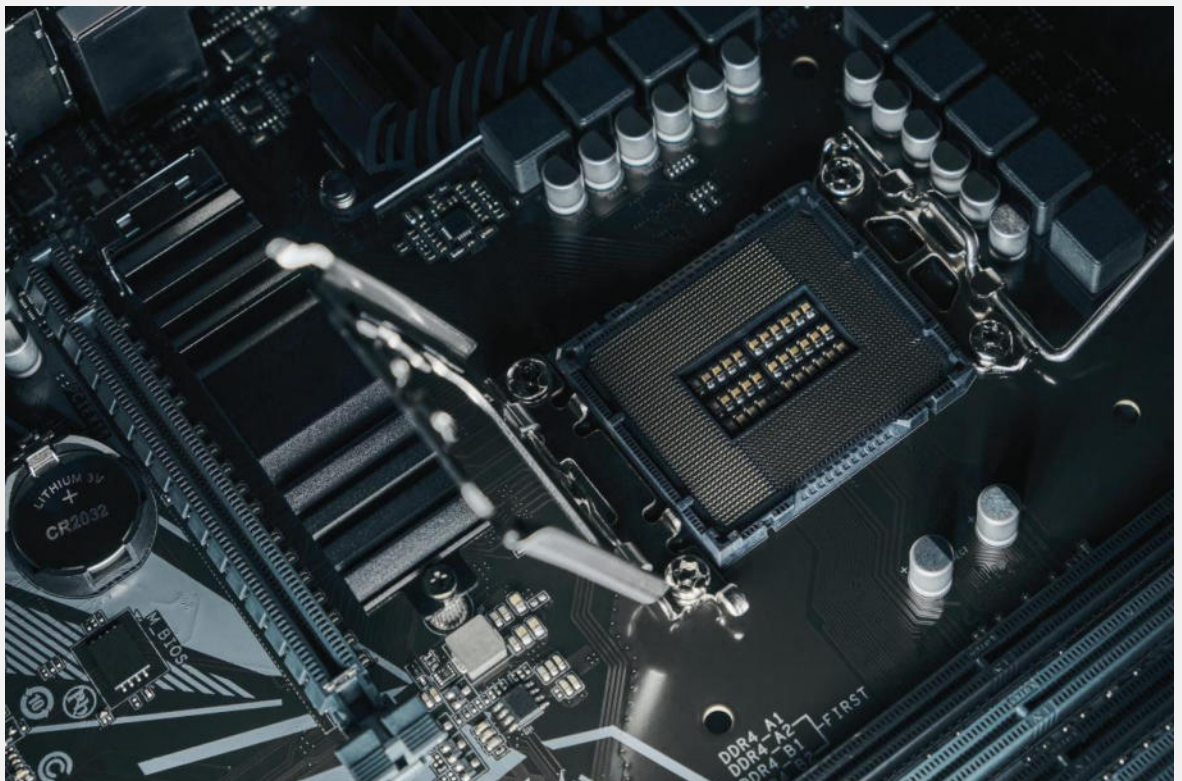


# Small but Powerful – What Are the Benefits of Mini-ITX and Micro-ATX Motherboards?

Industrial PC motherboards are working hard across the world, giving human teams and automated systems the computer processing power they need to achieve great results time and time again. But these motherboards are not uniform — there are different types of board, each with its own advantages and disadvantages.

Read on to learn more about the industrial Mini-ITX motherboard and the Micro-ATX motherboard, and discover which one is the best option for your needs.



# The Difference Between ITX and ATX Motherboards

Before we get into the relative benefits of these industrial PC motherboard components, we first need to define what we are working with.

- An ATX — or Advanced Technology eXtended — motherboard is essentially the standard format for typical desktop computers and has been since the middle of the 1990s. Due to the huge number of and huge demand for desktop computers over the last three decades, the [ATX component](#) is one of the most common motherboard types on the market.
- An ITX — or Information Technology eXtended — motherboard is designed for more specialized applications. It is typically more compact than the ATX component and is built to achieve energy efficiency within its system. It will generally have fewer inputs and outputs than an ATX motherboard and may not provide the same levels of versatility.

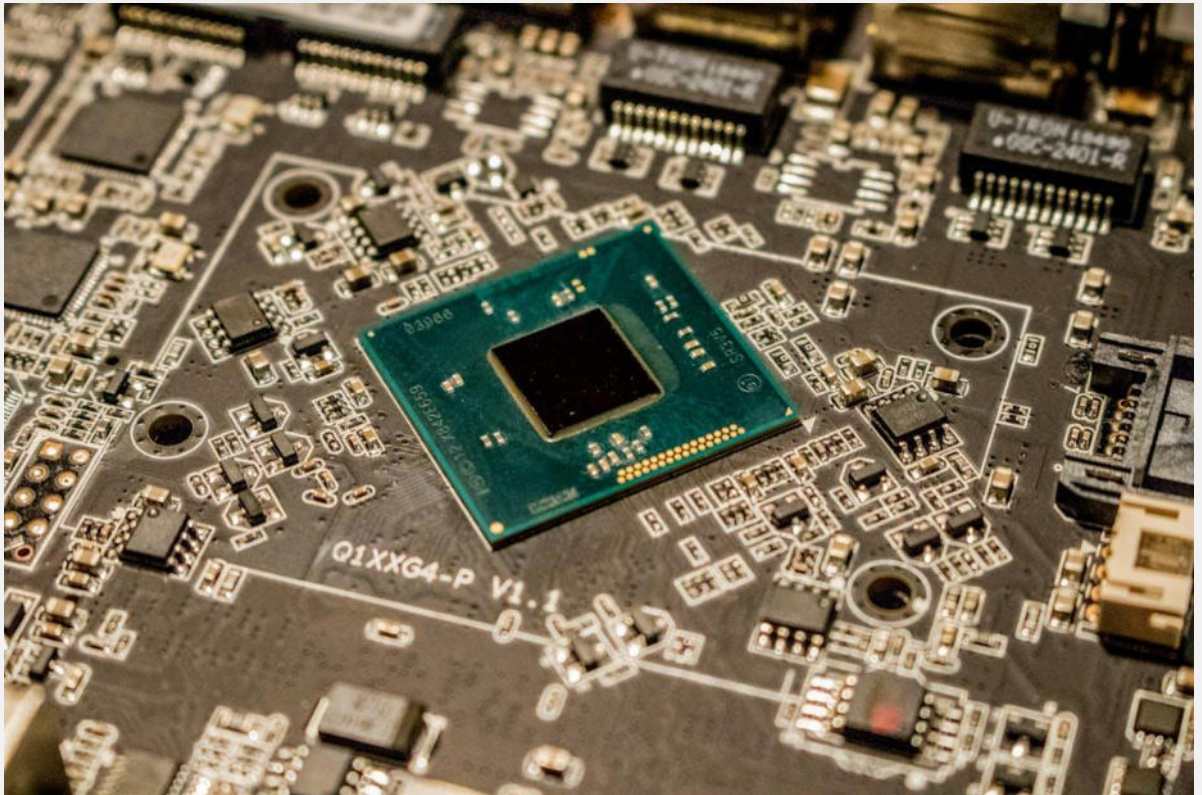
There is sometimes a bit of confusion regarding Mini-ITX and Micro-ATX motherboards. "Mini" is generally short for miniature, just meaning a smaller version of something. "Micro," as in "microliter," denotes something one-millionth the size of the standard unit.

This would suggest that Micro-ATX components are smaller than Mini-ITX motherboards, but this is not the case. In both instances, these products are just smaller versions of the normal ITX or ATX boards. ATX boards come in a standard size, while ITX boards are already smaller than this standard, so Mini-ITX is usually smaller than Micro-ATX.

For example:

- The [ERX-W480P Micro-ATX motherboard](#) measures 9.6" x 9.6" (243.84mm x 243.84mm).
- The [EAX-R680FP ATX motherboard](#) measures 12" x 9.6" (304.8mm x 243.84mm).
- The [EMX-ASLP Mini-ITX motherboard](#) measures 6.7" x 6.7" (170mm x 170mm).
- Other boards are even smaller — the [EPX-ASLP Pico-ITX motherboard](#) measures 3.94" x 2.83" (100mm x 72mm).

# Exploring the Advantages



If we're asking which is better of the two options, there's not really a right or a wrong answer. However, there will be times when a Mini-ITX is a better option than a Micro-ATX, or vice versa.

Below, we'll explore some of the relative advantages of each option.

## **The Benefits of an Industrial Mini-ITX Motherboard**

Let's take a closer look at why you might choose an industrial Mini-ITX motherboard for your facility's computing system:

- The Mini-ITX is generally smaller.

The overall dimensions of the Mini-ITX are smaller than those of the Micro-ATX. This makes the component a good option for applications where space is at a premium — a common consideration in an industrial environment.

- It is designed specifically for embedding into broader systems.

The Mini-ITX is not a general-use component like the ATX. Instead, it is designed and marketed with embedding in mind, which may make it easier to install the component into a wider system.

- The Mini-ITX will typically feature higher-quality components and a more innovative design.

Due to the challenges of creating a self-contained embedded motherboard designed for use in small spaces, developers and designers have had to innovate. The best industrial motherboard manufacturers use extremely high-quality components and a cutting-edge design to reduce the risk of overheating and to maintain high levels of performance.

- It is well-suited to specialized industrial processes in a cost-efficient way.

You might not need an industrial PC motherboard that offers the same flexibility and versatility as your desktop PC. Instead, you might have a very specific set of processes in mind. The Mini-ITX is ideal for this, as there is no wastage or redundant functionality, and the overall build is likely to be cheaper.

- Power consumption is generally low.

Because of the size, configuration, and design of the Mini-ITX, power consumption is generally lower and energy efficiency is much higher.

## **The Benefits of an Industrial Micro-ATX Motherboard**

To compare, let's examine the advantages of a Micro-ATX motherboard:

- The ATX format is more standardized.

As mentioned above, the ATX board has been the main format for decades. While Micro-ATX components are smaller, they may still be easier to install due to more familiarity with the ATX format.

- Micro-ATX is easier to scale and expand.

Micro-ATX boards are not designed to be self-contained entities like the Mini-ITX. Instead, they are built with broader compatibility in mind, which makes it easier to scale up your industrial PC when required.  
this.

- It is compatible with external solutions.

When you use the Micro-ATX, you will find more connectivity ports than on the Mini-ITX component. This means you can attach cooling systems and external memory, as well as other solutions that make your industrial PC easier to run.

- The Micro-ATX may be easier to maintain.

The more standard ATX format may make it easier to maintain or repair the Micro-ATX motherboard, simply because technicians and suppliers are more familiar with the technology.

- It is well-suited to more versatile systems.

Not all industrial PC motherboards need to be so highly focused on a specialized task. Versatility and capability may also be important, and the Micro-ATX can provide this.

## Exploring the Advantages

The best industrial motherboard manufacturers offer a diverse set of products to their customers, covering both [Mini-ITX](#), [Thin Mini-ITX](#) and [Micro-ATX](#), as well as more standard [ATX](#) and smaller [Pico-ITX](#) components. But this can make the selection process difficult.

# Related Products



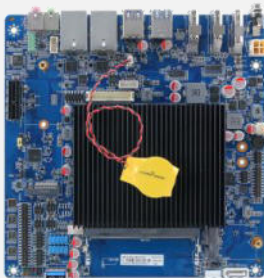
## [Avalue ERX-W480P](#)

10th Gen. Intel® Core™ i9/i7/i5/i3 / Xeon® W-1200 series Processor, Micro ATX Motherboard With Intel® W480E Chipset



## [Avalue EAX-R680FP](#)

12/13/14th Gen Intel® Core™ i9/i7/i5/i3 Processors, supports LGA1700 CPU Up to 125W Max



## [Avalue EMX-ASLP](#)

Onboard Intel® Processor N97, and Intel® Core™ i3-N305 Processor, Intel Atom® x7000RE series processors, Thin Mini ITX Motherboard



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- Dual Intel® Gigabit Ethernet, 2.5GbE
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- DC in +12V