Product Brief

AI Suite for Visual Analytics

One Solution Suite, Transforming Smart Cities

Design, develop, and scale AI and video solutions at the edge.

AI Suite for Visual Analytics Value Proposition

Optimized performance: Accelerates inference and optimizes hardware utilization to help build performant and efficient AI applications.

Cost effective: Minimizes investment needed to adopt AI at the edge.

Modular and scalable: Enhances AI accessibility across Intel® CPUs, GPUs (discrete and integrated), NPUs, and third-party systems and devices.

Streamlined deployment: Saves time and maximizes productivity by streamlining AI development and deployment.

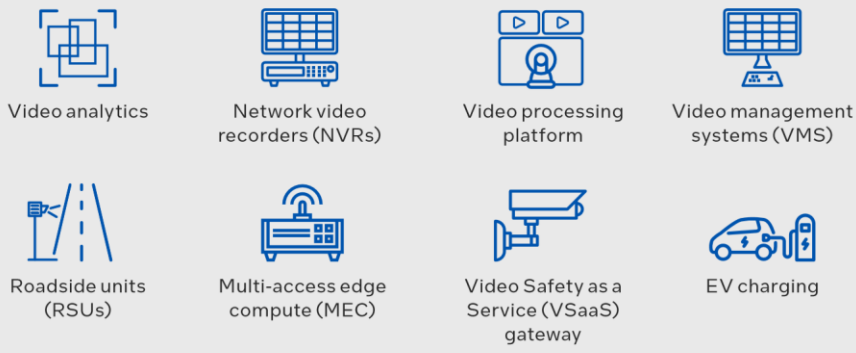
Versatile: Can be applied for different requirements and use cases to meet current and future needs.

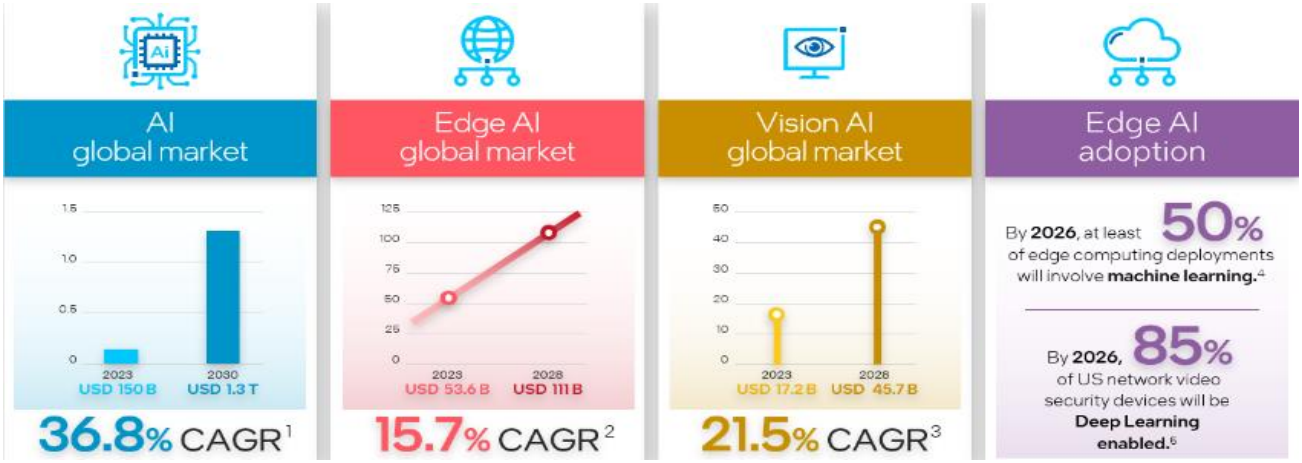
In the rapidly evolving urban landscape, the transformative potential of edge AI technology is evident. The amount of compute happening at the edge is growing fast because that's where data is generated. In addition, AI is incorporated in many edge computing deployments. Edge AI is radically enhancing smart cities, public safety, transportation, and sustainability. As we navigate the changing landscape, with AI at the edge one can get real time information and critical data for building safer and smarter cities and transportation infrastructure.

However, working at the edge is often complex and challenging for a variety of reasons:

- Lack of secure and cost-effective methods to process high volumes of data locally, posing risks of security attacks
- Cumbersome and high-cost hardware procurement, design, and development process
- Performance, power, and cost constraints for edge devices give rise to the need to find suitable and cost-effective hardware alternatives
- Limited compute capabilities compared to cloud require optimized AI performance and media processing
- Lack of expertise and tools to integrate disparate software frameworks and libraries with edge AI hardware

AI Suite for Visual Analytics





AI Suite for Visual Analytics Overview

The AI Suite for Visual Analytics includes prequalified partner hardware, software toolkit, application framework, and a market ready ecosystem to easily design, develop, and scale AI and video analytics for building smart cities and transportation infrastructure. The suite helps optimize total cost of ownership, increase return on investments, and accelerate time to market.

The AI Suite for Visual Analytics and software toolkit are AI and deep learning inference-ready. The package can be used across domains to run video processing and AI inferencing on a single platform. It works with industry-leading AI models and common video analytics workloads while leveraging hardware-driven security to protect systems and data. This foundation helps solution providers and their customers quickly deploy AI for use cases in smart cities and transportation.

The AI Suite for Visual Analytics delivers preconfigured, prequalified solutions to accelerate the journey toward edge AI. With the AI Suite for Visual Analytics, organizations can streamline operations, achieve pricing competitiveness, and enhance innovation, while meeting stringent real-world needs. The solution also unlocks new opportunities and use cases across industries due to its hybrid AI capabilities.

Edge AI-ready qualified hardware

The AI Suite for Visual Analytics includes prequalified and pre validated hardware, bringing powerful and scalable compute for flexible performance and enhanced AI accessibility across Intel® CPUs, GPUs, and NPUs through modular and scalable architecture. This package enables solution builders through all phases of edge AI development, from initial concept to deployment, including hardware selection, software integration, and optimization strategies. It also helps developers leverage the full potential of edge computing technologies, regardless of their expertise level.

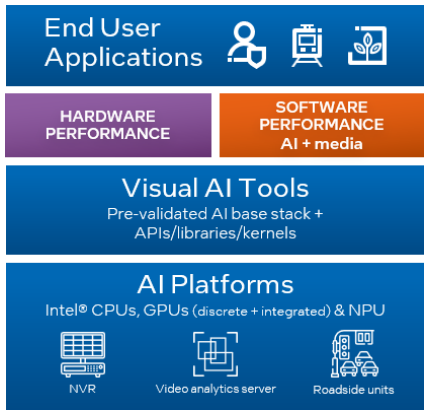


Figure 1: The AI Suite for Visual Analytics architecture

Hardware benefits

Accelerated deployment: Intel provides a step-by-step guide for easy deployment and integration, which helps reduce time from development to deployment.

Heterogenous compute: A diverse silicon portfolio includes CPUs, GPUs (discrete and integrated), and NPUs.

Powerful and scalable: High-performance hardware can easily scale compute per use case and edge AI needs.

Comarketing capability: Tools and programs facilitate AI hardware development and market awareness.

The AI Suite for Visual Analytics includes Intel-powered, edge optimized hardware that has been prequalified for edge AI applications and optimized for AI inference and video analytics workloads. These platforms have undergone rigorous benchmarking against industry-leading AI models and common video analytics workloads to help ensure their performance and reliability.

With this solution, providers can harness a range of CPU and GPU configurations, from CPU-only deployments to processors with integrated graphics to discrete GPUs such as Intel® Arc™ GPUs. The Intel® portfolio of processors offers numerous entry points to balance performance and efficiency needs, from power-efficient Intel Atom® processors to high- performance Intel® Core™ processors, or Intel® Xeon® processors to maximize core density

Edge AI prevalidated software toolkit

The AI Suite for Visual Analytics software toolkit contains highly modular and containerized reference software designed specifically for the development of edge AI solutions. This comprehensive toolkit facilitates easy installation of essential components including the Linux kernel, graphics drivers, media processing libraries, and AI inferencing engines, with optional toolkits aimed at AI pipeline prototyping and AI platform sizing.

The AI Suite for Visual Analytics allows solution builders and their customers to choose their preferred software, and the vast Intel ecosystem of software vendors helps deliver optimized performance on Intel® hardware. The AI Suite for Visual Analytics integrates several pre-validated and Intel-optimized tools, to accelerate the design and development of edge AI video solutions; some of these are listed below:

- **AI conversion kit:** A comprehensive toolkit that aims to facilitate the seamless transformation of non-Intel® architecture-based AI solutions to advanced Intel® hardware and software offerings. The kit includes detailed conversion guides, best practices, and software tools that streamline the process of migrating AI models and applications to the Intel ecosystem.
- **Intel® Deep Learning Streamer (Intel® DL Streamer):** An open source framework that leverages the power of GStreamer to enable the creation of complex media and AI pipelines.
- **OpenVINO™ toolkit:** An open source toolkit that accelerates AI inference with lower latency and higher throughput while maintaining accuracy, reducing model footprint, and optimizing hardware use.
- **Rapid reference implementation:** A framework that comprises a suite of Intel-enabled permissive licensing along with comprehensive blueprints.
- **AI pipeline prototyping and platform measurement tool:** An advanced toolset designed to streamline the development of AI pipelines for edge environments.
- **Edge AI qualification tool:** A test suite that enables customers to thoroughly benchmark their platforms, to help ensure they meet or exceed specific performance benchmarks.
- **Video analytics (VA) containers:** A suite of containers with preinstalled, Intel-enabled open media drivers and AI toolkits.

Software benefits

Modular design: Developers can select and integrate only the components they need for faster, efficient development.

Preconfigured packages: A solid foundation including the Linux kernel, graphics, media processing, and AI inferencing engines makes it easier to build advanced applications without additional software sourcing.

Enhanced development tools: Optional toolkits empower developers to optimize and tailor their applications.

Accelerated time-to-market: A comprehensive suite of development tools helps reduce development and deployment times.

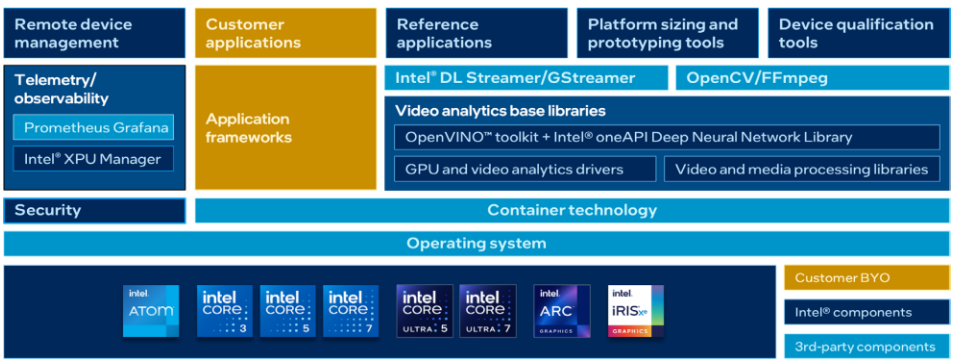
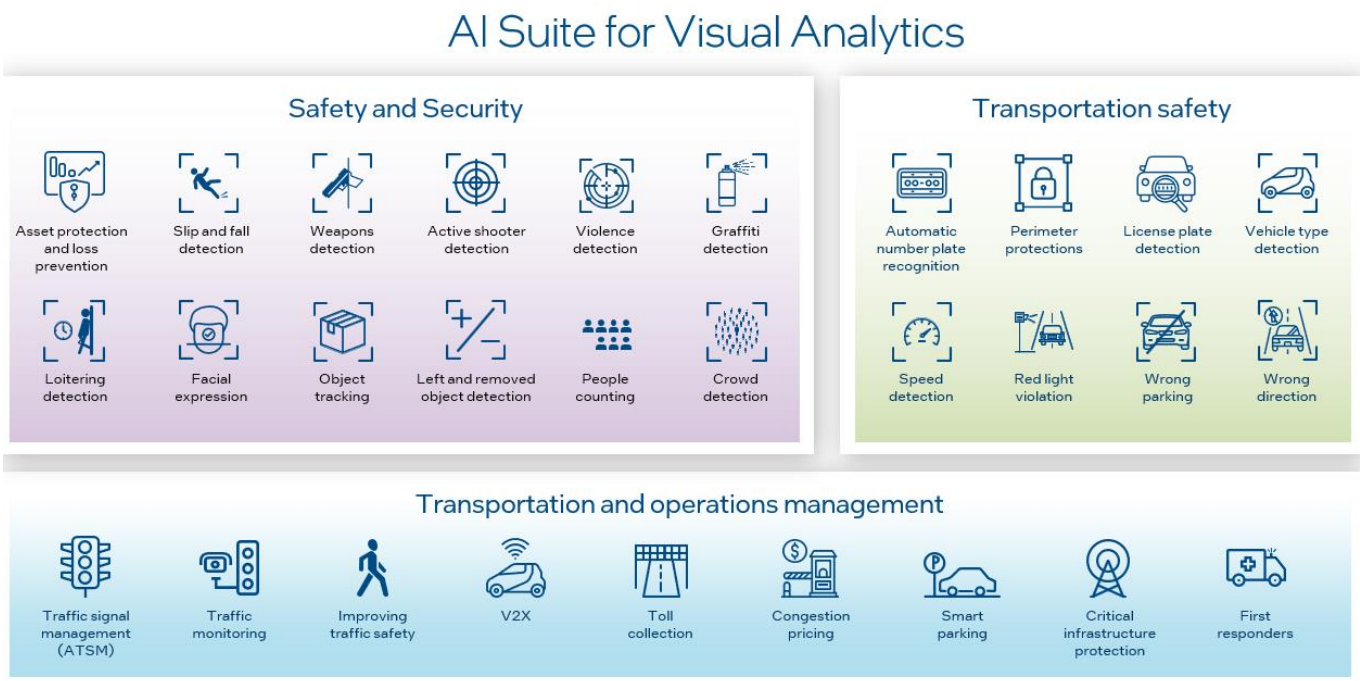


Figure 2: The AI Suite for Visual Analytics reference architecture



Conclusion: Edge AI starts with Intel

With the AI Suite for Visual Analytics, organizations can move fast on the growing opportunity at the edge and simplify the path to deployment. Qualified, edge AI-ready hardware reduces the complexity in deploying AI and video analytics solutions with enhanced security for smart city applications. Additionally, the complementary AI Suite for Visual Analytics software toolkit delivers a powerful combination of modularity and preconfigured containers that are designed to make AI developers' lives easier. The future of edge is AI, and the AI Suite for Visual Analytics makes the journey to the edge seamless.

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Explore edge AI success stories: intel.com/content/www/us/en/customer-spotlight/overview.html

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