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Booth 3-547

Redefining Compact Edge AI with Intel® Core™ Ultra Processors

Written by Premio Inc. Team

As industrial edge deployments accelerate toward higher AI density, heterogeneous compute, and long lifecycle stability, Premio is redefining what compact, fanless systems can achieve. In this Short Technical Deep Dive, Colin Wu, Product Manager at Premio, introduces the **BCO-500-MTL Series**, a semi-rugged mini PC purpose-built around **Intel® Core™ Ultra processors (Series 1)** to unlock next-generation edge AI performance without compromising size, power efficiency, or industrial durability.

Where the BCO-500-MTL Series Fits in the Rugged-Edge Continuum

Within Premio's rugged-edge continuum, the BCO Series is strategically positioned at the user edge, addressing industrial environments where space, thermals, and reliability are tightly constrained. The broader BCO-500 platform spans multiple compute architectures to serve diverse workloads, but the **BCO-500-MTL Series represents the performance apex of the lineup.**

Powered by Intel Core Ultra, the BCO-500-MTL Series delivers a step-change in capability through its hybrid CPU architecture, integrated Intel® Arc™ graphics, and built-in AI acceleration via the NPU. This combination enables parallel processing of vision, inference, and control workloads directly at the edge—while preserving a compact, fanless, semi-rugged design. For customers seeking advanced AI readiness, stronger graphics throughput, and future-proof compute headroom in industrial edge deployments, the BCO-500-MTL Series sets the new benchmark.

Performance-Driven Design with Intel® Core™ Ultra Processors (Series 1)

The defining feature of the BCO-500-MTL Series is its use of Intel Core Ultra processors (Series 1). This platform represents a major architectural shift for Intel, combining:

- **CPU** for general-purpose workloads
- **GPU** for parallel processing and graphics
- **NPU (Neural Processing Unit)** for dedicated, power-efficient AI acceleration

By distributing workloads across these three engines, the system enables more efficient AI inferencing and vision processing without overloading the CPU, making it suitable for real-time edge AI applications.

This architecture is particularly impactful for customers running vision AI, multimodal models, and real-time inferencing at the edge, where power, space, and thermal constraints often limit traditional GPU-based systems.

ARM vs. x86: Covering a Broad Range of Use Cases

The BCO-500 Series as a whole is designed to span diverse industrial needs:

- [BCO-500-ADL Series](#) (12th Gen Intel® Core™ processor, x86): Balanced industrial compute for general-purpose workloads.
- [BCO-500-MTL Series](#) (Intel Core Ultra processors (Series 1), x86 + AI): High-performance compute with integrated AI acceleration for advanced edge applications.

While all models share a fanless, compact, semi-rugged design, the Intel Core Ultra processors (Series 1) uniquely enables meaningful AI performance in space- and power-constrained environments.

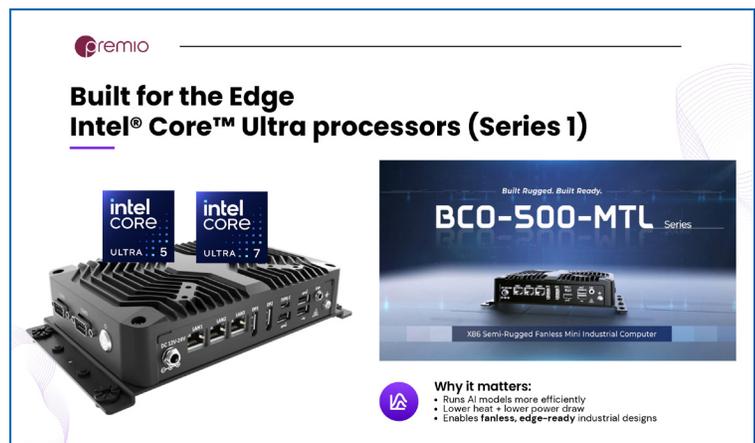
Built for Real-World Industrial AI Applications

The BCO-500-MTL Series was created to address a growing gap in the market: customers who need AI-ready edge computing but cannot accommodate large, power-hungry GPU systems.

Key target applications include:

- Machine vision and inspection
- Smart retail and kiosks
- Robotics and AMRs
- Industrial HMIs and automation
- Real-time inferencing at the edge

By integrating AI acceleration directly into the processor, the BCO-500-MTL delivers practical, deployable AI performance in harsh or space-limited industrial environments.



Key Differentiators of the BCO-500-MTL Series

What truly differentiates the BCO-500-MTL Series is its ability to enable real-time AI workloads in a compact, fanless industrial PC—something that previously required much larger and more complex systems.

By combining Intel’s Core Ultra hybrid architecture with Premio’s proven semi-rugged, fanless design, the BCO-500-MTL becomes a dependable light-AI edge computer that is easy to deploy, scale, and support long term.

Final Takeaway

The BCO-500-MTL Series represents the next evolution of edge computing—where semi-rugged industrial design meets practical AI performance. It delivers AI-ready compute, reliable fanless operation, and industrial-grade flexibility in a compact footprint tailored for the user edge.

For organizations looking to bring intelligent processing closer to where data is generated, the BCO-500-MTL Series is engineered to meet the evolving demands of modern industrial applications.

Need support with a specific compute challenge? Our technical experts are here to help you.

>> [Talk to a Technical Expert](#)

Learn more:

[Premio BCO-500-MTL - Edge AI Partner Spotlight | Intel® Industry Solution Builders](#)