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From Edge AI Adoption to Real-World Deployment — How DFI Builds Scalable Industrial Edge AI Platforms

Written by BIOSTAR Team

Industry research shows that Edge AI is rapidly moving from experimental pilots to mainstream industrial adoption. Market analysts project the global Edge AI market will grow from approximately USD 24.9 billion in 2025 to over USD 118 billion by 2033, with a compound annual growth rate (CAGR) exceeding 21%, driven by demand for real-time intelligence, data privacy and distributed computing across manufacturing, healthcare and intelligent infrastructure. At the same time, enterprise surveys report that more than 90% of organizations are increasing investments in Edge AI, confirming a shift from proof-of-concept projects toward scalable, production-ready systems.

As Edge AI adoption accelerates, industrial customers are placing greater emphasis on platforms that balance performance, power efficiency and long-term operational stability. Beyond AI inference alone, real-world deployments require deterministic response, rich I/O integration and reliability under harsh environmental conditions. In response to these needs, DFI is introducing a new generation of industrial IPC and embedded motherboard platforms powered by **Intel® Core™ Ultra Series 3 processors**, designed to support scalable Edge AI deployment across defense, medical imaging, robotics and intelligent infrastructure.

For defense and unmanned systems, the **PTH9HM COM-HPC Mini module** delivers a credit-card-sized, SWaP-optimized computing engine capable of real-time 8K vision processing and Edge AI inference for autonomous navigation, target recognition and threat tracking. Powered by Intel Core Ultra Series 3 processors with integrated Xe3 graphics, PTH9HM supports wide-temperature operation from –40°C to 85°C, integrates up to 64GB on-board LPDDR5x memory, and features PCIe Gen 5, dual 2.5GbE and TPM 2.0 to safeguard mission-critical data in demanding environments.

For medical imaging and diagnostics, DFI's PTH171/173 Edge AI platforms provide up to approximately 180 TOPS of combined CPU, GPU and NPU performance, accelerating real-time 3D modeling, organ segmentation and AI-assisted diagnostics. Built on Intel's new Xe3 graphics architecture and PCIe Gen 5 expansion, these platforms offer rich multi-display and I/O connectivity together with Intel vPro® manageability, supporting long-life-cycle medical deployments that require high precision and system reliability.

DFI also introduces the **SF101-PTH platform**, certified as an Intel® AI Edge System and powered by Intel Core Ultra Series 3 processors. Its heterogeneous architecture integrates CPU, built-in GPU and NPU to support real-time control, vision processing and AI inference within a single Edge AI platform. With Intel Integrated AI Acceleration and Intel Real-Time technologies such as TCC and TSN, the system achieves millisecond-level responsiveness without the need for discrete GPUs, optimizing performance per watt while reducing total cost of ownership and forming a scalable foundation for Physical AI and robotic applications.

Rather than treating Edge AI as isolated demonstrations, DFI's platform architecture is designed for reuse across multiple domains, including robotic automation, vision AI, industrial control and intelligent infrastructure. Aligned with Intel's Edge AI strategy and supported by Intel Edge AI Suites and OpenVINO™, these platforms enable system integrators to deploy and manage Edge AI workloads consistently across different form factors while maintaining lifecycle stability and deployment readiness.

Together, the rapid growth of Edge AI and the availability of next-generation Intel Core Ultra Series 3 processors are enabling a transition from experimental AI concepts to repeatable, production-grade industrial intelligence at the edge.

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