

**SCANTINEL<sup>®</sup>**  
P H O T O N I C S

Scan | Detect | Navigate

**Next Generation Coherent LiDAR for autonomous vehicles**

# A brief introduction of Scantinel



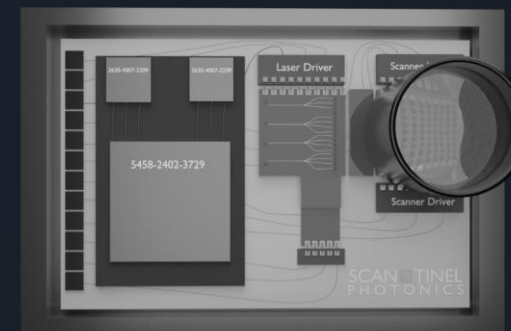
- Spin-out of ZEISS



- Based in Ulm, Germany



- Focus on FMCW-LiDAR





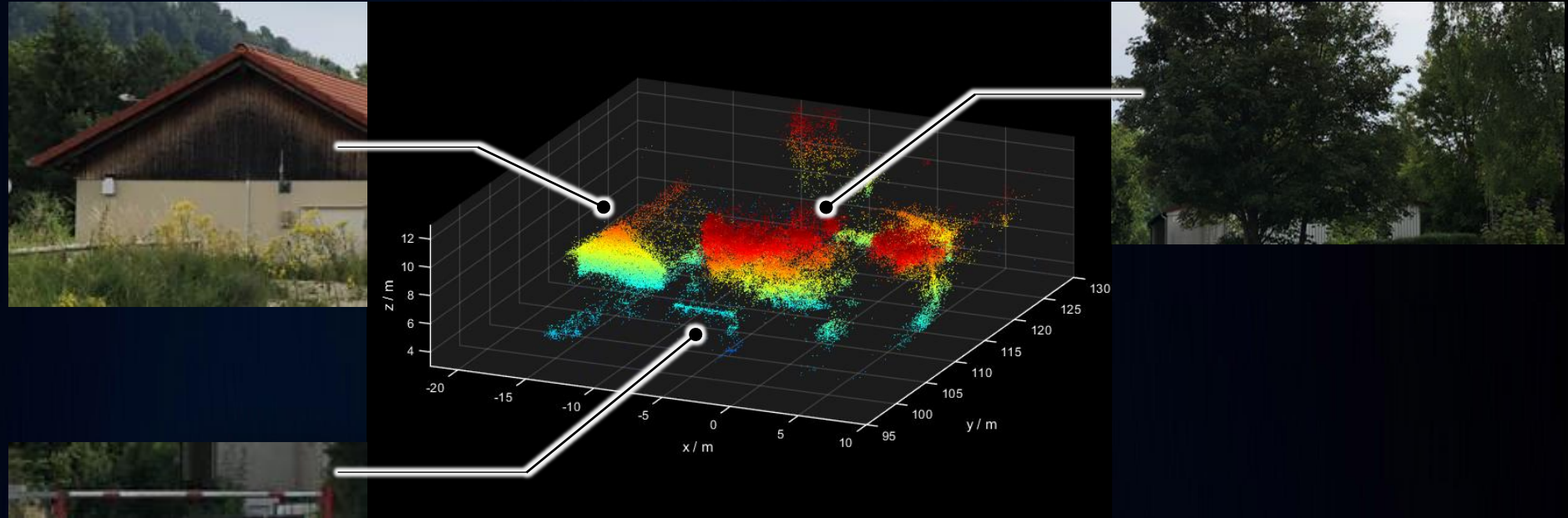
# Expectations on LiDAR are on performance, cost and capability to enable new business models

The ABC challenge:

**A** Augment perception capabilities

**B** Business model enablement

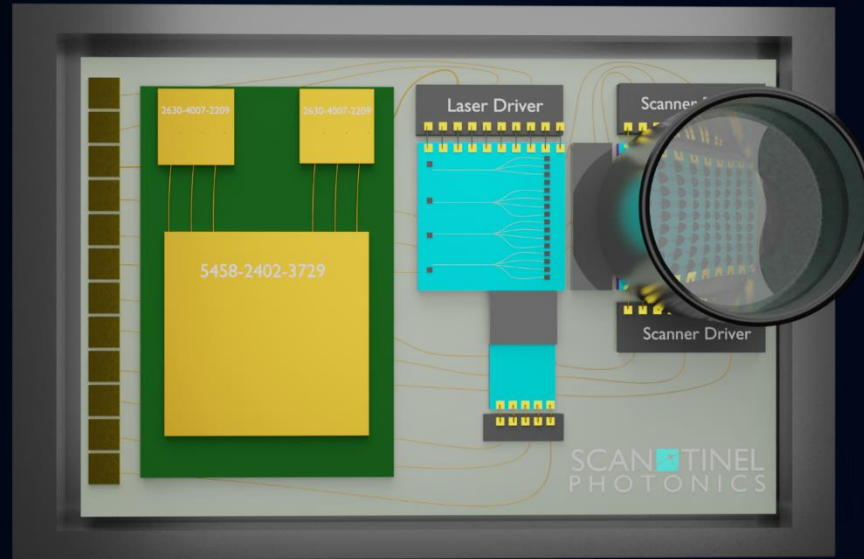
**C** Cost-effective solution



# Scantinel's approach is a 1550nm Solid-state FMCW LiDAR

**A** Approach

Our Product:



~8cm (incl. ASIC)

**B** Benefits

Our Approach:

- Coherent FMCW ranging
- 1550nm integrated swept source with narrow bandwidth and high linearity
- Combination of photonic integrated chip and optical collimator for scanning (Optical Enhanced Array - OEA™)
- Silicon photonics to enable a full solid-state solution for high volume scalability
- Parallelization of multiple FMCW channels to achieve high MP/s data rate

**C** Collaboration

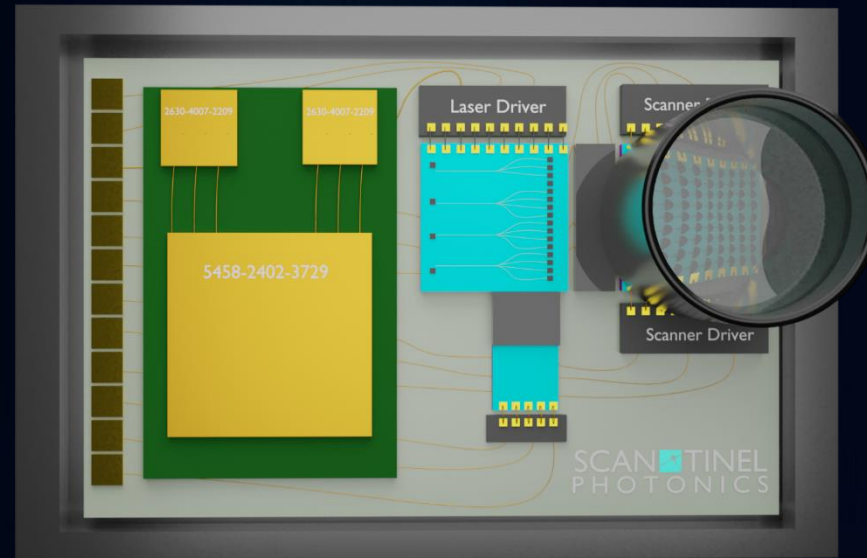
# Scantinel's approach brings distinctive benefits and overcomes the existing limitations of LiDAR solutions

A Approach

B Benefits

C Collaboration

Our Product:



~8cm (incl. ASIC)

Our Value Proposition:

- OEA™ – provides low power fully solid-state scanning
- Superior resolution and over 300m range driven by 30x higher sensitivity
- 5D – Point clouds (xyz, velocity, reflectivity) at more than 2MP/s
- Direct velocity in every pixel as key to detect and predict narrow objects
- Designed for high volume manufacturing at highly competitive price position



# Scantinel believes that collaboration is essential

A Approach

B Benefits

C Collaboration

## Our Ongoing Collaborations:



- Solid state beam Steering/Scanning
- Integrated long coherence length tunable laser sources
- Photonic packaging

# Scantinel believes that collaboration is essential

A Approach

B Benefits

C Collaboration

We are looking for collaborations in the following areas:

- Micro-isolators, either chip scale or micro-optical components
- Semiconductor Optical Amplifiers, 2-4W output power with high efficiency
- Advanced assembly technologies for micro-optical components with high throughput, suitable for volume manufacturing
- Low-power 1550nm switches with small footprint in CMOS compatible technologies ( $< 50 \times 50 \mu\text{m}$ )

# SCANTINEL<sup>®</sup> PHOTONICS

Scan | Detect | Navigate

Thank You.  
Let's connect.



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# SCANTINEL<sup>®</sup> PHOTONICS

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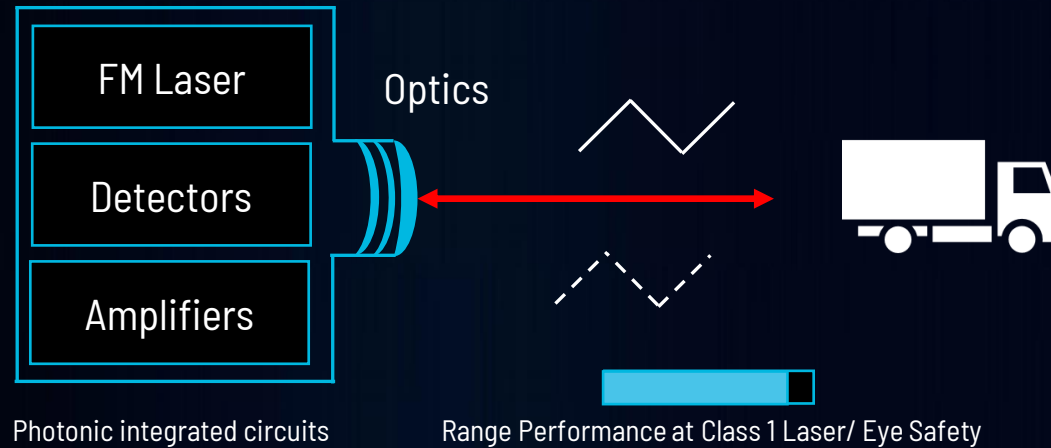
Back-up

# Scantinel approach meets all perception needs

## Scantinel OEA™ LiDAR Unique Capabilities

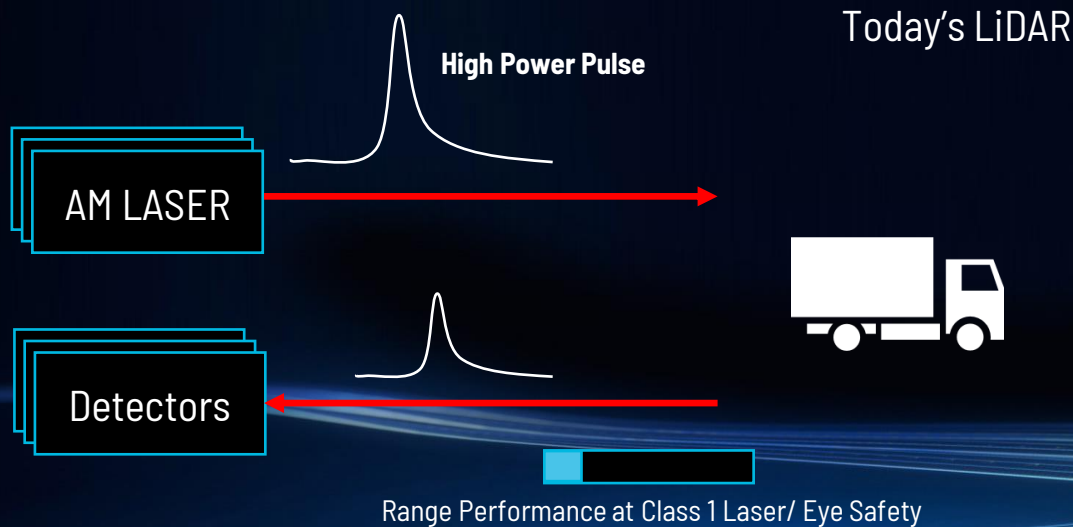
- 5D – Point clouds (xyz, velocity, reflectivity)
- Single Photon Detection
- Direct Velocity as key to detect and predict narrow objects
- Superior resolution and over 300m range driven by 30x higher sensitivity
- OEA™ – provides low power fully solid-state scanning
- Designed for high volume manufacturing at highly competitive price position

**Scantinel**  
OEA™  
Coherent  
FMCW LiDAR



VS

Legacy LiDAR  
(Time of Light)







# Scantinel is the European champion of FMCW LiDAR

US – Cluster: ~10 Companies

EU – Cluster: 1 Company

Asia – Cluster: 1 Company

