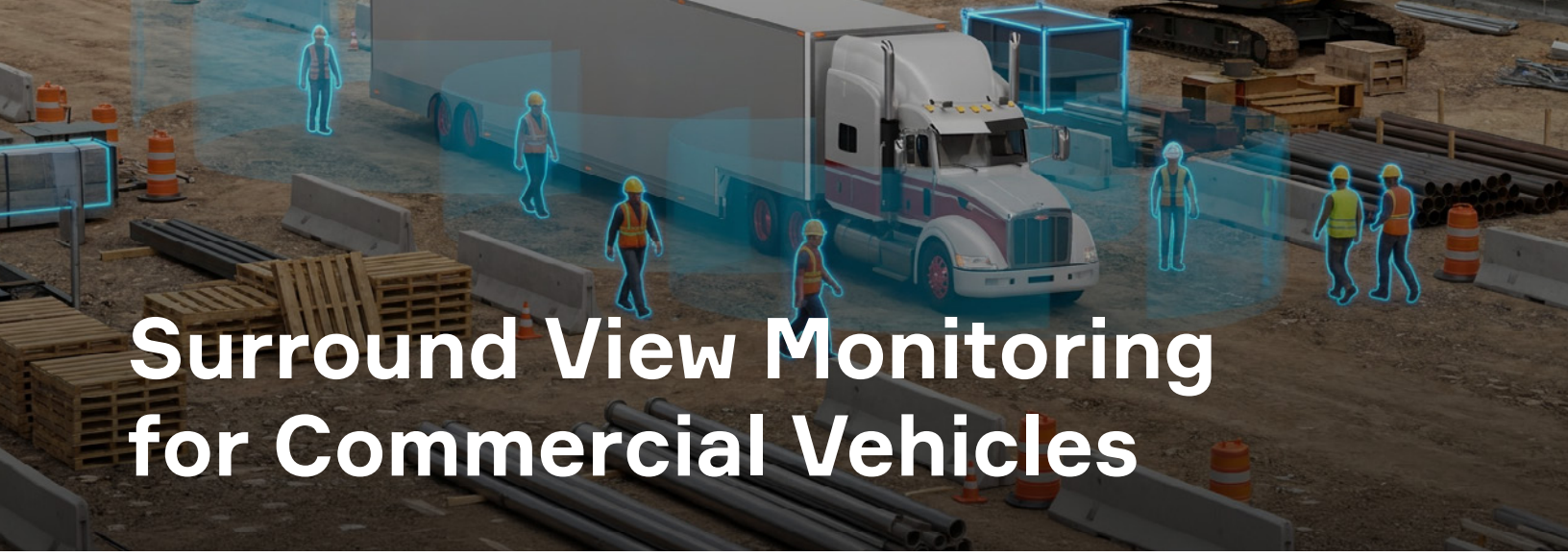


Surround View Monitoring for Commercial Vehicles

Aptiv Surround View Monitoring (SVM) for Commercial Vehicles (CVs) is a software solution that is designed specifically for the unique challenges of heavy trucks, buses, and commercial and construction vehicles. It combines multiple camera feeds into a unified, real-time view of the external environment around the vehicle, helping to improve visibility and safety, enhance driver awareness in complex operating environments and provide

Superior Performance

Aptiv SVM delivers a highly accurate, real-time bird's-eye view that helps CV drivers improve situational awareness, maneuver with greater precision and operate more confidently. Advanced calibration and distortion correction and unique image-stitching technologies create a realistic and intuitive view of the vehicle surroundings, reducing the Manhattan effect blind spots and enhancing visibility.

Safer Operations

Aptiv SVM enables safer decision-making and reduces uncertainty during low-speed maneuvers, helping drivers protect vulnerable road users and job-site workers, avoid vehicle-to-object contact and operate more safely and confidently in demanding environments.

Future-Ready Architecture

Aptiv SVM is a scalable and flexible software solution that reduces integration complexity, supports hardware reuse and enables continuous feature expansion across CV programs.

KEY BENEFITS

For OEMs	For Drivers	For Fleet Operators
• Reduced integration complexity • Flexible deployment across vehicle platforms • Maximum hardware reuse • Faster time to market • Scalable software-defined vehicle architecture • Continuous over-the-air (OTA) feature updates	• Improved situational awareness • Reduced blind spots • Greater maneuvering precision • Increased confidence • Simplified interpretation of surroundings	• Reduced repair costs • Reduced insurance exposure • Increased vehicle uptime • Reduced downtime • Lower operating costs • Improved driver satisfaction and retention

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Features & Capabilities

Imaging Technologies

- Advanced Stitching Technology
- Surrounding Distortion Reduction
- Subpixel Camera Calibration (<1 pixel RMS error)

Generated Views

- **Birds Eye View** — Top-down view of the vehicle surroundings
- **Front View** — Enhanced visibility ahead of the vehicle
- **Left Side View** — Visibility along the left side of the vehicle
- **Right Side View** — Visibility along the right side of the vehicle
- **Wheel Views** — Close-up view of the vehicle front or rear wheel areas
- **Rear View (Optional)** — Enhanced visibility behind the vehicle

Split View
Bird's-eye view and selected camera view are shown simultaneously, displayed side by side

Use Cases

- Blind Spot Awareness
- Vulnerable Road User Protection
- Low-Speed Maneuvering
- Tight Urban Turns
- Urban Delivery Operations
- Reverse Parking
- Forward Parking
- Obstacle Warning
- Curb Alignment
- Logistics Yard Operations
- Loading Dock Alignment
- Construction Site Operations

Technical Specifications

Minimum camera requirements:

- 3-megapixel resolution
- 30 frames per second
- Only three cameras for a 270-degree bird's-eye view
- Optional: One additional camera for dedicated rear view

Standards & Functionality

- UN ECE R158: Rear-view visibility requirements
- ASIL-B: Safety-critical functions

SURROUND VIEW MONITORING

Inputs

Cameras



Ultrasonic Sensors



Vehicle Data

- Steering angle
- Gear position
- Door status
- Light signals
- Vehicle speed
- Wheel Angle

PLATFORM COMMUNICATION MIDDLEWARE POWERED BY LINC

Data Analysis & Transferring

- Image Processing Framework
- Camera Manager

Integrates cameras, sensors, and vehicle data into a synchronized processing pipeline for surround view monitoring.

SVM Application

- SVM Algorithm
- 3D Stitching Capability
- Environmental Modeling
- Animation Engine
- Guidelines & Proximity Logic

Generated Views


Birds eye view


Split view


Front view


Rear view


Side view


Wheel view

Superior Performance | Safer Operations | Future-Ready Architecture

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