

Advantech's Powerful Ultra-Small 2.5"

MI/O-Ultra Pico-ITX Single-Board Computers

Ensure Easy Assembly and Convenient Integration

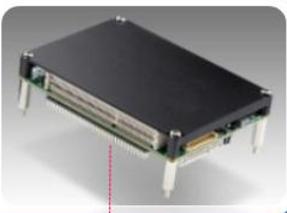
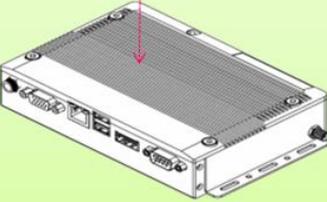
With the advent of Internet of Things (IoT) applications for industries, a greater number of embedded product applications for industrial control, medical, POS/KIOSK, home security, and transportation are required. Advantech's [2.5" MI/O-Ultra \(Pico-ITX\) single-board computers \(SBCs\)](#) are ideal for use in super slim, cableless, and rugged designs aimed at satisfying demands for rich I/O, compact size (for slim chassis applications), and intelligent software support.

Advantech's [2.5" MI/O-Ultra SBCs](#) (MIO-2000 series/MIO-3000 series) with flexible I/O are ideal for low-power applications (below 8 Watts) that require miniature x86 chipsets to satisfy demands for more price-competitive components and size-sensitive devices. Their super-slim configuration meets the extreme size requirements of slim chassis applications, thereby reducing potential design costs. These products use the [MIOe](#) unified connector extended interface, which offers greater flexibility for the PICO-ITX form factor, to ensure efficient product development and reduce time and resource costs. The [MIO-2000 series/MIO-3000 series](#) products support highly efficient embedded computing, multiple instruction sets, and video-decoding operations. Cableless I/O expansion modules and flexible connection options further enhance design-in efficiency for system integrators.

Fanless Thermal Solution with Ultra-Slim Exterior

The ultra-small form factor (100 x 72 mm) easily fulfills the compact size requirements for

slim chassis applications. The minimum height of the SBC excluding heatsink is around 9.2 mm, including heatsink is less than 26.8 mm, making it suitable for diverse applications such as intelligent home automation, industrial control, gambling, and portable medical devices.

 <p>Standard Thermal Solution Heatsink</p>	 <p>Optional Thermal Solution Heat Spreader</p>
<p>Heatsink Dimension: 99.5(L)*70.5(W)*15.7(H)mm</p> <p>Total height including CPU board + heatsink : 25.8(H)mm</p> <p><u>Fanless design</u></p> <ul style="list-style-type: none"> ➔ Longer MTBF ➔ Better reliability ➔ No noise ➔ Low maintenance effort 	<p>Heat Spreader Dimension: 99.5(L)*70.5(W)*11.2(H)mm</p> <p>Total height including CPU board + heat spreader: 21.3(H)mm</p> <p><u>Perfect for Slim Box-PC Design</u></p> 

The [MIO-2000 series/MIO-3000 series](#) of SBCs feature a concentrated thermal design, where all generated heat is restricted to the top of the device and dispersed via the heatsink or heat spreader with superior results. These products are also equipped with Advantech’s heat spreader plate to minimize the overall system size. For most system installations, ensuring that the environment remains free from dust and noise is a major concern. System fans generate unwanted noise. By contrast, embedded processors with a low thermal output offer noiseless operation, which makes such systems highly attractive. The recent popularity of noiseless systems indicates that noise is a significant consideration for customers. Fanless systems prevent extra noise and dust accumulation, resulting in greater reliability and longer Mean Time Before Failure (MTBF), reduced maintenance, and 24/7 operation.

Delivers Quad-Core Performance with Low Power Consumption

Despite their small dimensions, a number of SBCs can support quad-core processors for higher computing performance. Equipped with an Intel® Celeron® N2930 (quad-core, 2.16GHz) and AMD GX-415GA (quad-core 1.5 GHz) processor, Advantech’s [MIO-3260](#) and

[MIO-2270](#) offer superior CPU and graphics performance. Featuring Intel® Gen7 graphics architecture with support for DirectX 11, Open GL 4.0, and OpenGL 1.2, [MIO-3260](#) also possesses full HD video playback, transcoding, and encoding functionalities. MIO-3260 retains a 5Vsb/12Vsb power supply for power-exchange processing, which offers an increased throughput with reduced power consumption, and facilitates the integration of existing data without sacrifices in software compatibility. When paired with a quad-core processor, additional memory and rapid storage capabilities enhance coordinated computing by accelerating operational processes.

Reliable Connection Choice and Highly Flexible Solution

[MI/O extension](#) SBCs are equipped with unified I/O connector coastlines, Mini-PCIe slots, and internal I/O connectors. These SBCs can be paired with a simple carrier board featuring specific I/O ports that eliminate cabling, or employed standalone with flexible cabling using the correct connector type. The structural uniformity not only eliminates potential integration problems during future upgrades, but also combines [MI/O](#) and COM features to cost-effectively satisfy board-to-board demands and extend I/O flexibility using cables. Advantech's [MIO-3260](#) provides a flexible, modularized design solution with the inclusion of

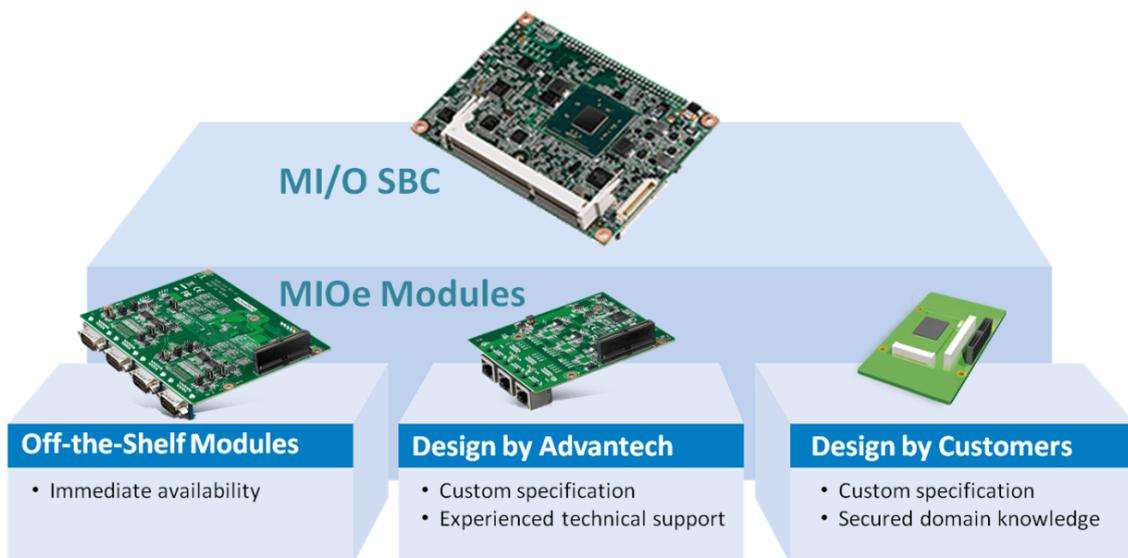


internal connectors. This not only enables system integrators to use a carrier board to support the necessary I/O interfaces via two 64-pin expansion connectors, but also allows for cableless operation, delivering diverse I/O interface options, simplifying internal wiring, and reducing production costs resulting from manual installation and materials.

Customers can design a carrier board or I/O module for expanding specific I/O or extending I/O functions to satisfy various vertical market demands. The board-to-board solution not only ensures a fully cableless and ultra-slim system, but also preserves customers' core domain knowledge should they wish to support other functions using MIOe connectors. With no cabling, [MIO-3260](#) still delivers multiple I/O interfaces, including two COM, one SATA, four USB 2.0, GPIO, SMBus, I2C, and MIOe expansion interfaces.

Achieving More Using Less

[Advantech's MI/O extension module](#) supports many embedded SBCs and provides customers with diverse I/O to facilitate various applications and convenient expansion. The co-development working model, known as "MIOe co-development support", complies with Advantech's project development procedures. If customers choose a self-development model, Advantech will assist in conducting process reviews with several checkpoints. System integrators can extend [MI/O](#) SBC functionality by implementing [MIOe](#) modules with a unified [MIOe](#) connector. Advantech provides a range of application modules that enable system integrators to design unique applications using the [MI/O extension](#) module design guide provided on [Advantech MI/O Extension website](#). This board-to-board solution not only reduces assembly, complexity, and labor costs but also preserves the customers' core know-how if they want to support some other functions via MIOe connectors.



Great Test Quality and Rugged Solution

[Advantech's MI/O-Ultra Pico-ITX SBCs](#) undergo stringent testing to verify that the system's ruggedness and wide operating temperature range (-40 ~ 85 °C) comply with the MIL-STD-202G military standard. Adherence to precise material specifications (i.e., TG-150 PCB) ensures consistent product quality, and the inclusion of a transient voltage suppressor for electrostatic discharge ensures 15KV air gap protection for the COM port transceiver, 8KV contact protection for RS-232 pins, and electrical fast transient power protection. Advantech's high test standards yield optimized products that deliver reliable operation and a 7-year lifecycle.

Enabling Intelligent and Embedded Systems with WISE-PaaS/RMM



All [Advantech 2.5" MI/O-Ultra \(Pico-ITX\) SBCs](#) are equipped with WISE-PaaS/RMM software for improved cloud computing performance. WISE-PaaS/RMM enables real-time remote monitoring and proactive alarm notifications that ensure continued system health, while integrated Remote KVM and Intel® AMT functionalities facilitate remote system diagnosis and recovery. With the provision of remote device control, embedded security, and system backup and recovery capabilities that can reduce troubleshooting time by 70% and save up to 50% in maintenance costs, Advantech's WISE-PaaS/RMM remote management software has revolutionized device management. Furthermore, WISE-PaaS/RMM is supported by other powerful utilities such as System Recovery (powered by [Acronis](#)), System Protection (powered by [McAfee](#)), and Remote KVM for enhanced system protection and failure recovery.

Advantech has contributed to the development of embedded systems for many years through not only the successful production of ultra-small and compact PCBs, but also by increasing [MI/O extension](#) applications. Reliable connection options and flexible cable solutions simplify product assembly and satisfy market demands for price-competitive and size-sensitive devices. Under wide-temperature test requirement, the product family has supreme quality of life cycle and stability. Advantech's [2.5" MI/O Ultra Pico-ITX SBCs](#) are ideal for embedded applications aimed at facilitating the development of diverse merchandise, cost-saving solutions, and potential business opportunities.