDI, and DVN.

Sales & Licensing

We sell our products worldwide – directly and via distributors.
We are also licensing our technologies worldwide.

Awards 2020-2024

Focus: Growth Champion 2021, 2023 & 2024, Innovation Champion 2024

Stifterverband: Innovative Through Research – Seal of Approval 2020/2021 & 2022/2023

F.A.Z. - Institut: Germany's Innovation Leader 2020/2022 & 2022/2023 & 2024

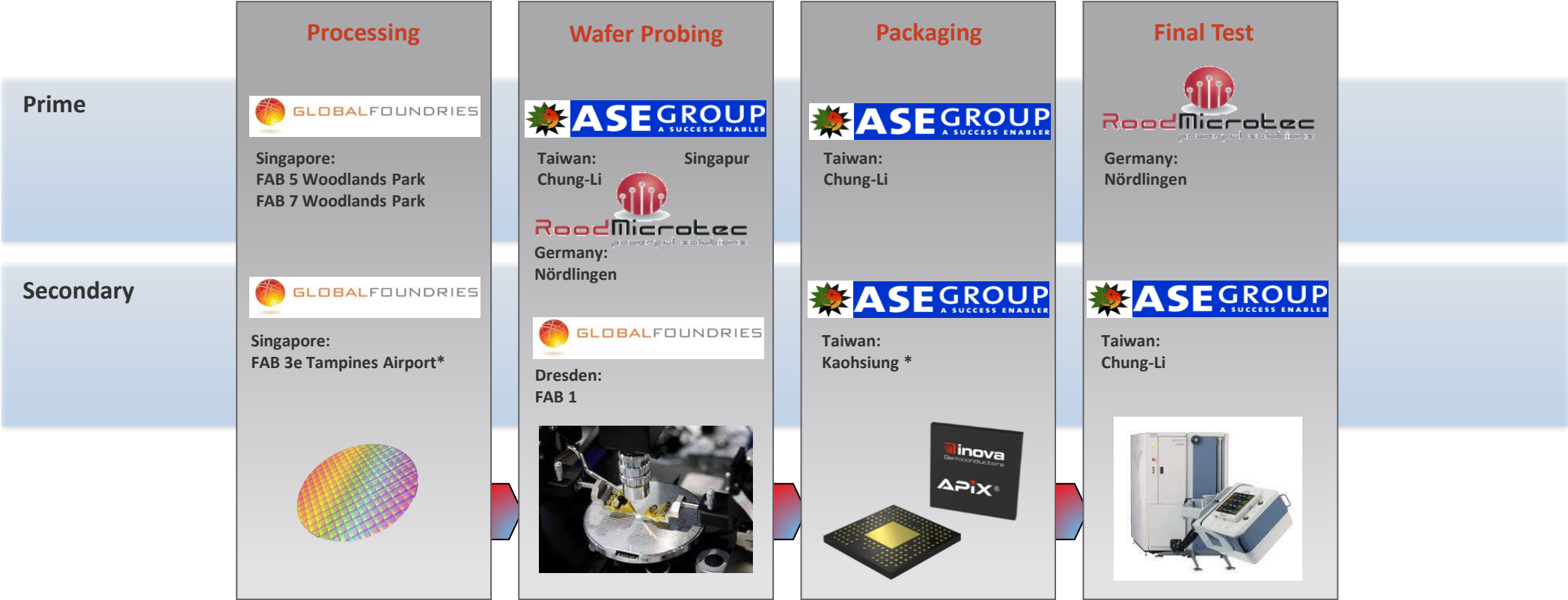
Capital: Innovativste Unternehmen Deutschlands 2022

Chip: Digital Innovator 2021, 2022, 2023 & 2024

SZ Institut: Innovativer Arbeitgeber 2022, Innovativste und Krisensicherste Unternehmen 2023

DIND: Arbeitgeber der Zukunft 2023

Supply Chain



* Transfer and Qualification required

Manufacturing and Quality

Inova's company values emphasize a strong focus on quality and being a consistent reliable partner to its customers.

Inova is an ISO 9001:2015 certified company

High track records in delivery and quality

- ✓ A-supplier status with several customers

Support manufacturing with buffer stocks

Contingency planning and multisource production

Own quality and process management system

- ✓ AEC-Q100, PPAP, APQP etc. are all mandatory
- ✓ Continuous improvement process

This is a translation of the certificate DE13/81840877



The management system of

Inova Semiconductors GmbH

Grafringer Straße 26, DE 81671 München

has been assessed and certified as meeting the requirements of
ISO 9001:2015

For the following activities
development, manufacturing and worldwide sales and distribution of integrated circuits for serial high-speed data communication

This certificate is valid from 23 January 2023 until 21 March 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified since 23 January 2023

Organization certified since 22 March 2013 and first certified by SGS under SAS since 23 January 2023.

Authorised by
Daniel Willemijn
SGS Société Générale de Surveillance SA
Technoparkstrasse 1, 8605, Zurich, Switzerland
t+41 (0)44 445-16-60 • www.sgs.com

Authorised by
Jan Meemken
SGS Société Générale de Surveillance SA
Technoparkstrasse 1, 8605, Zurich, Switzerland
t+41 (0)44 445-16-60 • www.sgs.com



This document is an authentic electronic certificate for Client business purposes use only. Printed version of the electronic certificate are permitted and will be considered as a copy. This document is issued by the Company subject to SGS General Conditions of certification services available on Terms and Conditions | SGS. Attention is drawn to the limitation of liability, indemnification and jurisdictional clauses contained therein. This document is copyright protected and any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful.

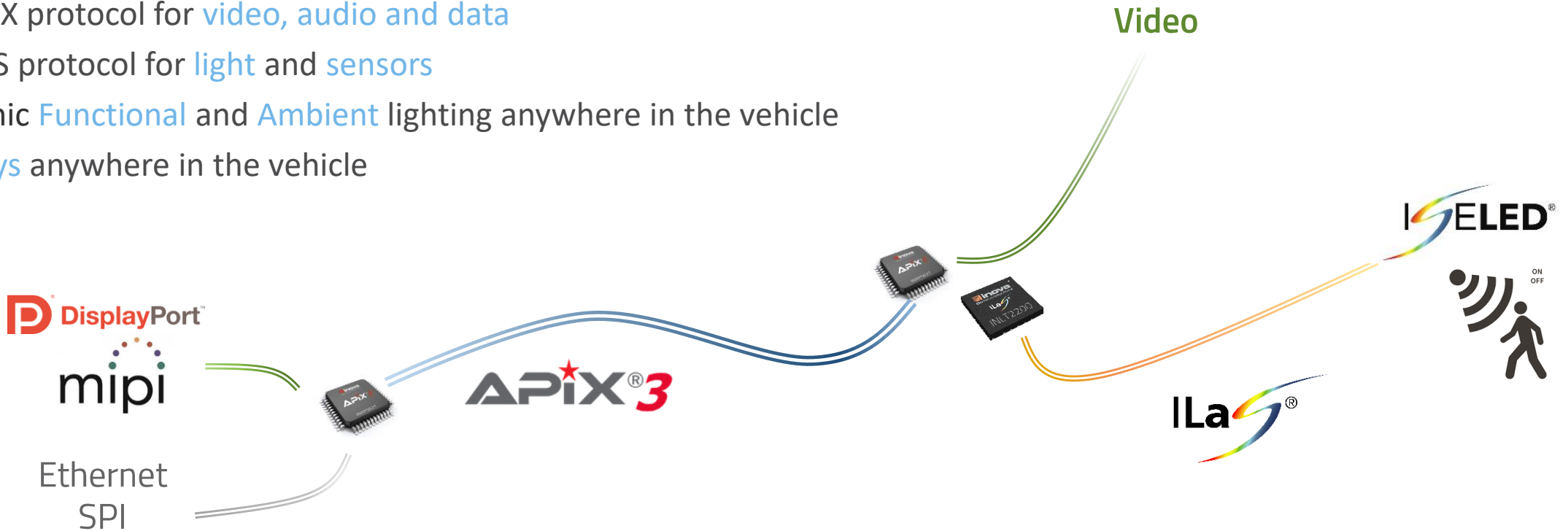


Page 1 / 1

Connectivity for Automotive Light & Vision

Symbiosis of APIX and ISELED

- Cockpit domain controlling: Light & Vision in the car
- Links and Networks for supporting Video, Light, Data, Ethernet, Audio
 - APIX protocol for video, audio and data
 - ILaS protocol for light and sensors
- Dynamic Functional and Ambient lighting anywhere in the vehicle
- Displays anywhere in the vehicle



Inova Semiconductors GmbH



Inova Semiconductors GmbH
Grafinger Str. 26
D-81671 München - Germany
Phone: +49-89-457475-60
Fax: +49-89-457475-88
info@inova-semiconductors.de
www.inova-semiconductors.de

General Manager: Hans Weilnhammer
Commercial register of the local courts
Registergericht München: HRB 125050
VAT identification number: DE 812 692 754

D-U-N-S: 34-130-9297