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Enabling Standardized and Virtualized Edge AI Deployment with Intel® Core™ Ultra Processors, OpenVINO™ and IEI iVEC CANAI Framework

Written by IEI Team

Introduction

Industrial edge AI adoption is expanding rapidly as manufacturers, infrastructure operators, and smart city deployments increasingly require real-time intelligence at distributed edge locations. However, deploying AI workloads at scale introduces operational challenges, including model customization complexity, system resource limitations, and integration difficulties across heterogeneous environments.

To address these challenges, IEI is developing a standardized and virtualized edge AI deployment framework built on Intel® Core™ Ultra processors, OpenVINO™ toolkit, and IEI Virtualization Edge Computer platform (iVEC). At Embedded World 2026, IEI will demonstrate this concept using the TANK-XM813 industrial edge platform powered by iVEC CANAI Framework.

Simplifying Edge AI Deployment Through Standardized Model Integration

Traditional industrial AI deployments often require AI models to be retrained and customized for each project environment. This process significantly increases development cost, delays deployment timelines, and requires specialized AI engineering resources.

IEI's iVEC CANAI Framework is designed to address this challenge by enabling standardized AI model deployment across industrial edge infrastructure. Instead of retraining models for each deployment, CANAI allows existing AI models to be integrated and executed efficiently within a virtualized runtime environment.

This standardized model deployment concept enables industrial customers to scale AI applications across multiple sites while reducing development overhead and accelerating time-to-value.

Five Core Capabilities of the CANAI Framework Edge AI Platform

The IEI CANAI platform combines virtualization technologies with Intel AI acceleration to enable efficient and scalable edge AI deployment. The platform introduces five key capabilities:

1. AI Model Reusability Without Project-Level Retraining

CANAI framework enables organizations to reuse existing AI models across multiple deployment environments. By standardizing runtime integration and optimizing model execution through the OpenVINO toolkit, customers can reduce model redevelopment efforts while maintaining consistent inference performance.

2. Specific and Standardization Purpose AI Deployment with High Precision

The platform supports multiple AI workloads through standardized runtime orchestration, allowing customers to deploy general-purpose AI inference applications across industrial scenarios while maintaining high precision and performance consistency.

3. Cost-Optimized, Low-Latency AI Acceleration on a Single Host — Without OS Limitations

By leveraging the integrated heterogeneous computing architecture of Intel Core Ultra processors, CANAI utilizes the host platform's iGPU and built-in Neural Processing Unit (NPU) for AI acceleration. This tightly integrated architecture eliminates the need for dedicated external AI hardware, significantly reducing system cost and overall power consumption.

By processing AI workloads directly within the host platform, iVEC CANAI enables low-latency AI inference, minimizes data transfer overhead, and optimizes energy efficiency — delivering high AI performance with lower power usage and faster response times.

4. Open API Framework for Simplified ISV and SI Integration

CANAI provides open API interfaces that enable independent software vendors (ISVs) and system integrators (SIs) to integrate AI capabilities into industrial applications with minimal development complexity.

Extending Edge AI Deployment Through Virtualized Infrastructure

At the core of the CANAI architecture is the IEI iVEC virtualization platform. By integrating AI runtime acceleration within virtualized environments, iVEC enables AI workloads to operate alongside traditional operational technology (OT) applications while maintaining workload isolation and system reliability.

This virtualization-based architecture allows multiple AI applications, analytics workloads, and control systems to run simultaneously on a single industrial edge platform, improving resource utilization and simplifying infrastructure management.

Enabling AI Model Delivery as an Industrial Service

In addition to runtime integration, IEI is developing a standardized AI model delivery framework designed to simplify how AI models are deployed across edge systems. This framework focuses on enabling customers to deploy validated AI models through standardized packaging and deployment processes.

Rather than requiring customers to continuously customize or redeploy AI models manually, IEI provides an integrated Edge AI platform that streamlines AI adoption while reducing deployment manpower and operational overhead. This framework-based approach allows customers to focus on vertical application development, while IEI streamlines AI system entry barriers and reduces management complexity.

Expanding the Ecosystem with Pre-Integrated AI Application Models

To further accelerate AI adoption, IEI is actively evaluating and integrating standardized AI application models across multiple industrial scenarios. These models may include applications such as machine vision inspection, safety monitoring, and operational analytics.

By integrating validated AI application models into the CANAI runtime framework, IEI aims to reduce development barriers for industrial customers and enable faster deployment of AI-driven operational intelligence.

Demonstrating the Concept at Embedded World 2026

At Embedded World 2026, IEI will showcase a live demonstration of virtualized AI acceleration based on the standardized edge AI deployment concept. The demonstration will highlight how the TANK-XM813 platform, powered by Intel Core Ultra processors, integrates CANAI runtime orchestration, OpenVINO optimization, and virtualization infrastructure to enable scalable and cost-effective industrial edge AI deployment.

This demonstration represents IEI's vision of delivering standardized, virtualized, and service-oriented edge AI infrastructure designed to simplify industrial AI adoption.

Learn More About IEI Edge AI Solutions

<https://www.ieiworld.com>

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