

PRODUCT BRIEF

Industrial Solutions Division
Edge Insights for Industrial Software



Accelerate your path to Industry 4.0 with Intel's Edge Insights for Industrial Software

Aggregate and analyze time-series and video data at the edge

UNLEASH THE VALUE OF DATA
AT THE EDGE FOR
SMART AND CONNECTED
INDUSTRIAL SYSTEMS

Video & Timeseries
Data Ingestion
On the Edge Data Storage
Edge Analytics

ODM | OEM | SI

Faster Time-to-Market
Ease of AI Deployment
Higher Performance
Quicker Productization
Customizability

Industry Challenges

With advancements in machine learning and data analytics, industrial systems are undergoing a fast-paced digital transformation, driven by a massive volume of machine-generated sensor and vision data. This data can help industrial solution providers improve product quality, optimize operations, and reduce downtime. Factories need to have effective mechanisms to capture, store, and economically process a large amount of noisy data. Dependency on legacy systems and continuing IT-OT convergence is highlighting gaps and opportunities that the industry is keen on alleviating.

Existing proprietary middleware solutions that are inflexible and vendor-locked limit the options for industrial solution providers. These solutions impose a high total cost of ownership and require time and resources for software stack development, and therefore make scaling challenging.

Edge Insights for Industrial Enabling Digital Transformation

Intel's Edge Insights for Industrial is a production-validated software stack to securely ingest, analyze, and store video and time series data at the edge. With the ease of AI deployment¹ at the edge, factories can improve operational and production efficiency.

The software is an open and flexible microservices architecture comprising a set of pre-integrated ingredients optimized for Intel[®] hardware. Its Docker container modules enable data ingestion, storage, and real-time² analytics for both time-series and video data, as well as the ability to act on these insights by sending downstream commands to tools or devices allowing closed-loop control³. It enables customers to develop their own analytics algorithms and data ingestion plugins.

The software brings analytics to the edge for near real-time operation and increased data privacy. It can be easily configured to publish to supervisory applications such as Manufacturing Execution Systems (MES) or Work In Progress (WIP) and cloud of choice to make northbound connections. Southbound connections are typically made to IoT devices such as a PLC, camera, sensors and actuators.

Features and Benefits

Intel's Edge Insights for Industrial Software provides a product validated modular software stack that enables SIs, OxMs, CSPs, and comms service providers to get to market faster with their differentiating product. By securely ingesting, storing, and processing data at the edge, manufacturers can analyze information faster. It also gives the users the ability to only send artifacts of data to the cloud and reduce bandwidth required for noisy data.

Advance your competitive differentiation with Intel's Edge Insights for Industrial Software unique features:

- **Modular** – Pick and choose desired micro-services for specific customization needs
- **AI Ready** – Run analytics via Intel developed or 3rd party algorithms
- **Cloud Agnostic** – Connect to any CSP to take advantage of complementary cloud-edge solutions



Figure 1. Edge Insights for Industrial Northbound and Southbound Destinations

- **Interoperable** – Integrate disparate multi-vendor ingredients and easily build/extend upon the microservices
- **Secure** – Use Intel's hardware security built into the platform with support for Trusted Platform Module (TPM)
- **Scalable** – Intel® Atom®, Core™, Xeon® processors scalable performance for your unique needs
- **Manageable** – Firmware, OS, and application OTA updates

Use Cases

As AI accelerates the industrial automation on the path to industry 4.0, this software enables AI on the edge for faster and more private data insights. Industries such as die-casting, textile, electrical and manual assembly can deploy the software for such use cases as below:

- **Defect Detection** – Improving product quality on factory floor
- **Predictive Analysis** – Predicting & reducing downtimes
- **Manufacturing Productivity Optimization** – Optimize factory operation for higher throughput

“Helps manufacturers to quickly & cost-effectively integrate data from diverse IIoT sources and generate actionable insights for optimize production.”
 – Albert Huang, CEO, Axiomtek (ODM)

“Using Intel’s Edge Insights for Industrial software, we saw increased inference performance, a 40% throughput improvement and 20% faster project deployment over systems with only OpenVINO™.”
 – Thomas Su, VP Marketing and Product Development, Vecow (OEM)

“Containerization simplifies deployment flows and makes deployment environment independent to local edge server environment.”
 – Fan Wenhong, VP of Engineering, Kinco (SI)

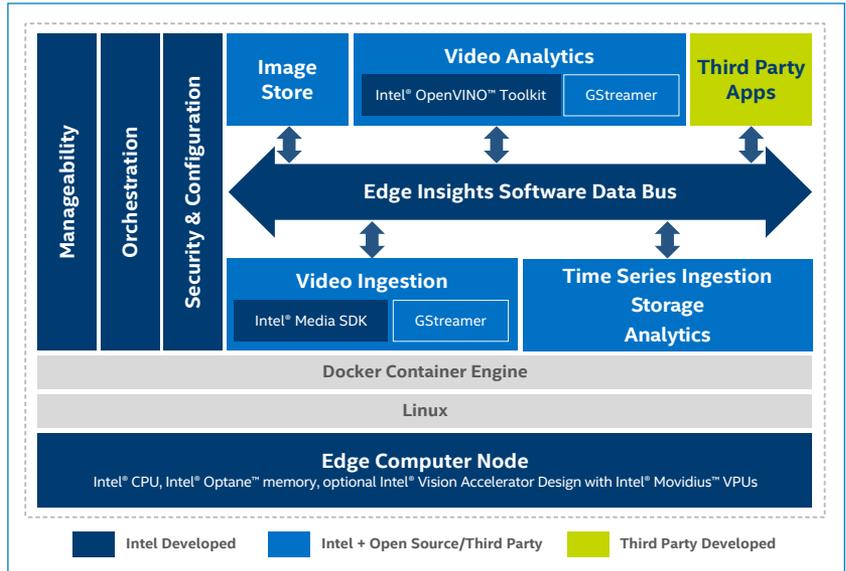


Figure 2. Edge Insights for Industrial Architecture

Solution Ingredients & Features

- Intel® processor family with TPM2
- Multi-channel video Ingestion and GStreamer based analytics
- High performance inference in conjunction with Intel® OpenVINO™ toolkit
- Support for video analytics accelerators: CPU, iGPU, Intel® Neural Compute Stick 2, Intel® Movidius™ VPU (HDDL)
- Time Series data ingestion with visualizer
- Containerized, open & configurable microservice architecture
- Intel's Training Learning Suite – A deep learning toolkit
- Telit, Thingsboard and Azure IoT Central enabled OTA device manageability
- Intel developed and 3rd party AI algorithms
- Intel® Optane™ memory

Learn More

To learn more about Edge Insights for Industrial software, visit <https://www.intel.com/content/www/us/en/internet-of-things/industrial-iiot/edge-insights-industrial.html>.



¹ Ease of testing, optimizing and deploying AI at the edge

² Real-time measurements, as tested by Intel, are as low as 50 milliseconds.

³ Software closed-loop control functions do not provide deterministic control.

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