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Booth 5-227

Meeting IoT and Automation Demands with Compact Edge Computing Platforms

Written by Shuttle Vertical Market Team

Edge computing deployments often operate in environments where space is limited, conditions are unpredictable, and systems are expected to run continuously with minimal maintenance. Whether deployed as an IoT gateway, automation controller, or data collection node, edge systems must balance compact form factors with reliable performance, connectivity, and durability.

Shuttle's SPCEL02 and SPCEL03 are designed with these real-world constraints in mind—providing a compact yet capable hardware foundation for distributed edge computing scenarios.

Designed for Space-Constrained Edge Environments

At just 0.45 liters in volume, the SPCEL02/03 integrates the industry's smallest x86 PICO-ITX motherboard into a robust, fanless aluminum enclosure. This ultra-compact design allows the system to be installed where traditional PCs simply cannot—inside control cabinets, kiosks, vehicles, vending machines, or industrial enclosures.

Flexible mounting options, including DIN-rail, VESA, and ear mount, further simplify deployment across diverse environments, enabling system integrators to adapt the platform to different installation requirements without redesigning hardware layouts.

Reliable Performance for Always-On Operation

Powered by Intel® Celeron® Processor J6412 and Intel Atom® X6413E Processor, SPCEL02/03 delivers stable compute performance with integrated UHD graphics suitable for multitasking, visualization, and data processing at the edge. Support for up to 32GB DDR4-3200 memory ensures smooth operation for applications such as automation control, data logging, protocol conversion, and video-based monitoring.

The fanless thermal design—combining an aluminum chassis, dedicated mechanical structure, and efficient thermal pads—supports silent, dust-resistant operation while reducing maintenance needs. For harsher environments, SPCEL03 extends reliability with wide temperature support from -20°C to 60°C.

Recessed Power Button
Prevents accidental activation
▶ Safer operation in industrial settings

High-Contrast I/O Labels
Clear visibility in any lighting
▶ Faster port identification

Rounded Edge Contouring
Safer handling in tight spaces
▶ Prevents injury during installation

DIN Rail Mounting Support
4-way flexible installation
▶ Saves space in compact setups

Connectivity and Expansion Where It Matters

Edge systems rarely operate in isolation. SPCEL02/03 provides a rich set of I/O in a compact footprint, including dual LAN (up to 2.5GbE), USB, HDMI 2.0b, digital I/O, and RS232—supporting both modern peripherals and legacy equipment commonly found in industrial and infrastructure deployments.

Dual M.2 slots further enhance flexibility. Users can configure storage and wireless connectivity based on application needs or integrate optional acceleration modules, such as AI inference cards, to support evolving workloads without replacing the core system.

Built for Harsh and Distributed Environments

Compliance with MIL-STD-810G and partial alignment with EN50155 design principles reflect SPCEL02/03's focus on durability and environmental resilience. These characteristics make the platform suitable for edge deployments in automation, transportation-related infrastructure, energy management, and outdoor or semi-outdoor installations where vibration, temperature variation, and long operating cycles are common.

SPC SERIES
MILITARY-GRADE EDGE IPC
Massive Performance · Pocket Size

A Practical Platform for Scalable Edge Deployments

Rather than maximizing raw performance, SPCEL02/03 focuses on delivering the right balance of size, stability, connectivity, and adaptability—key factors for scalable edge computing architectures. By enabling local data processing, device integration, and reliable networking in a compact form, the system supports distributed computing models that reduce infrastructure complexity while maintaining operational control.

For organizations building IoT gateways, automation nodes, or edge data collection systems, SPCEL02/03 offers a practical, durable foundation designed to perform where edge computing truly happens.

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