KALRAY

AUTONOMOUS VEHICLES
with Kalray Solutions

In a world where Artificial Intelligence (AI) algorithms have become the new standard in processing, the necessity for high-performance and low-latency processors has risen dramatically.

Leveraging its unique parallel manycore technology, Kalray offers an all-in-one deep learning platform, designed to be at the heart of more reliable, more cost-effective and more energy-efficient AI-based applications, for intelligent data centers, automotive and edge computing.

The Kalray Advantage

To achieve true autonomy, self-driving cars need to integrate over ten times the amount of electronic components found currently in today's vehicles.

With our unique processor at the heart of intelligent systems, Kalray offers car manufacturers the possibility to consolidate their Electronic/Electrical (E/E) architecture onto a small processor, all while improving the overall safety of cars' electronics and network security.

MPPA® DPU Key Features

- Sensor fusion
- Deep learning
- Determinist architecture
- Real-time networking
- Built-in cyber security
- Cost-optimized, consolidated system

SENSING

Fusing data from a diverse set of sensors: radar, lidar, cameras, ultrasound...
- High-speed processing
- More scalable than traditional CPUs
- Safer, faster and more energy efficient than GPUs
- Higher programmability than FPGAs and DSPs

LEARNING

Engineered to handle real-life, unpredictable situations:
- Built-in machine learning co-processors
- Real-time safety: quick and accurate algorithm processing
- Low power consumption

MPPA®-3 DPU Coolidge™

- Revolutionary manycore architecture with communication fabrics
- Time-predictablity and low latency technology
- Unique processing scalability
- Ability to run heterogeneous applications on one chip
- Ease of programmability (Open Standards, C/CC++, common ML Frameworks)

SECURITY & NETWORKING

Comprehensive security for "always-connected" cars:
- Protection from outside network threats
- On-the-fly encryption and decryption
- Low latency and real-time networking capabilities
- Integrated cyber security

SAFETY

Certifiably safe:
- Ability to isolate execution domains
- Deterministic architecture
- Compliance with ISO 26262 (3rd generation MPPA® DPU)